

Estimating Background Threshold Values for Risk Assessment

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SUPPLEMENTAL INFORMATION

FIGURE S1 Selected Statistical Formulas utilized in ProUCL

BTV Estimation Tables and ProUCL Output Files – Conterminous United States

ProUCL Output Files – San Antonio Area

ProUCL Output Files – Dallas-Fort Worth Area

ProUCL Output Files – Wisconsin (2012 Dataset)

Data Treatment Summary – Non-detect Samples (2013 Dataset)

Mean ($\bar{x}$):

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

Standard Deviation (σ):

$$\sigma = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n - 1}}$$

Median (M):

$$M = \frac{x(\frac{n+1}{2})}{2}$$

Odd occurrences

$$M = \frac{x(\frac{n}{2}) + x(\frac{n}{2} + 1)}{2}$$

Even occurrences

Relative Percent Difference (RPD):

$$|RPD| = \frac{(\bar{x} - M)}{\left[\frac{\bar{x} + M}{2}\right]} \cdot 100$$

Coefficient of Variance (CV):

$$CV = \frac{\sigma}{\bar{x}}$$

Upper Simultaneous Limit (USL):

$$95\% \text{ USL} = \bar{x} + d_{2\alpha}^b \cdot \sigma_x$$

Upper Prediction Limit (UPL):

$$95\% \text{ UPL} = \bar{x} + [t \cdot \sigma \cdot \sqrt{1 + \frac{1}{n}}]$$

Upper Tolerance Limit (UTL):

$$95\% \text{ UTL} = \bar{x} + (k \cdot \sigma)$$

Notes: k = tolerance factor based on sample size and population coverage, t = t-value (test statistic) based on number of samples (degrees of freedom) and probability desired. Here, $d_{2\alpha}^b$ represents the critical value (obtained using the Bonferroni inequality) of the maximum Mahalanobis distance (Max MD) for α level of significance. More detail on individual statistical formulas applied for a given population can be found in EPA's ProUCL Version 5.2 Technical Guide (June 2022).

FIGURE S1 Selected Statistical Formulas utilized in ProUCL (US EPA, 2022)

BTv Estimation Tables and ProUCL Output Files – Conterminous United States

BTV Evaluation -Full Conterminous United States

Alabama											
	Arsenic					Lead					
Censoring	None	<24	<18	<14	<12	None	<58	<40	<34		
n	255	254	252	250	247	255	254	253	249		
Min	0.3	0.3	0.3	0.3	0.3	2.9	2.9	2.9	2.9		
Max	29.6	23.9	17.4	13.5	11.5	62.9	57.6	39.4	33.6		
Mean	4.39	4.29	4.14	4.05	3.94	14.50	14.31	14.14	13.75		
Median	3.30	3.25	3.20	3.20	3.20	12.90	12.90	12.90	12.9		
RPD	28.33	27.56	25.61	23.35	20.65	11.68	10.36	9.17	6.379		
std d	3.685	3.334	2.888	2.699	2.524	7.950	7.359	6.848	6.155		
CV	0.840	0.777	0.698	0.667	0.641	0.548	0.514	0.484	0.4476		
R	0.800	0.902	0.942	0.953	0.960	0.914	0.938	0.958	0.974		
BTV Estimators											
95%UPL	10.48	9.80	8.92	8.51	8.11	27.65	26.48	25.47	23.93		
95%UTL	11.07	10.33	9.38	8.94	8.52	28.91	27.65	26.56	24.92		
95%USL	17.31	15.97	14.25	13.49	12.76	43.37	40.10	38.13	35.28		

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Arkansas											
	Arsenic					Lead					
Censoring	None	<41	<24	<16		None	<70	<48	<38		
n	261	260	258	251		261	259	255	252		
Min	1.2	1.2	1.2	1.2		4.1	4.1	4.1	4.1		
Max	288	40.2	23.2	15.8		106	69.3	47.5	37.7		
Mean	7.72	6.64	6.43	6.09		19.32	18.66	17.98	17.64		
Median	5.70	5.70	5.70	5.50		17.40	17.40	17.20	17.1		
RPD	30.13	15.29	12.01	10.21		10.46	6.99	4.43	3.11		
std d	18.000	4.540	3.802	3.244		11.570	8.766	6.888	6.176		
CV	2.331	0.683	0.591	0.533		0.599	0.470	0.383	0.3501		
R	0.390	0.893	0.952	0.972		0.806	0.903	0.971	0.991		
BTV Estimators											
95%UPL	37.48	14.15	12.72	11.46		38.46	33.16	29.38	27.86		
95%UTL	40.30	14.87	13.32	11.98		40.27	34.53	30.47	28.84		
95%USL	70.92	22.58	19.77	17.45		59.95	49.42	42.13	39.27		

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Arizona											
	Arsenic					Lead					
Censoring	None	<33	<27	<20		None	<93	<50	<40		
n	530	529	525	518		530	526	517	509		
Min	1.1	1.1	1.1	1.1		3.6	3.6	3.6	3.6		
Max	46.8	32	26.5	19.5		161	92.1	49.1	39.9		
Mean	6.14	6.06	5.87	5.64		21.14	20.36	19.57	19.18		
Median	5.30	5.30	5.20	5.20		18.70	18.60	18.40	18.2		
RPD	14.62	13.36	12.16	8.08		12.25	9.03	6.16	5.24		
std d	4.550	4.196	3.626	3.021		13.540	10.020	7.932	7.336		
CV	0.742	0.693	0.617	0.536		0.640	0.492	0.405	0.3825		
R	0.834	0.863	0.903	0.947		0.808	0.921	0.983	0.990		
BTV Estimators											
95%UPL	13.64	12.98	11.85	10.62		43.48	36.89	32.66	31.28		
95%UTL	14.14	13.44	12.25	10.96		44.96	37.99	33.54	32.10		
95%USL	23.02	21.63	19.32	16.83		71.40	57.53	48.96	46.32		

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

California												
	Arsenic						Lead					
Censoring	None	<60	<30	<24	<22	<20	None	<100	<65	<40	<35	
n	773	771	769	766	762	755	773	770	767	759	748	
Min	0.3	0.3	0.3	0.3	0.3	0.3	1.6	1.6	1.6	1.6	1.6	
Max	217	59.6	28.5	32.6	21.4	19.1	263	93.2	64.3	39	34.6	
Mean	6.60	6.12	6.00	5.91	5.82	5.68	18.30	17.53	17.26	16.93	16.63	
Median	5.00	4.90	4.90	4.90	4.90	4.80	16.10	16.10	16.10	16	15.9	
RPD	27.60	22.16	20.12	18.70	17.18	16.86	12.79	8.50	6.95	5.65	4.49	
std d	10.700	4.905	4.244	4.027	3.893	3.582	15.220	8.621	7.489	6.719	6.316	
CV	1.621	0.801	0.708	0.681	0.669	0.630	0.832	0.492	0.434	0.3969	0.3798	
R	0.524	0.866	0.930	0.942	0.950	0.961	0.646	0.905	0.962	0.985	0.990	
BTV Estimators												
95%UPL	24.23	14.20	12.99	12.55	12.15	11.59	43.39	31.74	29.60	28.00	27.04	
95%UTL	25.20	14.65	13.38	12.91	12.50	11.92	44.77	32.52	30.29	28.61	27.63	
95%USL	47.37	24.81	22.16	21.25	20.44	19.31	76.32	50.37	45.79	42.50	40.65	

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Colorado												
	Arsenic						Lead					
Censoring	None	<22	<16	<14			None	<275	<100	<70	<50	<45
n	493	491	485	479			493	488	481	477	471	466
Min	0.3	0.3	0.3	0.3			8.9	8.9	8.9	8.9	8.9	8.9
Max	25.5	21.8	15.9	13.4			1610	274	99.2	69.3	49.4	44.6
Mean	5.17	5.09	4.92	4.78			36.78	26.28	24.23	23.71	23.27	23.01
Median	4.40	4.40	4.40	4.40			22.20	22.20	22.20	22.1	22	22
RPD	16.07	14.48	11.08	8.36			49.44	16.83	8.74	7.03	5.61	4.49
std d	3.359	3.110	2.714	2.457			116.0	20.600	9.710	7.873	6.843	6.408
CV	0.650	0.611	0.552	0.514			3.154	0.784	0.401	0.3321	0.2941	0.2785
R	0.907	0.929	0.959	0.976			0.349	0.636	0.869	0.939	0.971	0.980
BTV Estimators												
95%UPL	10.71	10.22	9.39	8.84			228.10	60.27	40.24	36.69	34.56	33.58
95%UTL	11.09	10.57	9.70	9.12			241.20	62.62	41.36	37.60	35.35	34.33
95%USL	17.57	16.56	14.92	13.84			464.80	102.30	60.00	52.70	48.44	46.57

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Connecticut												
	Arsenic						Lead					
Censoring	None						None	<90	<69			
n	25						25	24	20			
Min	1.3						12.1	12.1	12.1			
Max	5.4						292	88.8	68.8			
Mean	3.15						51.60	41.58	32.79			
Median	3.20						32.20	31.40	29.00			
RPD	-1.64						46.30	27.90	12.27			
std d	1.292						56.290	26.250	18.480			
CV	0.410						1.091	0.631	0.564			
R	0.981						0.764	0.945	0.946			
BTV Estimators												
95%UPL	5.40						149.80	87.50	65.53			
95%UTL	6.11						180.60	102.20	77.07			
95%USL	6.59						201.50	111.00	80.03			

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Delaware											
	Arsenic	+1	adds sample MD-2548				Lead	+1	adds sample MD-2548		
Censoring	None	None					None	None			
n	6	9					6	9			
Min	1.3	1.3					9.7	8.8			
Max	5	5					22.6	22.6			
Mean	2.88	3.03					16.47	15.74			
Median	2.20	2.36					15.30	15.70			
RPD	26.87	24.83					7.37	0.25			
std d	1.638	1.377					5.006	4.759			
CV	0.568	0.455					0.304	0.302			
R	0.912	0.960					0.961	0.978			
BTV Estimators											
95%UPL	6.45	5.73					27.36	25.07			
95%UTL	8.95	7.20					35.03	30.17			
95%USL	5.87	5.93					25.59	25.78			

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Florida												
Arsenic (Detections Only)						Lead						
Censoring		Not Evaluated (>15% ND)				None	<23	<15	<10			
n	132					267	265	253	237			
Min	0.6					0.25	0.25	0.25	0.25			
Max	8.4					29	22.6	14.9	9.8			
Mean	1.96					5.04	4.87	4.22	3.642			
Median	1.40					3.30	3.30	3.10	2.9			
RPD	33.08					41.80	38.49	30.53	22.68			
std d	1.545					4.850	4.446	3.296	2.494			
CV	0.790					0.962	0.912	0.782	0.6848			
R	0.887					0.886	0.902	0.938	0.955			
BTV Estimators												
95%UPL	4.87					13.06	12.22	9.67	7.77			
95%UTL	4.52					13.81	12.92	10.19	8.18			
95%USL	7.06					22.11	20.51	15.76	12.33			

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Georgia												
	Arsenic						Lead					
Censoring	None	<27	<19	<10			None	<66	<46	<40		
n	280	279	277	272			280	278	276	271		
Min	0.3	0.3	0.3	0.3			0.9	0.9	0.9	0.9		
Max	71.3	26.7	18.2	9.8			204	65	45.5	39.2		
Mean	3.15	2.90	2.74	2.54			15.72	14.69	14.37	13.84		
Median	1.80	1.80	1.80	1.80			12.05	11.95	11.90	11.7		
RPD	54.49	46.94	41.48	34.02			26.43	20.57	18.80	16.76		
std d	5.196	3.214	2.594	2.104			16.350	10.220	9.520	8.76		
CV	1.651	1.107	0.946	0.829			1.040	0.696	0.662	0.6329		
R	0.619	0.808	0.872	0.910			0.739	0.940	0.952	0.958		
BTV Estimators												
95%UPL	11.74	8.22	7.03	6.02			42.75	31.59	30.11	28.32		
95%UTL	12.52	8.70	7.43	6.34			45.22	33.14	31.56	29.67		
95%USL	21.50	14.25	11.90	9.95			73.47	50.78	47.96	44.70		

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Iowa												
	Arsenic						Lead					
Censoring	None	<14					None	<44	<35			
n	273	270					273	270	264			
Min	1.4	1.4					7.6	7.6	7.6			
Max	28.9	13.8					53.9	43.3	33.7			
Mean	7.94	7.80					20.55	20.24	19.84			
Median	7.90	7.85					19.60	19.60	19.50			
RPD	0.47	-0.64					4.73	3.21	1.73			
std d	2.725	2.315					6.094	5.311	4.661			
CV	0.343	0.297					0.297	0.262	0.235			
R	0.946	0.997					0.943	0.977	0.993			
BTV Estimators												
95%UPL	12.44	11.63					30.63	29.02	27.55			
95%UTL	12.86	11.98					31.56	29.84	28.28			
95%USL	17.54	15.95					42.03	38.94	36.23			

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Idaho												
	Arsenic						Lead					
Censoring	None	<25	<17	<13			None	<201	<100	<48	<38	
n	395	393	390	380			395	394	386	385	381	
Min	0.8	0.8	0.8	0.8			5.5	5.5	5.5	5.5	5.5	
Max	41.7	24.7	16.7	12.9			541	200	90.9	47.4	36.3	
Mean	5.51	5.33	5.22	4.96			22.23	20.91	18.37	18.18	17.93	
Median	4.80	4.80	4.75	4.70			17.90	17.90	17.90	17.9	17.8	
RPD	13.77	10.48	9.41	5.28			21.58	15.51	2.59	1.55	0.73	
std d	4.045	3.171	2.900	2.422			32.660	19.560	7.085	6.049	5.535	
CV	0.734	0.595	0.556	0.489			1.469	0.935	0.386	0.3327	0.3087	
R	0.826	0.925	0.946	0.974			0.474	0.611	0.894	0.971	0.986	
BTV Estimators												
95%UPL	12.19	10.57	10.01	8.95			76.14	53.20	30.07	28.17	27.07	
95%UTL	12.70	10.97	10.38	9.27			80.29	55.69	30.98	28.95	27.79	
95%USL	20.20	16.84	15.74	13.72			140.80	91.92	44.05	40.10	37.97	

All concentrations in mg/kg

BTV Evaluation -Full Conterminous United States

Illinois												
	Arsenic						Lead					
Censoring	None	<18	<14	<11			None	<76	<44	<35		
n	264	263	257	243			264	263	253	244		
Min	1.3	1.3	1.3	1.3			6.3	6.3	6.3	6.3		
Max	21.6	17.8	13.5	10.9			103	75.9	43.5	34.6		
Mean	7.58	7.53	7.31	7.03			23.19	22.89	21.72	21.07		
Median	7.20	7.20	7.10	7.00			21.00	21.00	20.70	20.4		
RPD	5.14	4.44	2.85	0.40			9.91	8.61	4.81	3.23		
std d	2.751	2.616	2.196	1.911			9.908	8.611	6.168	5.245		
CV	0.363	0.348	0.301	0.272			0.427	0.376	0.284	0.2489		
R	0.955	0.968	0.996	0.996			0.862	0.915	0.982	0.996		
BTV Estimators												
95%UPL	12.13	11.85	10.94	10.19			39.58	37.13	31.92	29.75		
95%UTL	12.56	12.26	11.28	10.50			41.12	38.47	32.90	30.60		
95%USL	17.25	16.72	15.01	13.70			58.02	53.15	43.32	39.39		

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Indiana												
	Arsenic						Lead					
Censoring	None	<22	<14	<11			None	<260	<55	<30		
n	168	166	163	152			168	167	162	156		
Min	1.3	1.3	1.3	1.3			2.4	2.4	2.4	2.4		
Max	110	21.2	13.8	10.9			423	259	54.3	29.9		
Mean	8.55	7.43	7.19	6.84			24.93	22.55	19.73	18.88		
Median	7.45	7.40	7.40	7.20			20.00	19.90	19.80	19.35		
RPD	13.80	0.34	-2.85	-5.10			21.95	12.49	-0.35	-2.46		
std d	10.820	3.159	2.671	2.400			37.690	21.660	7.170	5.629		
CV	1.265	0.425	0.371	0.351			1.512	0.961	0.363	0.2981		
R	0.533	0.964	0.992	0.980			0.495	0.599	0.962	0.994		
BTV Estimators												
95%UPL	26.50	12.67	11.62	10.83			87.46	58.48	31.62	28.22		
95%UTL	28.61	13.29	12.16	11.32			94.83	62.72	33.05	29.37		
95%USL	45.10	18.09	16.19	14.87			152.30	95.67	43.87	37.77		

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Kansas												
	Arsenic						Lead					
Censoring	None	<20	<12				None	<91	<49	<40		
n	386	385	367				386	384	379	372		
Min	0.9	0.9	0.9				3.9	3.9	3.9	3.9		
Max	46.2	20.1	11.6				494	90.6	48.8	39.9		
Mean	6.79	6.69	6.31				24.95	22.62	21.98	21.55		
Median	6.40	6.40	6.20				21.00	21.00	21.00	20.9		
RPD	5.97	4.46	1.68				17.19	7.43	4.56	3.06		
std d	3.409	2.756	2.131				33.450	8.540	6.302	5.496		
CV	0.502	0.412	0.338				1.341	0.378	0.287	0.255		
R	0.859	0.969	0.998				0.407	0.862	0.962	0.984		
BTV Estimators												
95%UPL	12.42	11.24	9.82				80.17	36.72	32.38	30.62		
95%UTL	12.86	11.60	10.11				84.47	37.82	33.20	31.34		
95%USL	19.15	16.68	14.00				146.20	53.56	44.78	41.41		

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Kentucky												
	Arsenic						Lead					
Censoring	None	<39	<25	<20			None	<112	<77	<48	<40	
n	192	191	186	184			192	191	185	179	171	
Min	2.4	2.4	2.4	2.4			7.3	7.3	7.3	7.3	7.3	
Max	90.4	38.4	24.2	19.9			332	111	76.5	47.7	39.8	
Mean	8.98	8.55	7.88	7.71			26.99	25.39	23.22	21.97	20.95	
Median	7.40	7.40	7.20	7.10			21.10	21.10	20.90	20.8	20.1	
RPD	19.25	14.42	8.99	8.21			24.50	18.46	10.52	5.47	4.14	
std d	8.087	5.538	3.717	3.351			27.260	15.960	10.440	7.814	6.354	
CV	0.901	0.648	0.472	0.435			1.010	0.629	0.450	0.3557	0.3033	
R	0.695	0.834	0.925	0.944			0.624	0.821	0.904	0.958	0.981	
BTV Estimators												
95%UPL	22.38	17.73	14.04	13.26			72.16	51.85	40.53	34.93	31.49	
95%UTL	23.86	18.74	14.73	13.89			77.15	54.77	42.48	36.41	32.72	
95%USL	36.63	27.48	20.55	19.12			120.20	79.96	58.82	48.52	42.45	

All concentrations in mg/kg

BTV Evaluation -Full Conterminous United States

Louisiana												
	Arsenic						Lead					
Censoring	None	<40	<20	<15			None	<50	<40	<35		
n	225	224	222	219			225	223	218	211		
Min	0.8	0.8	0.8	0.8			4.4	4.4	4.4	4.4		
Max	42	38.2	19.1	14.5			90.8	47.2	38	34.1		
Mean	6.29	6.13	5.87	5.70			18.85	18.26	17.66	17.04		
Median	5.30	5.30	5.30	5.30			17.30	17.20	16.90	16.4		
RPD	17.05	14.51	10.12	7.22			8.58	5.98	4.40	3.83		
std d	4.990	4.390	3.398	3.097			10.070	7.844	6.845	6.026		
CV	0.794	0.716	0.579	0.544			0.534	0.430	0.388	0.3536		
R	0.833	0.874	0.966	0.978			0.871	0.959	0.978	0.990		
BTV Estimators												
95%UPL	14.55	13.40	11.49	10.82			35.53	31.24	28.99	27.02		
95%UTL	15.39	14.14	12.07	11.35			37.23	32.57	30.16	28.07		
95%USL	23.59	21.35	17.64	16.41			53.79	45.44	41.33	37.82		

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Massachusetts												
	Arsenic						Lead					
Censoring	None	<14	<9.4	<7			None	<93	<65	<45		
n	42	41	36	32			42	37	32	26		
Min	0.8	0.8	0.8	0.8			8.2	8.2	8.2	8.2		
Max	16.2	13.9	9.3	6.9			327	92.2	64.9	44.3		
Mean	5.29	5.02	4.05	3.54			58.14	39.00	32.53	26.03		
Median	4.00	4.00	3.75	3.55			34.15	32.70	28.40	26.45		
RPD	27.77	22.70	7.77	-0.34			51.99	17.57	13.56	-1.60		
std d	3.717	3.333	2.140	1.620			82.600	22.360	15.890	8.629		
CV	0.703	0.663	0.528	0.458			1.421	0.573	0.488	0.3315		
R	0.937	0.946	0.978	0.986			0.624	0.821	0.953	0.990		
BTV Estimators												
95%UPL	11.62	10.71	7.72	6.33			164.70	77.25	59.89	41.05		
95%UTL	13.11	12.06	8.65	7.08			189.80	86.85	67.26	45.66		
95%USL	16.02	14.62	10.10	8.03			238.90	102.40	76.59	49.16		

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Maryland												
	Arsenic						Lead					
Censoring	None	<16	<10	<9			None	<106	<68	<41		
n	52	51	44	38			52	49	48	41		
Min	0.8	0.8	0.8	0.8			4.7	4.7	4.7	4.7		
Max	29.3	15.7	9.8	8.9			164	105	67.6	40.5		
Mean	6.76	6.32	5.24	4.58			32.53	25.73	24.08	19.43		
Median	5.55	5.50	5.10	4.70			21.10	21.00	20.90	18.1		
RPD	19.66	13.84	2.69	-2.61			42.63	20.24	14.14	7.09		
std d	4.855	3.699	2.557	2.074			33.260	18.220	14.240	8.562		
CV	0.718	0.585	0.488	0.453			1.022	0.708	0.591	0.4407		
R	0.900	0.970	0.984	0.993			0.808	0.892	0.947	0.985		
BTV Estimators												
95%UPL	14.97	12.58	9.59	8.12			88.79	56.60	48.21	34.03		
95%UTL	16.71	13.92	10.58	9.00			100.70	63.33	53.52	37.50		
95%USL	21.19	17.29	12.67	10.48			131.40	79.47	65.94	44.07		

All concentrations in mg/kg

BTV Evaluation -Full Conterminous United States

Maine												
	Arsenic						Lead					
Censoring	None	<31	<20	<15			None	<100	<72	<48	<40	
n	150	148	143	136			150	147	143	135	132	
Min	1.1	1.1	1.1	1.1			4.7	4.7	4.7	4.7	4.7	
Max	39.4	30.2	19.7	14.9			364	99.2	71.8	47.4	38.5	
Mean	8.96	8.57	8.01	7.53			31.15	26.30	24.57	22.5	22.01	
Median	8.00	7.95	7.70	7.60			22.35	22.20	21.90	21.7	21.45	
RPD	11.28	7.46	3.96	-0.93			32.90	16.91	11.49	3.62	2.58	
std d	6.062	5.073	4.131	3.612			38.480	15.170	11.170	7.058	6.316	
CV	0.677	0.592	0.516	0.480			1.235	0.577	0.455	0.3137	0.287	
R	0.916	0.960	0.988	0.987			0.607	0.844	0.896	0.978	0.989	
BTV Estimators												
95%UPL	19.02	16.99	14.87	13.53			95.04	51.49	43.14	34.23	32.51	
95%UTL	20.28	18.05	15.75	14.32			103.00	54.66	45.51	35.77	33.90	
95%USL	29.22	25.50	21.76	19.49			159.80	76.90	61.76	45.85	42.86	

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Michigan												
	Arsenic						Lead					
Censoring	None	<16	<14	<11			None	<42	<36	<30		
n	285	284	283	276			285	283	281	276		
Min	0.3	0.3	0.3	0.3			4.7	4.7	4.7	4.7		
Max	25.5	15.7	13.2	10.7			59.5	41.6	35.6	29.6		
Mean	3.61	3.54	3.49	3.28			13.86	13.54	13.35	13		
Median	2.80	2.80	2.80	2.70			12.50	12.50	12.50	12.4		
RPD	25.33	23.20	22.00	19.25			10.32	7.99	6.58	4.72		
std d	3.021	2.731	2.638	2.285			7.539	6.578	6.175	5.637		
CV	0.836	0.773	0.755	0.698			0.544	0.486	0.463	0.4336		
R	0.886	0.920	0.925	0.940			0.916	0.957	0.968	0.978		
BTV Estimators												
95%UPL	8.61	8.05	7.85	7.05			26.32	24.42	23.56	22.32		
95%UTL	9.06	8.46	8.25	7.40			27.45	25.41	24.49	23.18		
95%USL	14.30	13.19	12.82	11.34			40.52	36.80	35.17	32.89		

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Minnesota												
	Arsenic						Lead					
Censoring	None	<16	<11	<9			None	<40	<32	<25		
n	410	408	404	391			410	407	403	394		
Min	0.3	0.3	0.3	0.3			3.6	3.6	3.6	3.6		
Max	19.3	15.2	10.8	8.8			45	37.4	31.7	24.9		
Mean	4.59	4.53	4.45	4.27			15.12	14.91	14.70	14.38		
Median	4.25	4.20	4.20	4.00			14.30	14.30	14.30	14.15		
RPD	7.76	7.49	5.76	6.44			5.57	4.18	2.76	1.61		
std d	2.626	2.459	2.334	2.141			5.213	4.661	4.183	3.634		
CV	0.572	0.543	0.525	0.502			0.345	0.313	0.285	0.2527		
R	0.962	0.977	0.981	0.980			0.922	0.953	0.977	0.996		
BTV Estimators												
95%UPL	8.93	8.59	8.30	7.80			23.72	22.61	21.61	20.38		
95%UTL	9.26	8.89	8.60	8.08			24.37	23.19	22.14	20.84		
95%USL	14.15	13.48	12.94	12.03			34.10	31.87	29.92	27.57		

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Missouri												
	Arsenic						Lead					
Censoring	None	<17					None	<120	<53			
n	345	340					345	340	333			
Min	1.5	1.5					7.9	7.9	7.9			
Max	20.8	16.8					681	118	52.7			
Mean	7.96	7.81					30.16	25.49	24.40			
Median	7.80	7.65					23.60	23.40	23.10			
RPD	2.03	2.06					24.40	8.55	5.47			
std d	3.144	2.901					45.180	10.820	7.239			
CV	0.395	0.371					1.498	0.424	0.297			
R	0.981	0.990					0.456	0.840	0.966			
BTV Estimators												
95%UPL	13.15	12.60					104.80	43.37	36.36			
95%UTL	13.58	13.00					110.90	44.85	37.36			
95%USL	19.25	18.22					192.50	64.33	50.33			

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Mississippi												
	Arsenic						Lead					
Censoring	None	<20	<18	<14			None	<56	<44			
n	231	229	228	220			231	228	223			
Min	0.3	0.3	0.3	0.3			3.7	3.7	3.7			
Max	24.5	19.2	17.5	13.5			181	55.1	43.1			
Mean	6.04	5.90	5.84	5.48			18.43	16.69	15.95			
Median	4.90	4.80	4.80	4.80			15.30	15.15	15.10			
RPD	20.91	20.56	19.57	13.25			18.56	9.67	5.48			
std d	4.232	3.952	3.861	3.420			17.660	8.758	7.263			
CV	0.700	0.670	0.661	0.624			0.958	0.525	0.455			
R	0.954	0.963	0.965	0.968			0.680	0.924	0.958			
BTV Estimators												
95%UPL	13.05	12.44	12.23	11.14			47.65	31.19	27.97			
95%UTL	13.75	13.10	12.88	11.73			50.59	32.66	29.20			
95%USL	20.75	19.63	19.25	17.32			79.80	47.10	41.11			

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Montana												
	Arsenic						Lead					
Censoring	None	<67	<44	<30			None	<84	<55	<40		
n	717	712	707	690			717	714	705	693		
Min	0.3	0.3	0.3	0.3			3.5	3.5	3.5	3.5		
Max	588	66.7	43.8	28.7			132	83.3	54.6	38.7		
Mean	12.00	9.57	9.23	8.55			18.70	18.27	17.69	17.18		
Median	8.00	7.95	7.90	7.80			16.80	16.80	16.70	16.6		
RPD	40.00	18.47	15.49	9.16			10.70	8.38	5.76	3.43		
std d	34.540	7.196	5.914	4.033			10.680	8.441	6.647	5.439		
CV	2.878	0.752	0.641	0.472			0.571	0.462	0.376	0.3166		
R	0.360	0.803	0.859	0.957			0.766	0.853	0.918	0.964		
BTV Estimators												
95%UPL	68.93	21.43	18.97	15.20			36.31	32.19	28.64	26.15		
95%UTL	72.19	22.11	19.54	15.58			37.32	32.98	29.28	26.67		
95%USL	143.00	36.84	31.63	23.80			59.21	50.27	42.86	37.76		

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

North Carolina												
	Arsenic						Lead					
Censoring	None	<22	<14				None	<75	<45			
n	249	248	245				249	248	242			
Min	0.3	0.3	0.3				1.5	1.5	1.5			
Max	35.9	21	13.2				114	74.5	44.9			
Mean	3.28	3.14	2.98				19.41	19.03	18.18			
Median	2.30	2.30	2.30				17.60	17.60	17.40			
RPD	35.01	31.01	25.69				9.78	7.81	4.38			
std d	3.502	2.826	2.384				12.220	10.660	9.166			
CV	1.069	0.899	0.801				0.630	0.560	0.504			
R	0.778	0.857	0.894				0.906	0.961	0.984			
BTV Estimators												
95%UPL	9.07	7.82	6.92				39.63	36.67	33.34			
95%UTL	9.63	8.27	7.31				41.59	38.38	34.83			
95%USL	15.53	13.03	11.31				62.17	56.31	50.16			

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

North Dakota												
	Arsenic						Lead					
Censoring	None						None					
n	353						353					
Min	1.9						7.4					
Max	17.3						25.1					
Mean	7.24						12.89					
Median	7.20						12.80					
RPD	0.57						0.70					
std d	2.334						2.414					
CV	0.322						0.187					
R	0.988						0.982					
BTV Estimators												
95%UPL	11.10						16.87					
95%UTL	11.41						17.20					
95%USL	15.64						21.57					

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Nebraska												
	Arsenic						Lead					
Censoring	None	<18.1	<13				None	<71	<27			
n	390	389	382				390	389	379			
Min	0.8	0.8	0.8				8.9	8.9	8.9			
Max	20.6	18	12.8				110	70.3	26.8			
Mean	4.89	4.85	4.66				18.05	17.81	17.39			
Median	4.20	4.20	4.15				17.90	17.90	17.80			
RPD	15.22	14.39	11.56				0.83	-0.50	-2.33			
std d	3.496	3.409	3.113				7.159	5.434	4.395			
CV	0.715	0.703	0.668				0.397	0.305	0.253			
R	0.946	0.950	0.957				0.788	0.926	0.989			
BTV Estimators												
95%UPL	10.66	10.48	9.80				29.87	26.78	24.65			
95%UTL	11.11	10.91	10.20				30.78	27.48	25.22			
95%USL	17.57	17.21	15.93				44.01	37.52	33.30			

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

New Hampshire												
	Arsenic						Lead					
Censoring	None	<55	<14				None	<94	<62			
n	43	42	39				43	40	35			
Min	0.8	0.8	0.8				17.8	17.8	17.8			
Max	103	54	13.9				174	93.7	61.4			
Mean	8.99	6.75	5.15				44.84	37.23	31.33			
Median	5.10	5.10	4.50				33.70	32.35	30.90			
RPD	55.18	27.82	13.55				28.37	14.03	1.38			
std d	16.830	8.326	3.241				33.860	18.220	9.141			
CV	1.873	1.234	0.629				0.755	0.489	0.292			
R	0.613	0.707	0.969				0.824	0.898	0.966			
BTV Estimators												
95%UPL	37.61	20.92	10.69				102.50	68.31	47.01			
95%UTL	44.27	24.26	12.04				115.90	75.80	51.05			
95%USL	57.73	30.79	14.41				142.90	89.47	57.04			

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

New Jersey												
	Arsenic						Lead					
Censoring	None	<45	<18				None	<147	<56	<39		
n	36	35	34				36	34	30	27		
Min	0.3	0.3	0.3				1.7	1.7	1.7	1.7		
Max	72.2	44.5	17.9				398	146	55.8	38.9		
Mean	9.10	7.29	6.20				50.59	32.30	20.54	17.51		
Median	4.20	3.90	3.85				21.95	21.45	20.50	20.2		
RPD	73.66	60.64	46.77				78.96	40.37	0.19	-14.27		
std d	13.520	8.229	5.157				84.310	35.430	13.120	9.607		
CV	1.486	1.128	0.832				1.667	1.097	0.639	0.5487		
R	0.740	0.825	0.937				0.724	0.836	0.966	0.982		
BTV Estimators												
95%UPL	32.26	21.41	15.05				195.00	93.13	43.20	34.19		
95%UTL	38.14	25.05	17.37				231.70	109.10	49.67	39.22		
95%USL	47.28	30.43	20.64				288.70	131.50	56.56	43.43		

All concentrations in mg/kg

BTV Evaluation -Full Conterminous United States

New Mexico												
	Arsenic						Lead					
Censoring	None						None					
n	608						608					
Min	0.3						0.7					
Max	17.5						43.9					
Mean	4.65						15.81					
Median	4.40						15.45					
RPD	5.50						2.30					
std d	2.238						6.328					
CV	0.481						0.400					
R	0.962						0.984					
BTV Estimators												
95%UPL	8.34						26.24					
95%UTL	8.57						26.89					
95%USL	13.04						39.53					

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Nevada												
	Arsenic						Lead					
Censoring	None	<418	<85	<39	<30		None	<80	<41	<34		
n	515	513	509	497	490		515	513	505	498		
Min	1.6	1.6	1.6	1.6	1.6		4.4	4.4	4.4	4.4		
Max	1110	417	84.4	38.6	29.4		12400	79.2	40.1	33		
Mean	16.01	12.30	10.28	9.13	8.77		47.94	19.67	19.06	18.81		
Median	7.80	7.80	7.80	7.70	7.60		19.00	19.00	18.80	18.8		
RPD	68.96	44.78	27.43	16.99	14.25		86.47	3.47	1.37	0.05		
std d	65.600	25.980	9.552	5.804	4.959		553.800	7.810	5.895	5.514		
CV	4.097	2.112	0.929	0.636	0.566		11.552	0.397	0.309	0.2931		
R	0.344	0.481	0.767	0.885	0.915		0.166	0.903	0.995	0.998		
BTV Estimators												
95%UPL	124.20	55.15	26.03	18.70	16.95		961.40	32.55	28.79	27.90		
95%UTL	131.50	58.05	27.10	19.36	17.51		1023.00	33.42	29.45	28.53		
95%USL	259.00	108.50	45.62	30.57	27.06		2099.00	48.58	40.86	39.18		

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

New York												
	Arsenic						Lead					
Censoring	None	<26	<20	<15			None	<130	<85	<70		
n	213	212	210	199			213	207	199	196		
Min	0.3	0.3	0.3	0.3			5.8	5.8	5.8	5.8		
Max	35.6	25.9	19.7	14.8			410	129	84	69.4		
Mean	6.38	6.25	6.08	5.45			37.51	30.27	27.37	26.57		
Median	5.60	5.60	5.60	5.40			22.90	22.40	22.00	21.75		
RPD	13.07	10.89	8.27	0.87			48.37	29.88	21.75	19.95		
std d	4.825	4.396	4.079	3.109			49.240	21.780	16.370	15.16		
CV	0.756	0.704	0.671	0.571			1.313	0.720	0.598	0.5706		
R	0.912	0.939	0.951	0.982			0.689	0.888	0.922	0.928		
BTV Estimators												
95%UPL	14.37	13.53	12.84	10.60			119.00	66.34	54.49	51.69		
95%UTL	15.21	14.29	13.55	11.16			127.60	70.17	57.43	54.43		
95%USL	23.04	21.41	20.14	16.11			207.40	105.20	83.54	78.51		

All concentrations in mg/kg

BTV Evaluation -Full Conterminous United States

Ohio												
	Arsenic						Lead					
Censoring	None	<55	<27	<21			None	<72				
n	207	206	203	196			207	204				
Min	2.9	2.9	2.9	2.9			11.2	11.2				
Max	93.6	54.5	26.6	20.6			174	71.5				
Mean	11.84	11.44	11.02	10.56			29.00	27.48				
Median	10.50	10.45	10.30	10.05			26.40	26.30				
RPD	12.00	9.05	6.75	4.95			9.39	4.39				
std d	8.100	5.759	4.455	3.778			16.630	9.723				
CV	0.684	0.503	0.404	0.358			0.573	0.354				
R	0.748	0.891	0.974	0.991			0.764	0.968				
BTV Estimators												
95%UPL	25.25	20.98	18.40	16.82			56.54	43.59				
95%UTL	26.68	21.99	19.19	17.51			59.47	45.31				
95%USL	39.72	31.26	26.33	23.51			86.25	60.91				

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Oklahoma												
	Arsenic						Lead					
Censoring	None	<25	<18	<17	<15		None	<100	<50	<45	<30	
n	333	331	327	322	317		333	331	329	325	316	
Min	0.8	0.8	0.8	0.8	0.8		5.3	5.3	5.3	5.3	5.3	
Max	25.6	20.4	17.5	16.2	14.9		122	52.4	47.6	44.6	29.6	
Mean	5.82	5.70	5.54	5.36	5.20		16.09	15.49	15.27	14.88	14.2	
Median	4.90	4.90	4.90	4.85	4.80		13.40	13.40	13.40	13.4	13.15	
RPD	17.16	15.13	12.24	9.95	7.94		18.24	14.47	13.04	10.47	7.68	
std d	4.010	3.720	3.432	3.134	2.880		10.870	7.641	7.119	6.251	4.764	
CV	0.689	0.652	0.620	0.585	0.554		0.676	0.493	0.466	0.4201	0.3355	
R	0.916	0.932	0.943	0.956	0.967		0.748	0.881	0.895	0.921	0.977	
BTV Estimators												
95%UPL	12.44	11.85	11.21	10.54	9.96		34.05	28.11	27.03	25.21	22.07	
95%UTL	13.00	12.36	11.69	10.98	10.36		35.55	29.17	28.02	26.09	22.75	
95%USL	20.19	19.02	17.82	16.55	15.47		55.03	42.85	40.75	37.23	31.20	

All concentrations in mg/kg

BTV Evaluation -Full Conterminous United States

Oregon												
	Arsenic						Lead					
Censoring	None	<36	<23	<15			None	<66	<35			
n	456	453	452	446			456	454	451			
Min	0.3	0.3	0.3	0.3			2.3	2.3	2.3			
Max	56.1	35.5	22	14.9			135	65.1	34.4			
Mean	4.87	4.60	4.54	4.37			13.43	12.91	12.64			
Median	4.10	4.10	4.10	4.05			12.00	12.00	11.90			
RPD	17.09	11.58	10.10	7.65			11.25	7.31	6.03			
std d	4.458	3.014	2.642	2.229			9.914	6.152	5.153			
CV	0.916	0.655	0.582	0.510			0.738	0.477	0.408			
R	0.713	0.854	0.912	0.954			0.699	0.915	0.981			
BTV Estimators												
95%UPL	12.22	9.58	8.90	8.05			29.79	23.06	21.15			
95%UTL	12.75	9.93	9.21	8.32			30.96	23.79	21.76			
95%USL	21.23	15.66	14.23	12.54			49.81	35.48	31.54			

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Pennsylvania												
	Arsenic						Lead					
Censoring	None	<36	<24				None	<187	<99	<74		
n	227	225	220				227	222	210	196		
Min	1.1	1.1	1.1				7	7	7	7		
Max	43.1	35.7	23.8				600	186	98	73.8		
Mean	10.37	10.11	9.62				46.10	39.68	34.37	30.58		
Median	8.80	8.80	8.60				31.20	30.60	29.85	28.35		
RPD	16.38	13.86	11.19				38.55	25.84	14.08	7.57		
std d	6.272	5.649	4.649				55.900	30.060	19.870	14.25		
CV	0.605	0.559	0.483				1.213	0.758	0.578	0.466		
R	0.917	0.941	0.976				0.706	0.880	0.938	0.975		
BTV Estimators												
95%UPL	20.75	19.46	17.32				138.60	89.44	67.22	54.19		
95%UTL	21.80	20.41	18.11				148.00	94.55	70.74	56.76		
95%USL	32.14	29.70	25.71				240.10	143.80	102.80	79.40		

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Rhode Island												
	Arsenic	+1	adds sample CT3433				Lead	+1	adds sample CT3433			
Censoring	None	None					None	None				
n	6	9					6	9				
Min	2.8	1.3					21.3	14.6				
Max	4.3	4.3					68.2	68.2				
Mean	3.63	3.34					46.32	42.06				
Median	3.75	3.70					49.25	44.40				
RPD	-3.17	-10.11					-6.13	-5.41				
std d	0.579	0.961					20.500	19.510				
CV	0.159	0.287					0.443	0.464				
R	0.976	0.935					0.706	0.980				
BTV Estimators												
95%UPL	4.89	5.23					90.94	80.30				
95%UTL	5.78	6.26					122.30	101.20				
95%USL	4.69	5.37					83.67	83.22				

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

South Carolina												
	Arsenic						Lead					
Censoring	None	<8	<6	<5			None	<41	<35	<30		
n	150	148	136	131			150	148	144	133		
Min	0.3	0.3	0.3	0.3			2.3	2.3	2.3	2.3		
Max	9.4	7.8	5.9	4.9			97.8	40.7	34.8	29.7		
Mean	2.57	2.49	2.10	1.97			16.14	15.10	14.41	12.9		
Median	2.05	2.00	1.80	1.70			12.60	12.45	12.20	11.3		
RPD	22.63	21.79	15.20	14.66			24.63	19.24	16.61	13.22		
std d	1.902	1.769	1.205	1.029			13.110	9.557	8.737	7.249		
CV	0.739	0.711	0.575	0.523			0.812	0.633	0.606	0.5619		
R	0.920	0.926	0.965	0.980			0.861	0.960	0.962	0.969		
BTV Estimators												
95%UPL	5.73	5.43	4.10	3.68			37.92	30.97	28.92	24.96		
95%UTL	6.13	5.80	4.36	3.91			40.64	32.96	30.77	26.55		
95%USL	8.93	8.39	6.09	5.37			59.98	47.00	43.50	36.86		

All concentrations in mg/kg

BTV Evaluation -Full Conterminous United States

South Dakota												
	Arsenic						Lead					
Censoring	None	<26					None	<33				
n	360	359					360	359				
Min	0.9	0.9					8.9	8.9				
Max	46.7	25					47.9	32.9				
Mean	8.48	8.37					15.95	15.86				
Median	8.00	8.00					15.50	15.50				
RPD	5.79	4.53					2.86	2.30				
std d	4.036	3.499					3.749	3.352				
CV	0.476	0.418					0.235	0.211				
R	0.887	0.952					0.935	0.984				
BTV Estimators												
95%UPL	15.14	14.15					22.14	21.40				
95%UTL	15.68	14.62					22.64	21.85				
95%USL	23.02	20.98					29.47	27.94				

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Tennessee												
	Arsenic						Lead					
Censoring	None	<34	<30	<19			None	<79	<46			
n	198	197	195	193			198	195	192			
Min	1.2	1.2	1.2	1.2			3.3	3.3	3.3			
Max	38.6	33.7	29.6	18.9			187	78.2	45.6			
Mean	7.63	7.47	7.22	7.01			23.61	21.53	20.73			
Median	6.45	6.40	6.40	6.40			19.70	19.60	19.55			
RPD	16.74	15.44	11.99	9.03			18.06	9.38	5.86			
std d	5.107	4.615	3.879	3.288			19.650	9.954	7.660			
CV	0.670	0.618	0.538	0.469			0.832	0.462	0.370			
R	0.855	0.882	0.930	0.977			0.685	0.901	0.975			
BTV Estimators												
95%UPL	16.09	15.12	13.64	12.45			56.17	38.02	33.42			
95%UTL	17.01	15.95	14.35	13.05			59.70	39.83	34.82			
95%USL	25.14	23.29	20.50	18.26			91.00	55.62	46.93			

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Texas												
	Arsenic						Lead					
Censoring	None	<75	<39	<24	<20		None	<100	<63	<41		
n	1237	1233	1226	1223	1220		1237	1233	1228	1227		
Min	0.8	0.8	0.8	0.8	0.8		1.6	1.6	1.6	1.6		
Max	90.3	74.8	38.2	20.8	19.1		275	99.5	62.1	40.4		
Mean	6.09	5.85	5.56	5.49	5.46		15.23	14.77	14.49	14.45		
Median	5.10	5.10	5.00	5.00	5.00		13.50	13.50	13.40	13.4		
RPD	17.73	13.63	10.53	9.41	8.74		12.04	8.98	7.82	7.54		
std d	6.658	5.059	3.237	2.976	2.885		11.750	7.531	6.087	5.936		
CV	1.093	0.865	0.583	0.542	0.529		0.772	0.510	0.420	0.4108		
R	0.644	0.730	0.922	0.955	0.963		0.657	0.862	0.957	0.966		
BTV Estimators												
95%UPL	17.06	14.18	10.89	10.39	10.21		34.57	27.17	24.51	24.22		
95%UTL	17.53	14.54	11.12	10.61	10.42		35.42	27.71	24.95	24.65		
95%USL	32.26	25.73	18.27	17.18	16.79		61.40	44.36	38.40	37.77		

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Utah												
	Arsenic						Lead					
Censoring	None	<30	<20	<15			None	<67	<47	<36		
n	397	396	390	384			397	395	392	385		
Min	1	1	1	1			0.9	0.9	0.9	0.9		
Max	59.6	29.1	19.6	14.7			133	66.8	46.1	35.7		
Mean	5.98	5.85	5.56	5.37			17.17	16.64	16.29	15.84		
Median	5.00	4.95	4.90	4.80			14.80	14.70	14.65	14.5		
RPD	17.90	16.62	12.60	11.19			14.83	12.38	10.60	8.83		
std d	4.695	3.847	3.061	2.670			11.150	8.347	7.330	6.542		
CV	0.785	0.658	0.551	0.497			0.649	0.502	0.450	0.413		
R	0.798	0.887	0.946	0.971			0.803	0.927	0.964	0.979		
BTV Estimators												
95%UPL	13.73	12.20	10.61	9.78			35.57	30.42	28.39	26.64		
95%UTL	14.33	12.69	11.00	10.12			36.99	31.48	29.33	27.48		
95%USL	23.03	19.82	16.66	15.04			57.66	46.95	42.89	39.54		

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Virginia												
	Arsenic						Lead					
Censoring	None	<39	<25	<12			None	<88	<60	<42		
n	198	197	196	187			198	197	191	175		
Min	0.8	0.8	0.8	0.8			4.8	4.8	4.8	4.8		
Max	51.6	38.1	24.3	11.8			153	87.3	59.5	41.2		
Mean	5.06	4.82	4.65	4.03			25.59	24.94	23.24	20.78		
Median	3.30	3.30	3.25	3.10			21.80	21.50	20.70	19.3		
RPD	42.05	37.46	35.46	26.14			15.99	14.81	11.56	7.39		
std d	5.602	4.521	3.851	2.539			17.550	15.040	11.690	8.621		
CV	1.108	0.938	0.828	0.630			0.686	0.603	0.503	0.4149		
R	0.756	0.824	0.875	0.945			0.869	0.922	0.965	0.986		
BTV Estimators												
95%UPL	14.34	12.31	11.03	8.24			54.66	49.86	42.60	35.09		
95%UTL	15.35	13.13	11.73	8.71			57.81	52.57	44.75	36.74		
95%USL	24.27	20.32	17.85	12.69			85.76	76.49	63.19	50.04		

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Vermont												
	Arsenic						Lead					
Censoring	None	<17	<14	<10			None	<63				
n	45	43	42	39			45	43				
Min	0.6	0.6	0.6	0.6			10.5	10.5				
Max	29	16.3	13.6	9.2			68.6	62.5				
Mean	5.64	4.61	4.34	3.65			28.25	26.48				
Median	3.70	3.60	3.40	2.90			25.40	25.30				
RPD	41.47	24.69	24.20	22.87			10.62	4.56				
std d	6.106	3.863	3.446	2.455			14.680	12.390				
CV	1.083	0.837	0.795	0.673			0.520	0.468				
R	0.844	0.918	0.926	0.955			0.953	0.968				
BTV Estimators												
95%UPL	16.01	11.19	10.20	7.84			53.19	47.55				
95%UTL	18.37	12.72	11.59	8.87			58.86	52.45				
95%USL	23.44	15.81	14.29	10.66			71.05	62.36				

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Washinton												
	Arsenic						Lead					
Censoring	None	<64	<24	<15			None	<220	<98	<32		
n	326	325	322	314			326	323	320	305		
Min	0.8	0.8	0.8	0.8			4.7	4.7	4.7	4.7		
Max	135	63.8	23.5	14.8			2450	219	97.1	31.6		
Mean	6.10	5.71	5.34	4.98			28.89	17.47	16.19	14.26		
Median	4.40	4.40	4.30	4.25			13.75	13.70	13.60	13.3		
RPD	32.44	25.86	21.48	15.88			71.01	24.19	17.39	6.97		
std d	8.977	5.423	3.599	2.837			145.200	17.680	10.950	5.343		
CV	1.471	0.950	0.675	0.569			5.026	1.012	0.676	0.3747		
R	0.569	0.753	0.903	0.948			0.291	0.651	0.790	0.965		
BTV Estimators												
95%UPL	20.94	14.67	11.28	9.67			268.80	46.68	34.29	23.09		
95%UTL	22.19	15.43	11.79	10.08			289.20	49.16	35.84	23.86		
95%USL	38.21	25.10	18.19	15.10			548.30	80.65	55.31	33.27		

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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BTV Evaluation -Full Conterminous United States

Wisconsin (2013 Dataset)												
	Arsenic						Lead					
Censoring	None	<49	≤12	<10			None	<160	<68	<41	<30	
n	264	263	262	258			264	263	262	258	252	
Min	0.3	0.3	0.3	0.3			1.2	1.2	1.2	1.2	1.2	
Max	52.3	48.5	12	9.4			182	154	67.2	40.7	29.5	
Mean	4.09	3.90	3.73	3.62			15.92	15.28	14.75	14.09	13.59	
Median	3.30	3.30	3.30	3.20			13.50	13.50	13.50	13.45	13.35	
RPD	21.28	16.74	12.31	12.37			16.45	12.37	8.85	4.65	1.78	
std d	4.551	3.447	2.068	1.879			15.900	12.170	8.645	6.743	5.953	
CV	1.114	0.883	0.554	0.519			0.999	0.796	0.586	0.4786	0.438	
R	0.631	0.707	0.965	0.978			0.670	0.750	0.906	0.978	0.992	
BTV Estimators												
95%UPL	11.61	9.60	7.15	6.73			42.21	35.42	29.05	25.24	23.44	
95%UTL	12.32	10.14	7.48	7.03			44.69	37.31	30.40	26.31	24.39	
95%USL	20.08	16.02	11.00	10.21			71.82	58.06	45.13	37.75	34.43	

All concentrations in mg/kg

BTV Evaluation -Full Conterminous United States

West Virginia												
	Arsenic						Lead					
Censoring	None	<23	<17	<14			None					
n	117	114	110	107			117					
Min	1.9	1.9	1.9	1.9			5.9					
Max	32.9	22.5	16.9	13.4			61.2					
Mean	8.31	7.75	7.36	7.12			24.85					
Median	7.30	6.85	6.60	6.20			24.10					
RPD	12.90	12.38	10.82	13.83			3.06					
std d	5.243	3.999	3.442	3.179			10.110					
CV	0.631	0.516	0.468	0.446			0.407					
R	0.913	0.970	0.982	0.980			0.984					
BTV Estimators												
95%UPL	17.04	14.41	13.09	12.42			41.68					
95%UTL	18.27	15.37	13.93	13.20			44.06					
95%USL	25.41	20.76	18.51	17.40			57.83					

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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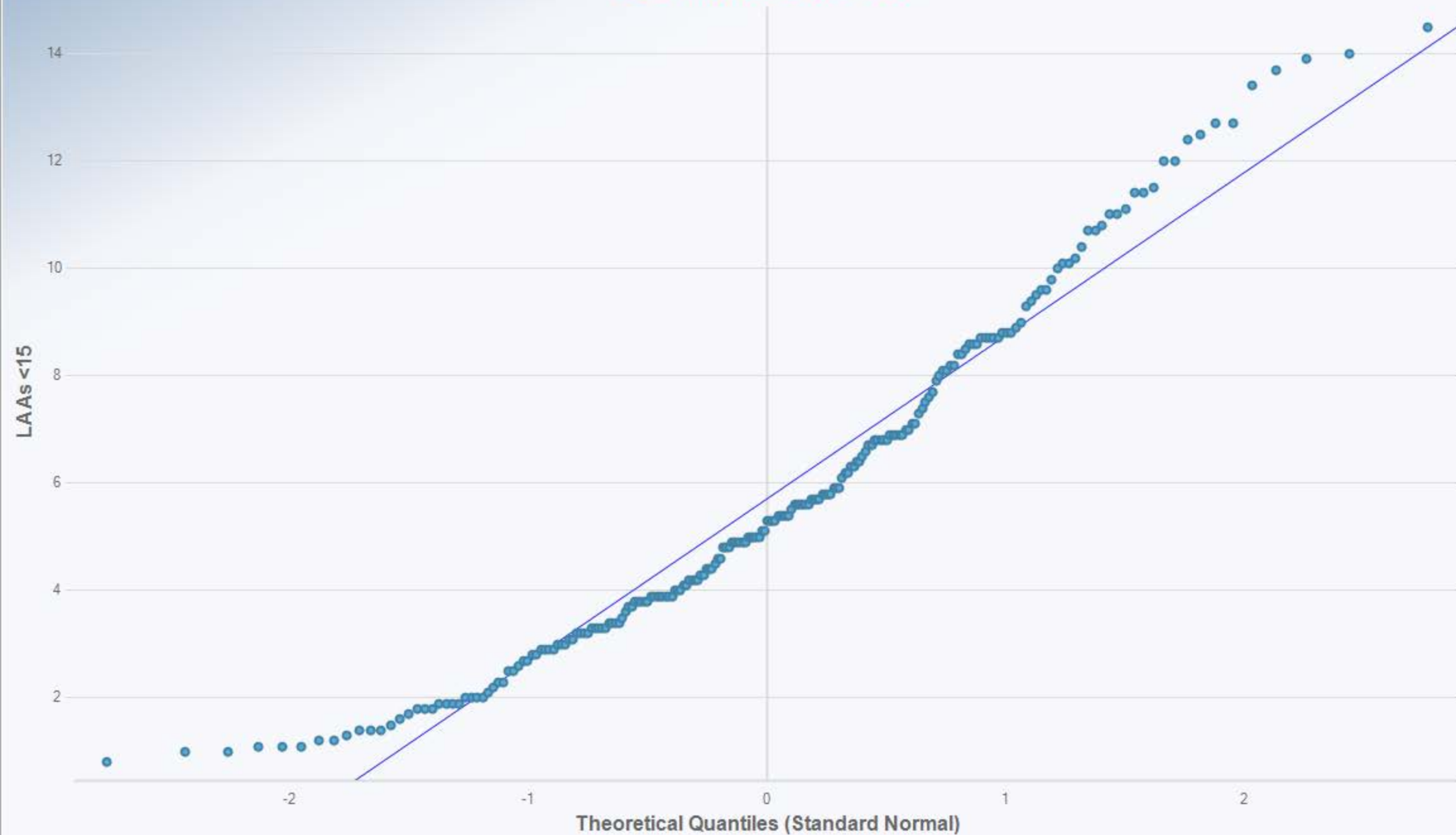
BTV Evaluation -Full Conterminous United States

Wyoming												
	Arsenic						Lead					
Censoring	None	<23	<18	<15	<14		None	<38	<35	<30		
n	481	480	476	467	460		481	477	474	459		
Min	0.3	0.3	0.3	0.3	0.3		1	1	1	1		
Max	31.8	22.6	17.8	14.9	13.8		40.4	37.2	34.8	28.8		
Mean	5.65	5.60	5.47	5.26	5.12		18.64	18.47	18.36	17.91		
Median	4.80	4.80	4.75	4.70	4.70		18.00	18.00	18.00	17.9		
RPD	16.27	15.31	14.14	11.17	8.53		3.49	2.58	1.98	0.06		
std d	3.681	3.485	3.226	2.847	2.641		5.431	5.123	4.937	4.341		
CV	0.652	0.623	0.589	0.542	0.516		0.291	0.277	0.269	0.2424		
R	0.913	0.931	0.945	0.963	0.971		0.975	0.984	0.989	0.997		
BTV Estimators												
95%UPL	11.72	11.35	10.80	9.95	9.48		27.60	26.92	26.50	25.07		
95%UTL	12.15	11.75	11.17	10.29	9.79		28.22	27.51	27.07	25.58		
95%USL	19.21	18.44	17.35	15.72	14.82		38.65	37.33	36.53	33.85		

All concentrations in mg/kg

ProUCL Output Files – Louisiana

Q-Q Plot for LA As <15



LAAs <15

N = 219

Mean = 5.697

Sd = 3.097

Slope = 3.045

Intercept = 5.697

Correlation, R = 0.978

Best Fit Line

Q-Q Plot for LA As <20



LA As <20

N = 222

Mean = 5.865

Sd = 3.398

Slope = 3.301

Intercept = 5.865

Correlation, R = 0.966

Best Fit Line

Q-Q Plot for LA As <40



LA As <40

N = 224

Mean = 6.129

Sd = 4.39

Slope = 3.857

Intercept = 6.129

Correlation, R = 0.874

Best Fit Line

Q-Q Plot for LA As All



LAAs All

N = 225

Mean = 6.288

Sd = 4.99

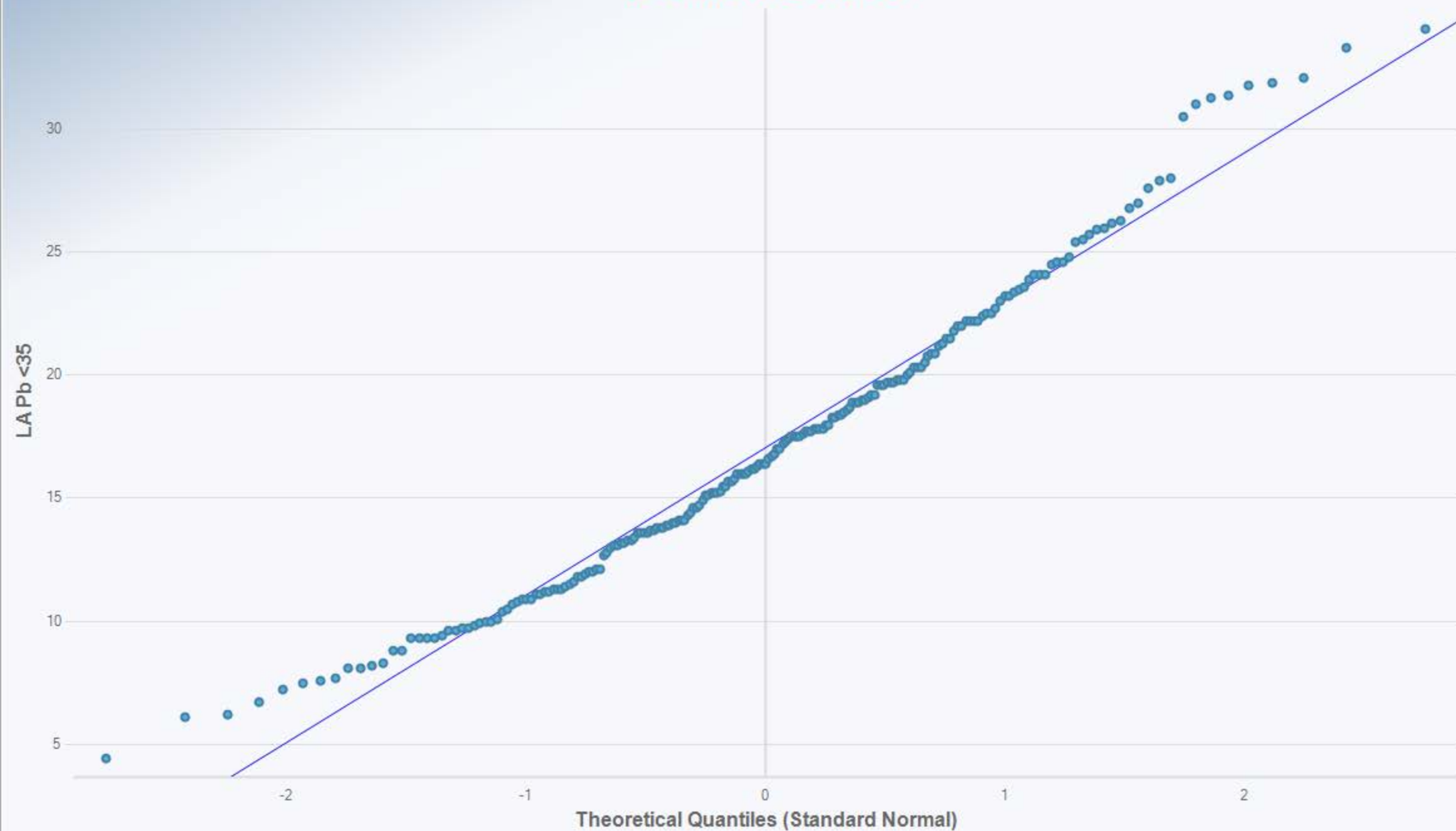
Slope = 4.181

Intercept = 6.288

Correlation, R = 0.833

Best Fit Line

Q-Q Plot for LA Pb <35



LA Pb <35

N = 211

Mean = 17.04

Sd = 6.026

Slope = 5.999

Intercept = 17.04

Correlation, R = 0.99

Best Fit Line

Q-Q Plot for LA Pb <40



LA Pb <40

N = 218

Mean = 17.66

Sd = 6.845

Slope = 6.732

Intercept = 17.66

Correlation, R = 0.978

Best Fit Line

Q-Q Plot for LA Pb <50



LA Pb <50

N = 223

Mean = 18.26

Sd = 7.844

Slope = 7.569

Intercept = 18.26

Correlation, R = 0.959

Best Fit Line

Q-Q Plot for LA Pb All



LA Pb All

N = 225

Mean = 18.85

Sd = 10.07

Slope = 8.827

Intercept = 18.85

Correlation, R = 0.871

Best Fit Line

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.2 1/27/2024 2:43:13 PM								
4	From File			D:\Tramm\BACKGROUND EVAL\AEEG Article - Estimators\Louisiana\Louisiana USGS 2013.xlsx								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	LA As All											
12												
13	General Statistics											
14	Total Number of Observations				225		Number of Distinct Observations				105	
15	Minimum				0.8		First Quartile				3.4	
16	Second Largest				38.2		Median				5.3	
17	Maximum				42		Third Quartile				8.1	
18	Mean				6.288		SD				4.99	
19	Coefficient of Variation				0.794		Skewness				3.701	
20	Mean of logged Data				1.618		SD of logged Data				0.668	
21												
22	Critical Values for Background Threshold Values (BTVs)											
23	Tolerance Factor K (For UTL)				1.824		d2max (for USL)				3.468	
24												
25	Normal GOF Test											
26	Shapiro Wilk Test Statistic				0.718		Normal GOF Test					
27	1% Shapiro Wilk P Value				0		Data Not Normal at 1% Significance Level					
28	Lilliefors Test Statistic				0.151		Lilliefors GOF Test					
29	1% Lilliefors Critical Value				0.0688		Data Not Normal at 1% Significance Level					
30	Data Not Normal at 1% Significance Level											
31												
32	Background Statistics Assuming Normal Distribution											
33	95% UTL with		95% Coverage		15.39		90% Percentile (z)				12.68	
34			95% UPL (t)		14.55		95% Percentile (z)				14.5	
35			95% USL		23.59		99% Percentile (z)				17.9	
36												
37	Gamma GOF Test											
38	A-D Test Statistic				1.007		Anderson-Darling Gamma GOF Test					
39	5% A-D Critical Value				0.764		Data Not Gamma Distributed at 5% Significance Level					
40	K-S Test Statistic				0.0577		Kolmogorov-Smirnov Gamma GOF Test					
41	5% K-S Critical Value				0.0614		Detected data appear Gamma Distributed at 5% Significance Level					
42	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
43												
44	Gamma Statistics											
45	k hat (MLE)				2.424		k star (bias corrected MLE)				2.395	
46	Theta hat (MLE)				2.594		Theta star (bias corrected MLE)				2.626	
47	nu hat (MLE)				1091		nu star (bias corrected)				1078	
48	MLE Mean (bias corrected)				6.288		MLE Sd (bias corrected)				4.064	
49												
50	Background Statistics Assuming Gamma Distribution											

	A	B	C	D	E	F	G	H	I	J	K	L
51	95% Wilson Hilferty (WH) Approx. Gamma UPL					13.97	90% Percentile					11.73
52	95% Hawkins Wixley (HW) Approx. Gamma UPL					14.14	95% Percentile					14.11
53	95% WH Approx. Gamma UTL with 95% Coverage					15.15	99% Percentile					19.32
54	95% HW Approx. Gamma UTL with 95% Coverage					15.43						
55	95% WH USL					30.39	95% HW USL					33.09
56												
57	Lognormal GOF Test											
58	Shapiro Wilk Test Statistic					0.978	Shapiro Wilk Lognormal GOF Test					
59	10% Shapiro Wilk P Value					0.157	Data appear Lognormal at 10% Significance Level					
60	Lilliefors Test Statistic					0.0569	Lilliefors Lognormal GOF Test					
61	10% Lilliefors Critical Value					0.0544	Data Not Lognormal at 10% Significance Level					
62	Data appear Approximate Lognormal at 10% Significance Level											
63												
64	Background Statistics assuming Lognormal Distribution											
65	95% UTL with 95% Coverage					17.05	90% Percentile (z)					11.87
66	95% UPL (t)					15.23	95% Percentile (z)					15.13
67	95% USL					51.08	99% Percentile (z)					23.84
68												
69	Nonparametric Distribution Free Background Statistics											
70	Data appear Approximate Gamma Distribution at 5% Significance Level											
71												
72	Nonparametric Upper Limits for Background Threshold Values											
73	Order of Statistic, order					220	95% UTL with 95% Coverage					17.4
74	Approx, f used to compute achieved CC					1.647	Approximate Actual Confidence Coefficient achieved by UTL					0.936
75							Approximate Sample Size needed to achieve specified CC					208
76	95% Percentile Bootstrap UTL with 95% Coverage					14	95% BCA Bootstrap UTL with 95% Coverage					13.94
77	95% UPL					13.19	90% Percentile					10.92
78	90% Chebyshev UPL					21.29	95% Percentile					12.7
79	95% Chebyshev UPL					28.09	99% Percentile					29.36
80	95% USL					42						
81												
82	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
83	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
84	and consists of observations collected from clean unimpacted locations.											
85	The use of USL tends to provide a balance between false positives and false negatives provided the data											
86	represents a background data set and when many onsite observations need to be compared with the BTV.											
87												
88	LA As <40											
89												
90	General Statistics											
91	Total Number of Observations					224	Number of Distinct Observations					104
92	Minimum					0.8	First Quartile					3.4
93	Second Largest					32.6	Median					5.3
94	Maximum					38.2	Third Quartile					8.025
95	Mean					6.129	SD					4.39
96	Coefficient of Variation					0.716	Skewness					3.135
97	Mean of logged Data					1.609	SD of logged Data					0.654
98												
99	Critical Values for Background Threshold Values (BTVs)											
100	Tolerance Factor K (For UTL)					1.824	d2max (for USL)					3.467

	A	B	C	D	E	F	G	H	I	J	K	L
101												
102	Normal GOF Test											
103	Shapiro Wilk Test Statistic					0.788	Normal GOF Test					
104	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
105	Lilliefors Test Statistic					0.131	Lilliefors GOF Test					
106	1% Lilliefors Critical Value					0.0689	Data Not Normal at 1% Significance Level					
107	Data Not Normal at 1% Significance Level											
108												
109	Background Statistics Assuming Normal Distribution											
110	95% UTL with 95% Coverage					14.14	90% Percentile (z)					11.75
111	95% UPL (t)					13.4	95% Percentile (z)					13.35
112	95% USL					21.35	99% Percentile (z)					16.34
113												
114	Gamma GOF Test											
115	A-D Test Statistic					0.523	Anderson-Darling Gamma GOF Test					
116	5% A-D Critical Value					0.763	Detected data appear Gamma Distributed at 5% Significance Level					
117	K-S Test Statistic					0.0485	Kolmogorov-Smirnov Gamma GOF Test					
118	5% K-S Critical Value					0.0614	Detected data appear Gamma Distributed at 5% Significance Level					
119	Detected data appear Gamma Distributed at 5% Significance Level											
120												
121	Gamma Statistics											
122	k hat (MLE)					2.605	k star (bias corrected MLE)					2.574
123	Theta hat (MLE)					2.352	Theta star (bias corrected MLE)					2.382
124	nu hat (MLE)					1167	nu star (bias corrected)					1153
125	MLE Mean (bias corrected)					6.129	MLE Sd (bias corrected)					3.821
126												
127	Background Statistics Assuming Gamma Distribution											
128	95% Wilson Hilferty (WH) Approx. Gamma UPL					13.37	90% Percentile					11.25
129	95% Hawkins Wixley (HW) Approx. Gamma UPL					13.58	95% Percentile					13.45
130	95% WH Approx. Gamma UTL with 95% Coverage					14.48	99% Percentile					18.27
131	95% HW Approx. Gamma UTL with 95% Coverage					14.79						
132	95% WH USL					28.53	95% HW USL					31.15
133												
134	Lognormal GOF Test											
135	Shapiro Wilk Test Statistic					0.978	Shapiro Wilk Lognormal GOF Test					
136	10% Shapiro Wilk P Value					0.183	Data appear Lognormal at 10% Significance Level					
137	Lilliefors Test Statistic					0.0602	Lilliefors Lognormal GOF Test					
138	10% Lilliefors Critical Value					0.0546	Data Not Lognormal at 10% Significance Level					
139	Data appear Approximate Lognormal at 10% Significance Level											
140												
141	Background Statistics assuming Lognormal Distribution											
142	95% UTL with 95% Coverage					16.47	90% Percentile (z)					11.55
143	95% UPL (t)					14.75	95% Percentile (z)					14.65
144	95% USL					48.2	99% Percentile (z)					22.87
145												
146	Nonparametric Distribution Free Background Statistics											
147	Data appear Gamma Distributed at 5% Significance Level											
148												
149	Nonparametric Upper Limits for Background Threshold Values											
150	Order of Statistic, order					219	95% UTL with 95% Coverage					14.5

	A	B	C	D	E	F	G	H	I	J	K	L
151	Approx, f used to compute achieved CC					1.639	Approximate Actual Confidence Coefficient achieved by UTL					0.934
152							Approximate Sample Size needed to achieve specified CC					208
153	95% Percentile Bootstrap UTL with 95% Coverage					13.96	95% BCA Bootstrap UTL with 95% Coverage					13.9
154	95% UPL					12.7	90% Percentile					10.77
155	90% Chebyshev UPL					19.33	95% Percentile					12.67
156	95% Chebyshev UPL					25.31	99% Percentile					18.85
157	95% USL					38.2						
158												
159	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
160	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
161	and consists of observations collected from clean unimpacted locations.											
162	The use of USL tends to provide a balance between false positives and false negatives provided the data											
163	represents a background data set and when many onsite observations need to be compared with the BTV.											
164												
165	LA As <20											
166												
167	General Statistics											
168	Total Number of Observations					222	Number of Distinct Observations					102
169	Minimum					0.8	First Quartile					3.4
170	Second Largest					18	Median					5.3
171	Maximum					19.1	Third Quartile					7.85
172	Mean					5.865	SD					3.398
173	Coefficient of Variation					0.579	Skewness					1.058
174	Mean of logged Data					1.591	SD of logged Data					0.63
175												
176	Critical Values for Background Threshold Values (BTVs)											
177	Tolerance Factor K (For UTL)					1.825	d2max (for USL)					3.464
178												
179	Normal GOF Test											
180	Shapiro Wilk Test Statistic					0.922	Normal GOF Test					
181	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
182	Lilliefors Test Statistic					0.109	Lilliefors GOF Test					
183	1% Lilliefors Critical Value					0.0693	Data Not Normal at 1% Significance Level					
184	Data Not Normal at 1% Significance Level											
185												
186	Background Statistics Assuming Normal Distribution											
187	95% UTL with 95% Coverage					12.07	90% Percentile (z)					10.22
188	95% UPL (t)					11.49	95% Percentile (z)					11.46
189	95% USL					17.64	99% Percentile (z)					13.77
190												
191	Gamma GOF Test											
192	A-D Test Statistic					0.23	Anderson-Darling Gamma GOF Test					
193	5% A-D Critical Value					0.76	Detected data appear Gamma Distributed at 5% Significance Level					
194	K-S Test Statistic					0.0315	Kolmogorov-Smirnov Gamma GOF Test					
195	5% K-S Critical Value					0.0615	Detected data appear Gamma Distributed at 5% Significance Level					
196	Detected data appear Gamma Distributed at 5% Significance Level											
197												
198	Gamma Statistics											
199	k hat (MLE)					2.971	k star (bias corrected MLE)					2.934
200	Theta hat (MLE)					1.974	Theta star (bias corrected MLE)					1.999

	A	B	C	D	E	F	G	H	I	J	K	L
201	nu hat (MLE)					1319	nu star (bias corrected)					1303
202	MLE Mean (bias corrected)					5.865	MLE Sd (bias corrected)					3.424
203												
204	Background Statistics Assuming Gamma Distribution											
205	95% Wilson Hilferty (WH) Approx. Gamma UPL					12.38	90% Percentile					10.46
206	95% Hawkins Wixley (HW) Approx. Gamma UPL					12.65	95% Percentile					12.39
207	95% WH Approx. Gamma UTL with 95% Coverage					13.36	99% Percentile					16.58
208	95% HW Approx. Gamma UTL with 95% Coverage					13.73						
209	95% WH USL					25.53	95% HW USL					28.01
210												
211	Lognormal GOF Test											
212	Shapiro Wilk Test Statistic					0.964	Shapiro Wilk Lognormal GOF Test					
213	10% Shapiro Wilk P Value					9.0896E-4	Data Not Lognormal at 10% Significance Level					
214	Lilliefors Test Statistic					0.0666	Lilliefors Lognormal GOF Test					
215	10% Lilliefors Critical Value					0.0548	Data Not Lognormal at 10% Significance Level					
216	Data Not Lognormal at 10% Significance Level											
217												
218	Background Statistics assuming Lognormal Distribution											
219	95% UTL with 95% Coverage					15.49	90% Percentile (z)					11
220	95% UPL (t)					13.92	95% Percentile (z)					13.83
221	95% USL					43.47	99% Percentile (z)					21.24
222												
223	Nonparametric Distribution Free Background Statistics											
224	Data appear Gamma Distributed at 5% Significance Level											
225												
226	Nonparametric Upper Limits for Background Threshold Values											
227	Order of Statistic, order					217	95% UTL with 95% Coverage					13.9
228	Approx, f used to compute achieved CC					1.624	Approximate Actual Confidence Coefficient achieved by UTL					0.93
229							Approximate Sample Size needed to achieve specified CC					208
230	95% Percentile Bootstrap UTL with 95% Coverage					13.4	95% BCA Bootstrap UTL with 95% Coverage					13.4
231	95% UPL					12.49	90% Percentile					10.67
232	90% Chebyshev UPL					16.08	95% Percentile					12.38
233	95% Chebyshev UPL					20.71	99% Percentile					16.79
234	95% USL					19.1						
235												
236	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
237	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
238	and consists of observations collected from clean unimpacted locations.											
239	The use of USL tends to provide a balance between false positives and false negatives provided the data											
240	represents a background data set and when many onsite observations need to be compared with the BTV.											
241												
242	LA As <15											
243												
244	General Statistics											
245	Total Number of Observations					219	Number of Distinct Observations					99
246	Minimum					0.8	First Quartile					3.35
247	Second Largest					14	Median					5.3
248	Maximum					14.5	Third Quartile					7.55
249	Mean					5.697	SD					3.097
250	Coefficient of Variation					0.544	Skewness					0.704

	A	B	C	D	E	F	G	H	I	J	K	L
251	Mean of logged Data					1.574	SD of logged Data					0.615
252												
253	Critical Values for Background Threshold Values (BTVs)											
254	Tolerance Factor K (For UTL)					1.827	d2max (for USL)					3.46
255												
256	Normal GOF Test											
257	Shapiro Wilk Test Statistic					0.935	Normal GOF Test					
258	1% Shapiro Wilk P Value					2.166E-12	Data Not Normal at 1% Significance Level					
259	Lilliefors Test Statistic					0.0948	Lilliefors GOF Test					
260	1% Lilliefors Critical Value					0.0697	Data Not Normal at 1% Significance Level					
261	Data Not Normal at 1% Significance Level											
262												
263	Background Statistics Assuming Normal Distribution											
264	95% UTL with		95% Coverage		11.35	90% Percentile (z)					9.666	
265			95% UPL (t)		10.82	95% Percentile (z)					10.79	
266			95% USL		16.41	99% Percentile (z)					12.9	
267												
268	Gamma GOF Test											
269	A-D Test Statistic					0.362	Anderson-Darling Gamma GOF Test					
270	5% A-D Critical Value					0.76	Detected data appear Gamma Distributed at 5% Significance Level					
271	K-S Test Statistic					0.036	Kolmogorov-Smirnov Gamma GOF Test					
272	5% K-S Critical Value					0.0618	Detected data appear Gamma Distributed at 5% Significance Level					
273	Detected data appear Gamma Distributed at 5% Significance Level											
274												
275	Gamma Statistics											
276	k hat (MLE)					3.162	k star (bias corrected MLE)					3.121
277	Theta hat (MLE)					1.802	Theta star (bias corrected MLE)					1.825
278	nu hat (MLE)					1385	nu star (bias corrected)					1367
279	MLE Mean (bias corrected)					5.697	MLE Sd (bias corrected)					3.224
280												
281	Background Statistics Assuming Gamma Distribution											
282	95% Wilson Hilferty (WH) Approx. Gamma UPL					11.83	90% Percentile					10.02
283	95% Hawkins Wixley (HW) Approx. Gamma UPL					12.1	95% Percentile					11.82
284	95% WH Approx. Gamma UTL with		95% Coverage		12.75	99% Percentile					15.71	
285	95% HW Approx. Gamma UTL with		95% Coverage		13.11							
286	95% WH USL					23.97	95% HW USL					26.28
287												
288	Lognormal GOF Test											
289	Shapiro Wilk Test Statistic					0.953	Shapiro Wilk Lognormal GOF Test					
290	10% Shapiro Wilk P Value					1.3354E-6	Data Not Lognormal at 10% Significance Level					
291	Lilliefors Test Statistic					0.0722	Lilliefors Lognormal GOF Test					
292	10% Lilliefors Critical Value					0.0552	Data Not Lognormal at 10% Significance Level					
293	Data Not Lognormal at 10% Significance Level											
294												
295	Background Statistics assuming Lognormal Distribution											
296	95% UTL with		95% Coverage		14.83	90% Percentile (z)					10.6	
297			95% UPL (t)		13.35	95% Percentile (z)					13.26	
298			95% USL		40.46	99% Percentile (z)					20.16	
299												
300	Nonparametric Distribution Free Background Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L
301	Data appear Gamma Distributed at 5% Significance Level											
302												
303	Nonparametric Upper Limits for Background Threshold Values											
304	Order of Statistic, order				214	95% UTL with 95% Coverage						12.7
305	Approx, f used to compute achieved CC				1.602	Approximate Actual Confidence Coefficient achieved by UTL						0.925
306						Approximate Sample Size needed to achieve specified CC						208
307	95% Percentile Bootstrap UTL with 95% Coverage				12.7	95% BCA Bootstrap UTL with 95% Coverage						12.7
308	95% UPL				12	90% Percentile						10.12
309	90% Chebyshev UPL				15.01	95% Percentile						11.55
310	95% Chebyshev UPL				19.23	99% Percentile						13.86
311	95% USL				14.5							
312												
313	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
314	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
315	and consists of observations collected from clean unimpacted locations.											
316	The use of USL tends to provide a balance between false positives and false negatives provided the data											
317	represents a background data set and when many onsite observations need to be compared with the BTV.											
318												
319	LA Pb All											
320												
321	General Statistics											
322	Total Number of Observations				225	Number of Distinct Observations						148
323	Minimum				4.4	First Quartile						13.1
324	Second Largest				80.6	Median						17.3
325	Maximum				90.8	Third Quartile						22.2
326	Mean				18.85	SD						10.07
327	Coefficient of Variation				0.534	Skewness						3.132
328	Mean of logged Data				2.833	SD of logged Data						0.442
329												
330	Critical Values for Background Threshold Values (BTVs)											
331	Tolerance Factor K (For UTL)				1.824	d2max (for USL)						3.468
332												
333	Normal GOF Test											
334	Shapiro Wilk Test Statistic				0.785	Normal GOF Test						
335	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level						
336	Lilliefors Test Statistic				0.141	Lilliefors GOF Test						
337	1% Lilliefors Critical Value				0.0688	Data Not Normal at 1% Significance Level						
338	Data Not Normal at 1% Significance Level											
339												
340	Background Statistics Assuming Normal Distribution											
341	95% UTL with 95% Coverage				37.23	90% Percentile (z)						31.76
342	95% UPL (t)				35.53	95% Percentile (z)						35.42
343	95% USL				53.79	99% Percentile (z)						42.29
344												
345	Gamma GOF Test											
346	A-D Test Statistic				1.725	Anderson-Darling Gamma GOF Test						
347	5% A-D Critical Value				0.756	Data Not Gamma Distributed at 5% Significance Level						
348	K-S Test Statistic				0.0738	Kolmogorov-Smirnov Gamma GOF Test						
349	5% K-S Critical Value				0.0609	Data Not Gamma Distributed at 5% Significance Level						
350	Data Not Gamma Distributed at 5% Significance Level											

	A	B	C	D	E	F	G	H	I	J	K	L
351												
352	Gamma Statistics											
353	k hat (MLE)				4.988		k star (bias corrected MLE)				4.925	
354	Theta hat (MLE)				3.78		Theta star (bias corrected MLE)				3.829	
355	nu hat (MLE)				2245		nu star (bias corrected)				2216	
356	MLE Mean (bias corrected)				18.85		MLE Sd (bias corrected)				8.496	
357												
358	Background Statistics Assuming Gamma Distribution											
359	95% Wilson Hilferty (WH) Approx. Gamma UPL				34.53		90% Percentile				30.23	
360	95% Hawkins Wixley (HW) Approx. Gamma UPL				34.63		95% Percentile				34.65	
361	95% WH Approx. Gamma UTL with 95% Coverage				36.7		99% Percentile				43.99	
362	95% HW Approx. Gamma UTL with 95% Coverage				36.91							
363	95% WH USL				62.82		95% HW USL				65.51	
364												
365	Lognormal GOF Test											
366	Shapiro Wilk Test Statistic				0.988		Shapiro Wilk Lognormal GOF Test					
367	10% Shapiro Wilk P Value				0.84		Data appear Lognormal at 10% Significance Level					
368	Lilliefors Test Statistic				0.0419		Lilliefors Lognormal GOF Test					
369	10% Lilliefors Critical Value				0.0544		Data appear Lognormal at 10% Significance Level					
370	Data appear Lognormal at 10% Significance Level											
371												
372	Background Statistics assuming Lognormal Distribution											
373	95% UTL with 95% Coverage				38.08		90% Percentile (z)				29.96	
374	95% UPL (t)				35.34		95% Percentile (z)				35.18	
375	95% USL				78.77		99% Percentile (z)				47.55	
376												
377	Nonparametric Distribution Free Background Statistics											
378	Data appear Lognormal at 10% Significance Level											
379												
380	Nonparametric Upper Limits for Background Threshold Values											
381	Order of Statistic, order				220		95% UTL with 95% Coverage				41.7	
382	Approx, f used to compute achieved CC				1.647		Approximate Actual Confidence Coefficient achieved by UTL				0.936	
383							Approximate Sample Size needed to achieve specified CC				208	
384	95% Percentile Bootstrap UTL with 95% Coverage				40.7		95% BCA Bootstrap UTL with 95% Coverage				38	
385	95% UPL				36.05		90% Percentile				29.5	
386	90% Chebyshev UPL				49.14		95% Percentile				35.6	
387	95% Chebyshev UPL				62.86		99% Percentile				47.08	
388	95% USL				90.8							
389												
390	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
391	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
392	and consists of observations collected from clean unimpacted locations.											
393	The use of USL tends to provide a balance between false positives and false negatives provided the data											
394	represents a background data set and when many onsite observations need to be compared with the BTV.											
395												
396	LA Pb <50											
397												
398	General Statistics											
399	Total Number of Observations				223		Number of Distinct Observations				146	
400	Minimum				4.4		First Quartile				13.1	

	A	B	C	D	E	F	G	H	I	J	K	L
401	Second Largest					46.7	Median					17.2
402	Maximum					47.2	Third Quartile					22
403	Mean					18.26	SD					7.844
404	Coefficient of Variation					0.43	Skewness					1.2
405	Mean of logged Data					2.819	SD of logged Data					0.417
406												
407	Critical Values for Background Threshold Values (BTVs)											
408	Tolerance Factor K (For UTL)					1.825	d2max (for USL)					3.465
409												
410	Normal GOF Test											
411	Shapiro Wilk Test Statistic					0.911	Normal GOF Test					
412	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
413	Lilliefors Test Statistic					0.104	Lilliefors GOF Test					
414	1% Lilliefors Critical Value					0.0691	Data Not Normal at 1% Significance Level					
415	Data Not Normal at 1% Significance Level											
416												
417	Background Statistics Assuming Normal Distribution											
418	95% UTL with		95% Coverage		32.57	90% Percentile (z)					28.31	
419			95% UPL (t)		31.24	95% Percentile (z)					31.16	
420			95% USL		45.44	99% Percentile (z)					36.5	
421												
422	Gamma GOF Test											
423	A-D Test Statistic					0.67	Anderson-Darling Gamma GOF Test					
424	5% A-D Critical Value					0.755	Detected data appear Gamma Distributed at 5% Significance Level					
425	K-S Test Statistic					0.0495	Kolmogorov-Smirnov Gamma GOF Test					
426	5% K-S Critical Value					0.0611	Detected data appear Gamma Distributed at 5% Significance Level					
427	Detected data appear Gamma Distributed at 5% Significance Level											
428												
429	Gamma Statistics											
430	k hat (MLE)					5.993	k star (bias corrected MLE)					5.915
431	Theta hat (MLE)					3.046	Theta star (bias corrected MLE)					3.086
432	nu hat (MLE)					2673	nu star (bias corrected)					2638
433	MLE Mean (bias corrected)					18.26	MLE Sd (bias corrected)					7.506
434												
435	Background Statistics Assuming Gamma Distribution											
436	95% Wilson Hilferty (WH) Approx. Gamma UPL					32.1	90% Percentile					28.29
437	95% Hawkins Wixley (HW) Approx. Gamma UPL					32.34	95% Percentile					32.09
438	95% WH Approx. Gamma UTL with		95% Coverage		33.98	99% Percentile					40.07	
439	95% HW Approx. Gamma UTL with		95% Coverage		34.33							
440			95% WH USL		56.09	95% HW USL					58.71	
441												
442	Lognormal GOF Test											
443	Shapiro Wilk Test Statistic					0.986	Shapiro Wilk Lognormal GOF Test					
444	10% Shapiro Wilk P Value					0.749	Data appear Lognormal at 10% Significance Level					
445	Lilliefors Test Statistic					0.0307	Lilliefors Lognormal GOF Test					
446	10% Lilliefors Critical Value					0.0547	Data appear Lognormal at 10% Significance Level					
447	Data appear Lognormal at 10% Significance Level											
448												
449	Background Statistics assuming Lognormal Distribution											
450	95% UTL with		95% Coverage		35.83	90% Percentile (z)					28.57	

	A	B	C	D	E	F	G	H	I	J	K	L
451	95% UPL (t)				33.39	95% Percentile (z)				33.24		
452	95% USL				70.95	99% Percentile (z)				44.15		
453												
454	Nonparametric Distribution Free Background Statistics											
455	Data appear Gamma Distributed at 5% Significance Level											
456												
457	Nonparametric Upper Limits for Background Threshold Values											
458	Order of Statistic, order				218	95% UTL with 95% Coverage				38		
459	Approx, f used to compute achieved CC				1.632	Approximate Actual Confidence Coefficient achieved by UTL				0.932		
460						Approximate Sample Size needed to achieve specified CC				208		
461	95% Percentile Bootstrap UTL with 95% Coverage				37.18	95% BCA Bootstrap UTL with 95% Coverage				37.1		
462	95% UPL				35.16	90% Percentile				27.84		
463	90% Chebyshev UPL				41.84	95% Percentile				34.91		
464	95% Chebyshev UPL				52.52	99% Percentile				43.65		
465	95% USL				47.2							
466												
467	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
468	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
469	and consists of observations collected from clean unimpacted locations.											
470	The use of USL tends to provide a balance between false positives and false negatives provided the data											
471	represents a background data set and when many onsite observations need to be compared with the BTV.											
472												
473	LA Pb <40											
474												
475	General Statistics											
476	Total Number of Observations				218	Number of Distinct Observations				141		
477	Minimum				4.4	First Quartile				13.03		
478	Second Largest				37.4	Median				16.9		
479	Maximum				38	Third Quartile				21.45		
480	Mean				17.66	SD				6.845		
481	Coefficient of Variation				0.388	Skewness				0.802		
482	Mean of logged Data				2.796	SD of logged Data				0.394		
483												
484	Critical Values for Background Threshold Values (BTVs)											
485	Tolerance Factor K (For UTL)				1.827	d2max (for USL)				3.458		
486												
487	Normal GOF Test											
488	Shapiro Wilk Test Statistic				0.94	Normal GOF Test						
489	1% Shapiro Wilk P Value				1.664E-10	Data Not Normal at 1% Significance Level						
490	Lilliefors Test Statistic				0.0744	Lilliefors GOF Test						
491	1% Lilliefors Critical Value				0.0699	Data Not Normal at 1% Significance Level						
492	Data Not Normal at 1% Significance Level											
493												
494	Background Statistics Assuming Normal Distribution											
495	95% UTL with 95% Coverage				30.16	90% Percentile (z)				26.43		
496	95% UPL (t)				28.99	95% Percentile (z)				28.92		
497	95% USL				41.33	99% Percentile (z)				33.58		
498												
499	Gamma GOF Test											
500	A-D Test Statistic				0.26	Anderson-Darling Gamma GOF Test						

	A	B	C	D	E	F	G	H	I	J	K	L	
501	5% A-D Critical Value					0.755	Detected data appear Gamma Distributed at 5% Significance Level						
502	K-S Test Statistic					0.0301	Kolmogorov-Smirnov Gamma GOF Test						
503	5% K-S Critical Value					0.0616	Detected data appear Gamma Distributed at 5% Significance Level						
504	Detected data appear Gamma Distributed at 5% Significance Level												
505													
506	Gamma Statistics												
507	k hat (MLE)					6.85	k star (bias corrected MLE)					6.759	
508	Theta hat (MLE)					2.578	Theta star (bias corrected MLE)					2.613	
509	nu hat (MLE)					2987	nu star (bias corrected)					2947	
510	MLE Mean (bias corrected)					17.66	MLE Sd (bias corrected)					6.792	
511													
512	Background Statistics Assuming Gamma Distribution												
513	95% Wilson Hilferty (WH) Approx. Gamma UPL					30.13	90% Percentile					26.73	
514	95% Hawkins Wixley (HW) Approx. Gamma UPL					30.4	95% Percentile					30.11	
515	95% WH Approx. Gamma UTL with 95% Coverage					31.82	99% Percentile					37.15	
516	95% HW Approx. Gamma UTL with 95% Coverage					32.19							
517	95% WH USL					51.1	95% HW USL					53.42	
518													
519	Lognormal GOF Test												
520	Shapiro Wilk Test Statistic					0.981	Shapiro Wilk Lognormal GOF Test						
521	10% Shapiro Wilk P Value					0.358	Data appear Lognormal at 10% Significance Level						
522	Lilliefors Test Statistic					0.0433	Lilliefors Lognormal GOF Test						
523	10% Lilliefors Critical Value					0.0553	Data appear Lognormal at 10% Significance Level						
524	Data appear Lognormal at 10% Significance Level												
525													
526	Background Statistics assuming Lognormal Distribution												
527	95% UTL with 95% Coverage					33.66	90% Percentile (z)					27.15	
528	95% UPL (t)					31.46	95% Percentile (z)					31.33	
529	95% USL					64.01	99% Percentile (z)					40.98	
530													
531	Nonparametric Distribution Free Background Statistics												
532	Data appear Gamma Distributed at 5% Significance Level												
533													
534	Nonparametric Upper Limits for Background Threshold Values												
535	Order of Statistic, order					213	95% UTL with 95% Coverage					35.2	
536	Approx, f used to compute achieved CC					1.594	Approximate Actual Confidence Coefficient achieved by UTL					0.922	
537							Approximate Sample Size needed to achieve specified CC					208	
538	95% Percentile Bootstrap UTL with 95% Coverage					34.34	95% BCA Bootstrap UTL with 95% Coverage					35	
539	95% UPL					31.91	90% Percentile					26.23	
540	90% Chebyshev UPL					38.24	95% Percentile					31.82	
541	95% Chebyshev UPL					47.56	99% Percentile					36.95	
542	95% USL					38							
543													
544	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
545	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
546	and consists of observations collected from clean unimpacted locations.												
547	The use of USL tends to provide a balance between false positives and false negatives provided the data												
548	represents a background data set and when many onsite observations need to be compared with the BTV.												
549													
550	LA Pb <35												

	A	B	C	D	E	F	G	H	I	J	K	L
551												
552	General Statistics											
553	Total Number of Observations					211	Number of Distinct Observations					134
554	Minimum					4.4	First Quartile					12.75
555	Second Largest					33.3	Median					16.4
556	Maximum					34.1	Third Quartile					20.65
557	Mean					17.04	SD					6.026
558	Coefficient of Variation					0.354	Skewness					0.51
559	Mean of logged Data					2.77	SD of logged Data					0.372
560												
561	Critical Values for Background Threshold Values (BTVs)											
562	Tolerance Factor K (For UTL)					1.83	d2max (for USL)					3.449
563												
564	Normal GOF Test											
565	Shapiro Wilk Test Statistic					0.962	Normal GOF Test					
566	1% Shapiro Wilk P Value					5.0436E-4	Data Not Normal at 1% Significance Level					
567	Lilliefors Test Statistic					0.0567	Lilliefors GOF Test					
568	1% Lilliefors Critical Value					0.071	Data appear Normal at 1% Significance Level					
569	Data appear Approximate Normal at 1% Significance Level											
570												
571	Background Statistics Assuming Normal Distribution											
572	95% UTL with 95% Coverage					28.07	90% Percentile (z)					24.76
573	95% UPL (t)					27.02	95% Percentile (z)					26.95
574	95% USL					37.82	99% Percentile (z)					31.06
575												
576	Gamma GOF Test											
577	A-D Test Statistic					0.209	Anderson-Darling Gamma GOF Test					
578	5% A-D Critical Value					0.754	Detected data appear Gamma Distributed at 5% Significance Level					
579	K-S Test Statistic					0.0368	Kolmogorov-Smirnov Gamma GOF Test					
580	5% K-S Critical Value					0.0624	Detected data appear Gamma Distributed at 5% Significance Level					
581	Detected data appear Gamma Distributed at 5% Significance Level											
582												
583	Gamma Statistics											
584	k hat (MLE)					7.807	k star (bias corrected MLE)					7.699
585	Theta hat (MLE)					2.182	Theta star (bias corrected MLE)					2.213
586	nu hat (MLE)					3295	nu star (bias corrected)					3249
587	MLE Mean (bias corrected)					17.04	MLE Sd (bias corrected)					6.14
588												
589	Background Statistics Assuming Gamma Distribution											
590	95% Wilson Hilferty (WH) Approx. Gamma UPL					28.27	90% Percentile					25.23
591	95% Hawkins Wixley (HW) Approx. Gamma UPL					28.53	95% Percentile					28.23
592	95% WH Approx. Gamma UTL with 95% Coverage					29.78	99% Percentile					34.46
593	95% HW Approx. Gamma UTL with 95% Coverage					30.14						
594	95% WH USL					46.56	95% HW USL					48.58
595												
596	Lognormal GOF Test											
597	Shapiro Wilk Test Statistic					0.976	Shapiro Wilk Lognormal GOF Test					
598	10% Shapiro Wilk P Value					0.103	Data appear Lognormal at 10% Significance Level					
599	Lilliefors Test Statistic					0.0576	Lilliefors Lognormal GOF Test					
600	10% Lilliefors Critical Value					0.0562	Data Not Lognormal at 10% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L
601	Data appear Approximate Lognormal at 10% Significance Level											
602												
603	Background Statistics assuming Lognormal Distribution											
604	95% UTL with 95% Coverage					31.54	90% Percentile (z)					25.71
605	95% UPL (t)					29.56	95% Percentile (z)					29.43
606	95% USL					57.59	99% Percentile (z)					37.93
607												
608	Nonparametric Distribution Free Background Statistics											
609	Data appear Approximate Normal at 1% Significance Level											
610												
611	Nonparametric Upper Limits for Background Threshold Values											
612	Order of Statistic, order					206	95% UTL with 95% Coverage					31.4
613	Approx, f used to compute achieved CC					1.541	Approximate Actual Confidence Coefficient achieved by UTL					0.907
614							Approximate Sample Size needed to achieve specified CC					208
615	95% Percentile Bootstrap UTL with 95% Coverage					31.3	95% BCA Bootstrap UTL with 95% Coverage					31.3
616	95% UPL					27.94	90% Percentile					24.8
617	90% Chebyshev UPL					35.16	95% Percentile					27.75
618	95% Chebyshev UPL					43.37	99% Percentile					32.08
619	95% USL					34.1						
620												
621	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
622	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
623	and consists of observations collected from clean unimpacted locations.											
624	The use of USL tends to provide a balance between false positives and false negatives provided the data											
625	represents a background data set and when many onsite observations need to be compared with the BTV.											
626												

ProUCL Output Files – Oklahoma

Q-Q Plot for OK As <15



OK As <15

N = 317

Mean = 5.197

Sd = 2.88

Slope = 2.796

Intercept = 5.197

Correlation, R = 0.967

Best Fit Line

Q-Q Plot for OK As <17



OKAs <17

N = 322

Mean = 5.358

Sd = 3.134

Slope = 3.008

Intercept = 5.358

Correlation, R = 0.956

Best Fit Line

Q-Q Plot for OK As <18



OK As <18

N = 327

Mean = 5.539

Sd = 3.432

Slope = 3.251

Intercept = 5.539

Correlation, R = 0.943

Best Fit Line

Q-Q Plot for OK As <25



OK As <25

N = 331

Mean = 5.702

Sd = 3.72

Slope = 3.482

Intercept = 5.702

Correlation, R = 0.932

Best Fit Line

Q-Q Plot for OK As All



OK As All

N = 333

Mean = 5.82

Sd = 4.01

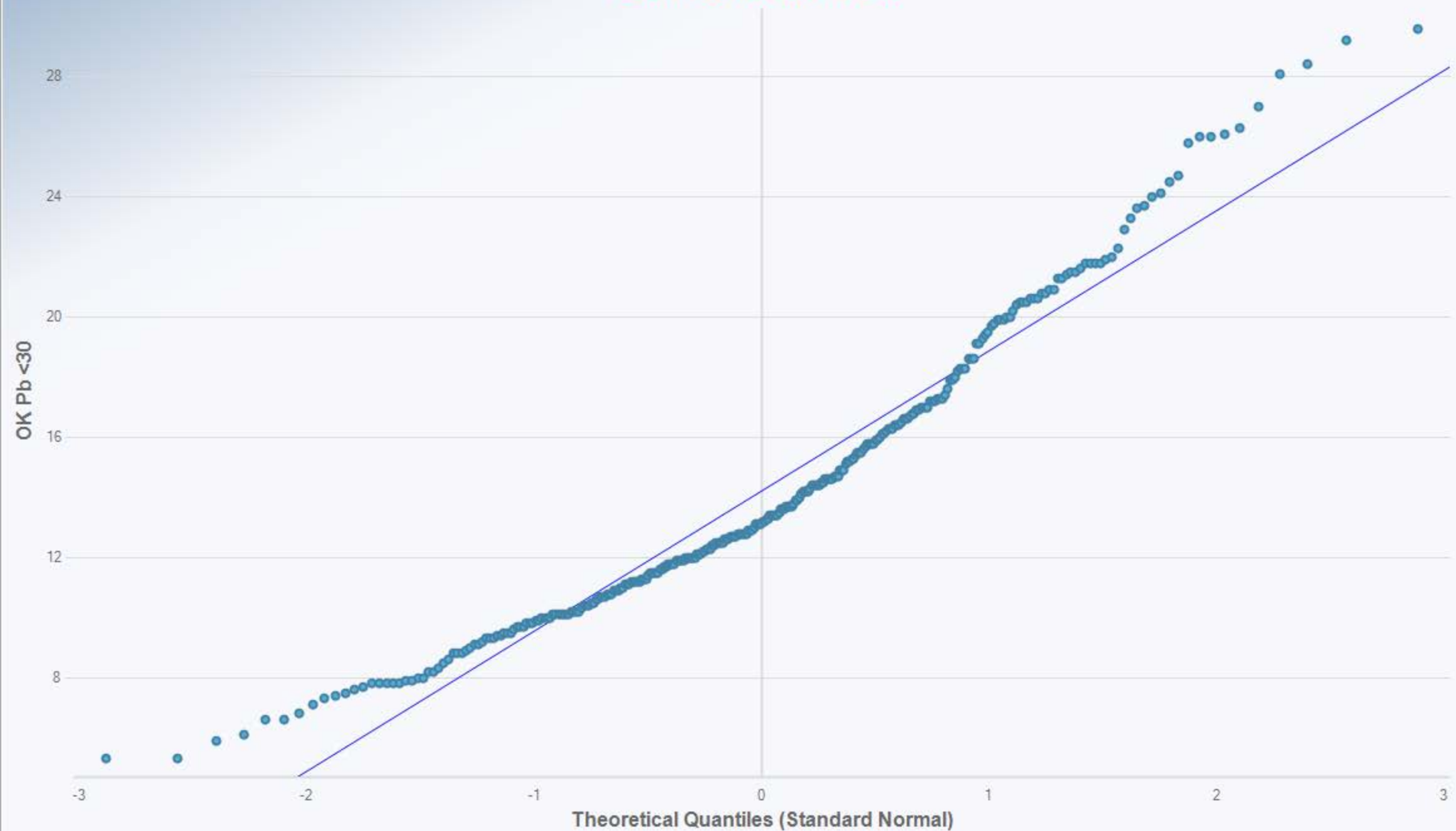
Slope = 3.69

Intercept = 5.82

Correlation, R = 0.916

Best Fit Line

Q-Q Plot for OK Pb <30



OK Pb <30

N = 316

Mean = 14.2

Sd = 4.764

Slope = 4.672

Intercept = 14.2

Correlation, R = 0.977

Best Fit Line

Q-Q Plot for OK Pb <45



OK Pb <45

N = 325

Mean = 14.88

Sd = 6.251

Slope = 5.782

Intercept = 14.88

Correlation, R = 0.921

Best Fit Line

Q-Q Plot for OK Pb <50



OK Pb <50

N = 329

Mean = 15.27

Sd = 7.119

Slope = 6.395

Intercept = 15.27

Correlation, R = 0.895

Best Fit Line

Q-Q Plot for OK Pb <100



OK Pb <100

N = 331

Mean = 15.49

Sd = 7.641

Slope = 6.76

Intercept = 15.49

Correlation, R = 0.881

Best Fit Line

Q-Q Plot for OK Pb All



OK Pb All

N = 333

Mean = 16.09

Sd = 10.87

Slope = 8.164

Intercept = 16.09

Correlation, R = 0.748

Best Fit Line

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.2 1/27/2024 2:57:46 PM								
4	From File			D:\Tramm\BACKGROUND EVAL\AEEG Article - Estimators\Oklahoma\Oklahoma USGS 2013.xlsx								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	OK As All											
12												
13	General Statistics											
14				Total Number of Observations	333				Number of Distinct Observations	114		
15				Minimum	0.8				First Quartile	3.2		
16				Second Largest	25.2				Median	4.9		
17				Maximum	25.6				Third Quartile	7.1		
18				Mean	5.82				SD	4.01		
19				Coefficient of Variation	0.689				Skewness	1.831		
20				Mean of logged Data	1.553				SD of logged Data	0.656		
21												
22	Critical Values for Background Threshold Values (BTVs)											
23				Tolerance Factor K (For UTL)	1.79				d2max (for USL)	3.582		
24												
25	Normal GOF Test											
26				Shapiro Wilk Test Statistic	0.837				Normal GOF Test			
27				1% Shapiro Wilk P Value	0				Data Not Normal at 1% Significance Level			
28				Lilliefors Test Statistic	0.137				Lilliefors GOF Test			
29				1% Lilliefors Critical Value	0.0566				Data Not Normal at 1% Significance Level			
30	Data Not Normal at 1% Significance Level											
31												
32	Background Statistics Assuming Normal Distribution											
33				95% UTL with 95% Coverage	13				90% Percentile (z)	10.96		
34				95% UPL (t)	12.44				95% Percentile (z)	12.42		
35				95% USL	20.19				99% Percentile (z)	15.15		
36												
37	Gamma GOF Test											
38				A-D Test Statistic	1.672				Anderson-Darling Gamma GOF Test			
39				5% A-D Critical Value	0.762				Data Not Gamma Distributed at 5% Significance Level			
40				K-S Test Statistic	0.0537				Kolmogorov-Smirnov Gamma GOF Test			
41				5% K-S Critical Value	0.0503				Data Not Gamma Distributed at 5% Significance Level			
42	Data Not Gamma Distributed at 5% Significance Level											
43												
44	Gamma Statistics											
45				k hat (MLE)	2.559				k star (bias corrected MLE)	2.538		
46				Theta hat (MLE)	2.275				Theta star (bias corrected MLE)	2.294		
47				nu hat (MLE)	1704				nu star (bias corrected)	1690		
48				MLE Mean (bias corrected)	5.82				MLE Sd (bias corrected)	3.654		
49												
50	Background Statistics Assuming Gamma Distribution											
51				95% Wilson Hilferty (WH) Approx. Gamma UPL	12.76				90% Percentile	10.72		
52				95% Hawkins Wixley (HW) Approx. Gamma UPL	12.95				95% Percentile	12.83		
53				95% WH Approx. Gamma UTL with 95% Coverage	13.63				99% Percentile	17.45		
54				95% HW Approx. Gamma UTL with 95% Coverage	13.9							
55				95% WH USL	28.63				95% HW USL	31.44		
56												
57	Lognormal GOF Test											
58				Shapiro Wilk Test Statistic	0.975				Shapiro Wilk Lognormal GOF Test			
59				10% Shapiro Wilk P Value	0.0196				Data Not Lognormal at 10% Significance Level			
60				Lilliefors Test Statistic	0.0573				Lilliefors Lognormal GOF Test			
61				10% Lilliefors Critical Value	0.0448				Data Not Lognormal at 10% Significance Level			
62	Data Not Lognormal at 10% Significance Level											
63												
64	Background Statistics assuming Lognormal Distribution											
65				95% UTL with 95% Coverage	15.3				90% Percentile (z)	10.96		
66				95% UPL (t)	13.97				95% Percentile (z)	13.91		
67				95% USL	49.58				99% Percentile (z)	21.75		
68												
69	Nonparametric Distribution Free Background Statistics											
70	Data do not follow a Discernible Distribution											

	A	B	C	D	E	F	G	H	I	J	K	L
71												
72	Nonparametric Upper Limits for Background Threshold Values											
73	Order of Statistic, order					324	95% UTL with 95% Coverage					17
74	Approx, f used to compute achieved CC					1.545	Approximate Actual Confidence Coefficient achieved by UTL					0.947
75							Approximate Sample Size needed to achieve specified CC					311
76	95% Percentile Bootstrap UTL with 95% Coverage					16.52	95% BCA Bootstrap UTL with 95% Coverage					16.34
77	95% UPL					14.96	90% Percentile					11.2
78	90% Chebyshev UPL					17.87	95% Percentile					14.84
79	95% Chebyshev UPL					23.33	99% Percentile					18.77
80	95% USL					25.6						
81												
82	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
83	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
84	and consists of observations collected from clean unimpacted locations.											
85	The use of USL tends to provide a balance between false positives and false negatives provided the data											
86	represents a background data set and when many onsite observations need to be compared with the BTV.											
87												
88	OK As <25											
89												
90	General Statistics											
91	Total Number of Observations					331	Number of Distinct Observations					112
92	Minimum					0.8	First Quartile					3.2
93	Second Largest					18.8	Median					4.9
94	Maximum					20.4	Third Quartile					7.1
95	Mean					5.702	SD					3.72
96	Coefficient of Variation					0.652	Skewness					1.514
97	Mean of logged Data					1.543	SD of logged Data					0.645
98												
99	Critical Values for Background Threshold Values (BTVs)											
100	Tolerance Factor K (For UTL)					1.791	d2max (for USL)					3.581
101												
102	Normal GOF Test											
103	Shapiro Wilk Test Statistic					0.857	Normal GOF Test					
104	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
105	Lilliefors Test Statistic					0.125	Lilliefors GOF Test					
106	1% Lilliefors Critical Value					0.0568	Data Not Normal at 1% Significance Level					
107	Data Not Normal at 1% Significance Level											
108												
109	Background Statistics Assuming Normal Distribution											
110	95% UTL with 95% Coverage					12.36	90% Percentile (z)					10.47
111	95% UPL (t)					11.85	95% Percentile (z)					11.82
112	95% USL					19.02	99% Percentile (z)					14.36
113												
114	Gamma GOF Test											
115	A-D Test Statistic					1.324	Anderson-Darling Gamma GOF Test					
116	5% A-D Critical Value					0.762	Data Not Gamma Distributed at 5% Significance Level					
117	K-S Test Statistic					0.0453	Kolmogorov-Smirnov Gamma GOF Test					
118	5% K-S Critical Value					0.0504	Detected data appear Gamma Distributed at 5% Significance Level					
119	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
120												
121	Gamma Statistics											
122	k hat (MLE)					2.685	k star (bias corrected MLE)					2.663
123	Theta hat (MLE)					2.123	Theta star (bias corrected MLE)					2.141
124	nu hat (MLE)					1778	nu star (bias corrected)					1763
125	MLE Mean (bias corrected)					5.702	MLE Sd (bias corrected)					3.494
126												
127	Background Statistics Assuming Gamma Distribution											
128	95% Wilson Hilferty (WH) Approx. Gamma UPL					12.34	90% Percentile					10.38
129	95% Hawkins Wixley (HW) Approx. Gamma UPL					12.55	95% Percentile					12.39
130	95% WH Approx. Gamma UTL with 95% Coverage					13.17	99% Percentile					16.76
131	95% HW Approx. Gamma UTL with 95% Coverage					13.45						
132	95% WH USL					27.31	95% HW USL					29.99
133												
134	Lognormal GOF Test											
135	Shapiro Wilk Test Statistic					0.971	Shapiro Wilk Lognormal GOF Test					
136	10% Shapiro Wilk P Value					0.00163	Data Not Lognormal at 10% Significance Level					
137	Lilliefors Test Statistic					0.0594	Lilliefors Lognormal GOF Test					
138	10% Lilliefors Critical Value					0.0449	Data Not Lognormal at 10% Significance Level					
139	Data Not Lognormal at 10% Significance Level											
140												

	A	B	C	D	E	F	G	H	I	J	K	L
141	Background Statistics assuming Lognormal Distribution											
142	95% UTL with 95% Coverage		14.85		90% Percentile (z)		10.69					
143	95% UPL (t)		13.58		95% Percentile (z)		13.52					
144	95% USL		47.09		99% Percentile (z)		20.97					
145												
146	Nonparametric Distribution Free Background Statistics											
147	Data appear Approximate Gamma Distribution at 5% Significance Level											
148												
149	Nonparametric Upper Limits for Background Threshold Values											
150	Order of Statistic, order		322		95% UTL with 95% Coverage		16.2					
151	Approx, f used to compute achieved CC		1.536		Approximate Actual Confidence Coefficient achieved by UTL		0.944					
152					Approximate Sample Size needed to achieve specified CC		311					
153	95% Percentile Bootstrap UTL with 95% Coverage		15.5		95% BCA Bootstrap UTL with 95% Coverage		15.4					
154	95% UPL		14.74		90% Percentile		10.5					
155	90% Chebyshev UPL		16.88		95% Percentile		14.6					
156	95% Chebyshev UPL		21.94		99% Percentile		18.13					
157	95% USL		20.4									
158												
159	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
160	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
161	and consists of observations collected from clean unimpacted locations.											
162	The use of USL tends to provide a balance between false positives and false negatives provided the data											
163	represents a background data set and when many onsite observations need to be compared with the BTV.											
164												
165	OK As <18											
166												
167	General Statistics											
168	Total Number of Observations		327		Number of Distinct Observations		108					
169	Minimum		0.8		First Quartile		3.2					
170	Second Largest		17.4		Median		4.9					
171	Maximum		17.5		Third Quartile		7.05					
172	Mean		5.539		SD		3.432					
173	Coefficient of Variation		0.62		Skewness		1.357					
174	Mean of logged Data		1.526		SD of logged Data		0.63					
175												
176	Critical Values for Background Threshold Values (BTVs)											
177	Tolerance Factor K (For UTL)		1.792		d2max (for USL)		3.577					
178												
179	Normal GOF Test											
180	Shapiro Wilk Test Statistic		0.874		Normal GOF Test							
181	1% Shapiro Wilk P Value		0		Data Not Normal at 1% Significance Level							
182	Lilliefors Test Statistic		0.113		Lilliefors GOF Test							
183	1% Lilliefors Critical Value		0.0571		Data Not Normal at 1% Significance Level							
184	Data Not Normal at 1% Significance Level											
185												
186	Background Statistics Assuming Normal Distribution											
187	95% UTL with 95% Coverage		11.69		90% Percentile (z)		9.937					
188	95% UPL (t)		11.21		95% Percentile (z)		11.18					
189	95% USL		17.82		99% Percentile (z)		13.52					
190												
191	Gamma GOF Test											
192	A-D Test Statistic		0.943		Anderson-Darling Gamma GOF Test							
193	5% A-D Critical Value		0.761		Data Not Gamma Distributed at 5% Significance Level							
194	K-S Test Statistic		0.0371		Kolmogorov-Smirnov Gamma GOF Test							
195	5% K-S Critical Value		0.0506		Detected data appear Gamma Distributed at 5% Significance Level							
196	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
197												
198	Gamma Statistics											
199	k hat (MLE)		2.849		k star (bias corrected MLE)		2.825					
200	Theta hat (MLE)		1.944		Theta star (bias corrected MLE)		1.961					
201	nu hat (MLE)		1863		nu star (bias corrected)		1847					
202	MLE Mean (bias corrected)		5.539		MLE Sd (bias corrected)		3.295					
203												
204	Background Statistics Assuming Gamma Distribution											
205	95% Wilson Hilferty (WH) Approx. Gamma UPL		11.8		90% Percentile		9.956					
206	95% Hawkins Wixley (HW) Approx. Gamma UPL		12		95% Percentile		11.83					
207	95% WH Approx. Gamma UTL with 95% Coverage		12.57		99% Percentile		15.9					
208	95% HW Approx. Gamma UTL with 95% Coverage		12.85									
209	95% WH USL		25.64		95% HW USL		28.13					
210												

	A	B	C	D	E	F	G	H	I	J	K	L	
211	Lognormal GOF Test												
212	Shapiro Wilk Test Statistic					0.968	Shapiro Wilk Lognormal GOF Test						
213	10% Shapiro Wilk P Value					1.8762E-4	Data Not Lognormal at 10% Significance Level						
214	Lilliefors Test Statistic					0.0635	Lilliefors Lognormal GOF Test						
215	10% Lilliefors Critical Value					0.0452	Data Not Lognormal at 10% Significance Level						
216	Data Not Lognormal at 10% Significance Level												
217													
218	Background Statistics assuming Lognormal Distribution												
219	95% UTL with 95% Coverage					14.21	90% Percentile (z)					10.31	
220						95% UPL (t)	13.02	95% Percentile (z)					12.96
221						95% USL	43.73	99% Percentile (z)					19.9
222													
223	Nonparametric Distribution Free Background Statistics												
224	Data appear Approximate Gamma Distribution at 5% Significance Level												
225													
226	Nonparametric Upper Limits for Background Threshold Values												
227	Order of Statistic, order					318	95% UTL with 95% Coverage					15.1	
228	Approx, f used to compute achieved CC					1.517	Approximate Actual Confidence Coefficient achieved by UTL					0.939	
229							Approximate Sample Size needed to achieve specified CC					311	
230	95% Percentile Bootstrap UTL with 95% Coverage					14.84	95% BCA Bootstrap UTL with 95% Coverage					14.77	
231						95% UPL	13.1	90% Percentile					9.54
232						90% Chebyshev UPL	15.85	95% Percentile					13.1
233						95% Chebyshev UPL	20.52	99% Percentile					17
234						95% USL	17.5						
235													
236	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
237	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
238	and consists of observations collected from clean unimpacted locations.												
239	The use of USL tends to provide a balance between false positives and false negatives provided the data												
240	represents a background data set and when many onsite observations need to be compared with the BTV.												
241													
242	OK As <17												
243													
244	General Statistics												
245	Total Number of Observations					322	Number of Distinct Observations					105	
246	Minimum					0.8	First Quartile					3.125	
247	Second Largest					15.9	Median					4.85	
248	Maximum					16.2	Third Quartile					6.9	
249	Mean					5.358	SD					3.134	
250	Coefficient of Variation					0.585	Skewness					1.181	
251	Mean of logged Data					1.506	SD of logged Data					0.612	
252													
253	Critical Values for Background Threshold Values (BTVs)												
254	Tolerance Factor K (For UTL)					1.793	d2max (for USL)					3.573	
255													
256	Normal GOF Test												
257	Shapiro Wilk Test Statistic					0.897	Normal GOF Test						
258	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
259	Lilliefors Test Statistic					0.0999	Lilliefors GOF Test						
260	1% Lilliefors Critical Value					0.0576	Data Not Normal at 1% Significance Level						
261	Data Not Normal at 1% Significance Level												
262													
263	Background Statistics Assuming Normal Distribution												
264	95% UTL with 95% Coverage					10.98	90% Percentile (z)					9.374	
265						95% UPL (t)	10.54	95% Percentile (z)					10.51
266						95% USL	16.55	99% Percentile (z)					12.65
267													
268	Gamma GOF Test												
269	A-D Test Statistic					0.68	Anderson-Darling Gamma GOF Test						
270	5% A-D Critical Value					0.76	Detected data appear Gamma Distributed at 5% Significance Level						
271	K-S Test Statistic					0.0354	Kolmogorov-Smirnov Gamma GOF Test						
272	5% K-S Critical Value					0.0509	Detected data appear Gamma Distributed at 5% Significance Level						
273	Detected data appear Gamma Distributed at 5% Significance Level												
274													
275	Gamma Statistics												
276	k hat (MLE)					3.048	k star (bias corrected MLE)					3.021	
277	Theta hat (MLE)					1.758	Theta star (bias corrected MLE)					1.773	
278	nu hat (MLE)					1963	nu star (bias corrected)					1946	
279	MLE Mean (bias corrected)					5.358	MLE Sd (bias corrected)					3.082	
280													

	A	B	C	D	E	F	G	H	I	J	K	L	
281	Background Statistics Assuming Gamma Distribution												
282	95% Wilson Hilferty (WH) Approx. Gamma UPL					11.2	90% Percentile					9.491	
283	95% Hawkins Wixley (HW) Approx. Gamma UPL					11.41	95% Percentile					11.22	
284	95% WH Approx. Gamma UTL with 95% Coverage					11.93	99% Percentile					14.97	
285	95% HW Approx. Gamma UTL with 95% Coverage					12.2							
286	95% WH USL					23.87	95% HW USL					26.15	
287													
288	Lognormal GOF Test												
289	Shapiro Wilk Test Statistic					0.965	Shapiro Wilk Lognormal GOF Test						
290	10% Shapiro Wilk P Value					2.3119E-5	Data Not Lognormal at 10% Significance Level						
291	Lilliefors Test Statistic					0.0688	Lilliefors Lognormal GOF Test						
292	10% Lilliefors Critical Value					0.0455	Data Not Lognormal at 10% Significance Level						
293	Data Not Lognormal at 10% Significance Level												
294													
295	Background Statistics assuming Lognormal Distribution												
296	95% UTL with 95% Coverage					13.51	90% Percentile (z)					9.88	
297	95% UPL (t)					12.4	95% Percentile (z)					12.34	
298	95% USL					40.19	99% Percentile (z)					18.73	
299													
300	Nonparametric Distribution Free Background Statistics												
301	Data appear Gamma Distributed at 5% Significance Level												
302													
303	Nonparametric Upper Limits for Background Threshold Values												
304	Order of Statistic, order					313	95% UTL with 95% Coverage					13.1	
305	Approx, f used to compute achieved CC					1.493	Approximate Actual Confidence Coefficient achieved by UTL					0.931	
306							Approximate Sample Size needed to achieve specified CC					311	
307	95% Percentile Bootstrap UTL with 95% Coverage					13.1	95% BCA Bootstrap UTL with 95% Coverage					13.1	
308	95% UPL					12.09	90% Percentile					8.9	
309	90% Chebyshev UPL					14.77	95% Percentile					12	
310	95% Chebyshev UPL					19.04	99% Percentile					15.26	
311	95% USL					16.2							
312													
313	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
314	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
315	and consists of observations collected from clean unimpacted locations.												
316	The use of USL tends to provide a balance between false positives and false negatives provided the data												
317	represents a background data set and when many onsite observations need to be compared with the BTV.												
318													
319	OK As <15												
320													
321	General Statistics												
322	Total Number of Observations					317	Number of Distinct Observations					100	
323	Minimum					0.8	First Quartile					3.1	
324	Second Largest					14.8	Median					4.8	
325	Maximum					14.9	Third Quartile					6.8	
326	Mean					5.197	SD					2.88	
327	Coefficient of Variation					0.554	Skewness					1	
328	Mean of logged Data					1.486	SD of logged Data					0.597	
329													
330	Critical Values for Background Threshold Values (BTVs)												
331	Tolerance Factor K (For UTL)					1.794	d2max (for USL)					3.568	
332													
333	Normal GOF Test												
334	Shapiro Wilk Test Statistic					0.918	Normal GOF Test						
335	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
336	Lilliefors Test Statistic					0.0858	Lilliefors GOF Test						
337	1% Lilliefors Critical Value					0.058	Data Not Normal at 1% Significance Level						
338	Data Not Normal at 1% Significance Level												
339													
340	Background Statistics Assuming Normal Distribution												
341	95% UTL with 95% Coverage					10.36	90% Percentile (z)					8.887	
342	95% UPL (t)					9.955	95% Percentile (z)					9.933	
343	95% USL					15.47	99% Percentile (z)					11.9	
344													
345	Gamma GOF Test												
346	A-D Test Statistic					0.639	Anderson-Darling Gamma GOF Test						
347	5% A-D Critical Value					0.759	Detected data appear Gamma Distributed at 5% Significance Level						
348	K-S Test Statistic					0.0398	Kolmogorov-Smirnov Gamma GOF Test						
349	5% K-S Critical Value					0.0512	Detected data appear Gamma Distributed at 5% Significance Level						
350	Detected data appear Gamma Distributed at 5% Significance Level												

	A	B	C	D	E	F	G	H	I	J	K	L
351												
352	Gamma Statistics											
353	k hat (MLE)				3.245	k star (bias corrected MLE)				3.216		
354	Theta hat (MLE)				1.602	Theta star (bias corrected MLE)				1.616		
355	nu hat (MLE)				2057	nu star (bias corrected)				2039		
356	MLE Mean (bias corrected)				5.197	MLE Sd (bias corrected)				2.898		
357												
358	Background Statistics Assuming Gamma Distribution											
359	95% Wilson Hilferty (WH) Approx. Gamma UPL				10.69	90% Percentile				9.082		
360	95% Hawkins Wixley (HW) Approx. Gamma UPL				10.89	95% Percentile				10.69		
361	95% WH Approx. Gamma UTL with 95% Coverage				11.36	99% Percentile				14.17		
362	95% HW Approx. Gamma UTL with 95% Coverage				11.64							
363	95% WH USL				22.35	95% HW USL				24.46		
364												
365	Lognormal GOF Test											
366	Shapiro Wilk Test Statistic				0.961	Shapiro Wilk Lognormal GOF Test						
367	10% Shapiro Wilk P Value				8.5589E-7	Data Not Lognormal at 10% Significance Level						
368	Lilliefors Test Statistic				0.0747	Lilliefors Lognormal GOF Test						
369	10% Lilliefors Critical Value				0.0459	Data Not Lognormal at 10% Significance Level						
370	Data Not Lognormal at 10% Significance Level											
371												
372	Background Statistics assuming Lognormal Distribution											
373	95% UTL with 95% Coverage				12.9	90% Percentile (z)				9.497		
374	95% UPL (t)				11.85	95% Percentile (z)				11.8		
375	95% USL				37.19	99% Percentile (z)				17.72		
376												
377	Nonparametric Distribution Free Background Statistics											
378	Data appear Gamma Distributed at 5% Significance Level											
379												
380	Nonparametric Upper Limits for Background Threshold Values											
381	Order of Statistic, order				308	95% UTL with 95% Coverage				12.4		
382	Approx, f used to compute achieved CC				1.469	Approximate Actual Confidence Coefficient achieved by UTL				0.923		
383						Approximate Sample Size needed to achieve specified CC				311		
384	95% Percentile Bootstrap UTL with 95% Coverage				12.08	95% BCA Bootstrap UTL with 95% Coverage				12.08		
385	95% UPL				11.62	90% Percentile				8.8		
386	90% Chebyshev UPL				13.85	95% Percentile				11.36		
387	95% Chebyshev UPL				17.77	99% Percentile				14.28		
388	95% USL				14.9							
389												
390	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
391	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
392	and consists of observations collected from clean unimpacted locations.											
393	The use of USL tends to provide a balance between false positives and false negatives provided the data											
394	represents a background data set and when many onsite observations need to be compared with the BTV.											
395												
396	OK Pb All											
397												
398	General Statistics											
399	Total Number of Observations				333	Number of Distinct Observations				164		
400	Minimum				5.3	First Quartile				10.9		
401	Second Largest				109	Median				13.4		
402	Maximum				122	Third Quartile				17.4		
403	Mean				16.09	SD				10.87		
404	Coefficient of Variation				0.676	Skewness				5.42		
405	Mean of logged Data				2.664	SD of logged Data				0.432		
406												
407	Critical Values for Background Threshold Values (BTVs)											
408	Tolerance Factor K (For UTL)				1.79	d2max (for USL)				3.582		
409												
410	Normal GOF Test											
411	Shapiro Wilk Test Statistic				0.595	Normal GOF Test						
412	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level						
413	Lilliefors Test Statistic				0.203	Lilliefors GOF Test						
414	1% Lilliefors Critical Value				0.0566	Data Not Normal at 1% Significance Level						
415	Data Not Normal at 1% Significance Level											
416												
417	Background Statistics Assuming Normal Distribution											
418	95% UTL with 95% Coverage				35.55	90% Percentile (z)				30.02		
419	95% UPL (t)				34.05	95% Percentile (z)				33.97		
420	95% USL				55.03	99% Percentile (z)				41.38		

	A	B	C	D	E	F	G	H	I	J	K	L	
421													
422	Gamma GOF Test												
423	A-D Test Statistic					10.1	Anderson-Darling Gamma GOF Test						
424	5% A-D Critical Value					0.758	Data Not Gamma Distributed at 5% Significance Level						
425	K-S Test Statistic					0.125	Kolmogorov-Smirnov Gamma GOF Test						
426	5% K-S Critical Value					0.05	Data Not Gamma Distributed at 5% Significance Level						
427	Data Not Gamma Distributed at 5% Significance Level												
428													
429	Gamma Statistics												
430	k hat (MLE)					4.523	k star (bias corrected MLE)					4.484	
431	Theta hat (MLE)					3.558	Theta star (bias corrected MLE)					3.589	
432	nu hat (MLE)					3012	nu star (bias corrected)					2986	
433	MLE Mean (bias corrected)					16.09	MLE Sd (bias corrected)					7.599	
434													
435	Background Statistics Assuming Gamma Distribution												
436	95% Wilson Hilferty (WH) Approx. Gamma UPL					29.94	90% Percentile					26.27	
437	95% Hawkins Wixley (HW) Approx. Gamma UPL					29.7	95% Percentile					30.28	
438	95% WH Approx. Gamma UTL with 95% Coverage					31.54	99% Percentile					38.78	
439	95% HW Approx. Gamma UTL with 95% Coverage					31.34							
440	95% WH USL					57.64	95% HW USL					59.22	
441													
442	Lognormal GOF Test												
443	Shapiro Wilk Test Statistic					0.937	Shapiro Wilk Lognormal GOF Test						
444	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level						
445	Lilliefors Test Statistic					0.0804	Lilliefors Lognormal GOF Test						
446	10% Lilliefors Critical Value					0.0448	Data Not Lognormal at 10% Significance Level						
447	Data Not Lognormal at 10% Significance Level												
448													
449	Background Statistics assuming Lognormal Distribution												
450	95% UTL with 95% Coverage					31.12	90% Percentile (z)					24.97	
451	95% UPL (t)					29.31	95% Percentile (z)					29.22	
452	95% USL					67.54	99% Percentile (z)					39.24	
453													
454	Nonparametric Distribution Free Background Statistics												
455	Data do not follow a Discernible Distribution												
456													
457	Nonparametric Upper Limits for Background Threshold Values												
458	Order of Statistic, order					324	95% UTL with 95% Coverage					44.2	
459	Approx, f used to compute achieved CC					1.545	Approximate Actual Confidence Coefficient achieved by UTL					0.947	
460							Approximate Sample Size needed to achieve specified CC					311	
461	95% Percentile Bootstrap UTL with 95% Coverage					40.9	95% BCA Bootstrap UTL with 95% Coverage					40.86	
462	95% UPL					30.71	90% Percentile					23.22	
463	90% Chebyshev UPL					48.75	95% Percentile					29.84	
464	95% Chebyshev UPL					63.55	99% Percentile					49.98	
465	95% USL					122							
466													
467	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
468	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
469	and consists of observations collected from clean unimpacted locations.												
470	The use of USL tends to provide a balance between false positives and false negatives provided the data												
471	represents a background data set and when many onsite observations need to be compared with the BTV.												
472													
473	OK Pb <100												
474													
475	General Statistics												
476	Total Number of Observations					331	Number of Distinct Observations					162	
477	Minimum					5.3	First Quartile					10.9	
478	Second Largest					51.1	Median					13.4	
479	Maximum					52.4	Third Quartile					17.3	
480	Mean					15.49	SD					7.641	
481	Coefficient of Variation					0.493	Skewness					2.343	
482	Mean of logged Data					2.651	SD of logged Data					0.402	
483													
484	Critical Values for Background Threshold Values (BTVs)												
485	Tolerance Factor K (For UTL)					1.791	d2max (for USL)					3.581	
486													
487	Normal GOF Test												
488	Shapiro Wilk Test Statistic					0.775	Normal GOF Test						
489	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
490	Lilliefors Test Statistic					0.159	Lilliefors GOF Test						

	A	B	C	D	E	F	G	H	I	J	K	L	
491	1% Lilliefors Critical Value					0.0568	Data Not Normal at 1% Significance Level						
492	Data Not Normal at 1% Significance Level												
493													
494	Background Statistics Assuming Normal Distribution												
495	95% UTL with	95% Coverage	29.17									90% Percentile (z)	25.28
496		95% UPL (t)	28.11									95% Percentile (z)	28.06
497		95% USL	42.85									99% Percentile (z)	33.27
498													
499	Gamma GOF Test												
500	A-D Test Statistic			6.153	Anderson-Darling Gamma GOF Test								
501	5% A-D Critical Value			0.757	Data Not Gamma Distributed at 5% Significance Level								
502	K-S Test Statistic			0.0981	Kolmogorov-Smirnov Gamma GOF Test								
503	5% K-S Critical Value			0.0501	Data Not Gamma Distributed at 5% Significance Level								
504	Data Not Gamma Distributed at 5% Significance Level												
505													
506	Gamma Statistics												
507	k hat (MLE)			5.769	k star (bias corrected MLE)								5.719
508	Theta hat (MLE)			2.685	Theta star (bias corrected MLE)								2.708
509	nu hat (MLE)			3819	nu star (bias corrected)								3786
510	MLE Mean (bias corrected)			15.49	MLE Sd (bias corrected)								6.477
511													
512	Background Statistics Assuming Gamma Distribution												
513	95% Wilson Hilferty (WH) Approx. Gamma UPL	27.36	90% Percentile								24.15		
514	95% Hawkins Wixley (HW) Approx. Gamma UPL	27.36	95% Percentile								27.45		
515	95% WH Approx. Gamma UTL with 95% Coverage	28.69	99% Percentile								34.37		
516	95% HW Approx. Gamma UTL with 95% Coverage	28.74											
517		95% WH USL	49.83	95% HW USL								51.61	
518													
519	Lognormal GOF Test												
520	Shapiro Wilk Test Statistic			0.955	Shapiro Wilk Lognormal GOF Test								
521	10% Shapiro Wilk P Value			5.969E-10	Data Not Lognormal at 10% Significance Level								
522	Lilliefors Test Statistic			0.0678	Lilliefors Lognormal GOF Test								
523	10% Lilliefors Critical Value			0.0449	Data Not Lognormal at 10% Significance Level								
524	Data Not Lognormal at 10% Significance Level												
525													
526	Background Statistics assuming Lognormal Distribution												
527	95% UTL with	95% Coverage	29.11	90% Percentile (z)								23.72	
528		95% UPL (t)	27.53	95% Percentile (z)								27.45	
529		95% USL	59.77	99% Percentile (z)								36.1	
530													
531	Nonparametric Distribution Free Background Statistics												
532	Data do not follow a Discernible Distribution												
533													
534	Nonparametric Upper Limits for Background Threshold Values												
535	Order of Statistic, order			322	95% UTL with 95% Coverage								40.9
536	Approx, f used to compute achieved CC			1.536	Approximate Actual Confidence Coefficient achieved by UTL								0.944
537					Approximate Sample Size needed to achieve specified CC								311
538	95% Percentile Bootstrap UTL with	95% Coverage	39.7	95% BCA Bootstrap UTL with 95% Coverage								38.4	
539		95% UPL	29.36	90% Percentile								22.3	
540		90% Chebyshev UPL	38.45	95% Percentile								28.8	
541		95% Chebyshev UPL	48.85	99% Percentile								46.54	
542		95% USL	52.4										
543													
544	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
545	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
546	and consists of observations collected from clean unimpacted locations.												
547	The use of USL tends to provide a balance between false positives and false negatives provided the data												
548	represents a background data set and when many onsite observations need to be compared with the BTV.												
549													
550	OK Pb <50												
551													
552	General Statistics												
553	Total Number of Observations			329	Number of Distinct Observations								160
554	Minimum			5.3	First Quartile								10.9
555	Second Largest			46.6	Median								13.4
556	Maximum			47.6	Third Quartile								17.3
557	Mean			15.27	SD								7.119
558	Coefficient of Variation			0.466	Skewness								2.198
559	Mean of logged Data			2.643	SD of logged Data								0.39
560													

	A	B	C	D	E	F	G	H	I	J	K	L
561	Critical Values for Background Threshold Values (BTVs)											
562	Tolerance Factor K (For UTL)					1.791	d2max (for USL)					3.579
563												
564	Normal GOF Test											
565	Shapiro Wilk Test Statistic					0.797	Normal GOF Test					
566	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
567	Lilliefors Test Statistic					0.145	Lilliefors GOF Test					
568	1% Lilliefors Critical Value					0.0569	Data Not Normal at 1% Significance Level					
569	Data Not Normal at 1% Significance Level											
570												
571	Background Statistics Assuming Normal Distribution											
572	95% UTL with		95% Coverage	28.02						90% Percentile (z)	24.39	
573			95% UPL (t)	27.03						95% Percentile (z)	26.98	
574			95% USL	40.75						99% Percentile (z)	31.83	
575												
576	Gamma GOF Test											
577	A-D Test Statistic					4.96	Anderson-Darling Gamma GOF Test					
578	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level					
579	K-S Test Statistic					0.0917	Kolmogorov-Smirnov Gamma GOF Test					
580	5% K-S Critical Value					0.0502	Data Not Gamma Distributed at 5% Significance Level					
581	Data Not Gamma Distributed at 5% Significance Level											
582												
583	Gamma Statistics											
584	k hat (MLE)			6.208						k star (bias corrected MLE)	6.153	
585	Theta hat (MLE)			2.46						Theta star (bias corrected MLE)	2.482	
586	nu hat (MLE)			4085						nu star (bias corrected)	4049	
587	MLE Mean (bias corrected)			15.27						MLE Sd (bias corrected)	6.156	
588												
589	Background Statistics Assuming Gamma Distribution											
590	95% Wilson Hilferty (WH) Approx. Gamma UPL			26.53						90% Percentile	23.5	
591	95% Hawkins Wixley (HW) Approx. Gamma UPL			26.55						95% Percentile	26.6	
592	95% WH Approx. Gamma UTL with		95% Coverage	27.78						99% Percentile	33.09	
593	95% HW Approx. Gamma UTL with		95% Coverage	27.86								
594			95% WH USL	47.51						95% HW USL	49.19	
595												
596	Lognormal GOF Test											
597	Shapiro Wilk Test Statistic					0.961	Shapiro Wilk Lognormal GOF Test					
598	10% Shapiro Wilk P Value					3.7827E-7	Data Not Lognormal at 10% Significance Level					
599	Lilliefors Test Statistic					0.0623	Lilliefors Lognormal GOF Test					
600	10% Lilliefors Critical Value					0.0451	Data Not Lognormal at 10% Significance Level					
601	Data Not Lognormal at 10% Significance Level											
602												
603	Background Statistics assuming Lognormal Distribution											
604	95% UTL with		95% Coverage	28.28						90% Percentile (z)	23.18	
605			95% UPL (t)	26.79						95% Percentile (z)	26.71	
606			95% USL	56.82						99% Percentile (z)	34.85	
607												
608	Nonparametric Distribution Free Background Statistics											
609	Data do not follow a Discernible Distribution											
610												
611	Nonparametric Upper Limits for Background Threshold Values											
612	Order of Statistic, order			320						95% UTL with 95% Coverage	39.7	
613	Approx, f used to compute achieved CC			1.526	Approximate Actual Confidence Coefficient achieved by UTL					0.941		
614					Approximate Sample Size needed to achieve specified CC					311		
615	95% Percentile Bootstrap UTL with		95% Coverage	33.74	95% BCA Bootstrap UTL with 95% Coverage					33.5		
616				95% UPL	28.25	90% Percentile					21.92	
617				90% Chebyshev UPL	36.66	95% Percentile					27.66	
618				95% Chebyshev UPL	46.35	99% Percentile					45.32	
619				95% USL	47.6							
620												
621	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
622	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
623	and consists of observations collected from clean unimpacted locations.											
624	The use of USL tends to provide a balance between false positives and false negatives provided the data											
625	represents a background data set and when many onsite observations need to be compared with the BTV.											
626												
627	OK Pb <45											
628												
629	General Statistics											
630	Total Number of Observations			325						Number of Distinct Observations	156	

	A	B	C	D	E	F	G	H	I	J	K	L
631					Minimum	5.3					First Quartile	10.9
632					Second Largest	44.2					Median	13.4
633					Maximum	44.6					Third Quartile	17.2
634					Mean	14.88					SD	6.251
635					Coefficient of Variation	0.42					Skewness	1.914
636					Mean of logged Data	2.628					SD of logged Data	0.369
637												
638					Critical Values for Background Threshold Values (BTVs)							
639					Tolerance Factor K (For UTL)	1.792					d2max (for USL)	3.575
640												
641					Normal GOF Test							
642					Shapiro Wilk Test Statistic	0.846					Normal GOF Test	
643					1% Shapiro Wilk P Value	0					Data Not Normal at 1% Significance Level	
644					Lilliefors Test Statistic	0.127					Lilliefors GOF Test	
645					1% Lilliefors Critical Value	0.0573					Data Not Normal at 1% Significance Level	
646					Data Not Normal at 1% Significance Level							
647												
648					Background Statistics Assuming Normal Distribution							
649					95% UTL with 95% Coverage	26.09					90% Percentile (z)	22.9
650					95% UPL (t)	25.21					95% Percentile (z)	25.17
651					95% USL	37.23					99% Percentile (z)	29.43
652												
653					Gamma GOF Test							
654					A-D Test Statistic	3.048					Anderson-Darling Gamma GOF Test	
655					5% A-D Critical Value	0.756					Data Not Gamma Distributed at 5% Significance Level	
656					K-S Test Statistic	0.0786					Kolmogorov-Smirnov Gamma GOF Test	
657					5% K-S Critical Value	0.0505					Data Not Gamma Distributed at 5% Significance Level	
658					Data Not Gamma Distributed at 5% Significance Level							
659												
660					Gamma Statistics							
661					k hat (MLE)	7.116					k star (bias corrected MLE)	7.053
662					Theta hat (MLE)	2.092					Theta star (bias corrected MLE)	2.11
663					nu hat (MLE)	4626					nu star (bias corrected)	4584
664					MLE Mean (bias corrected)	14.88					MLE Sd (bias corrected)	5.605
665												
666					Background Statistics Assuming Gamma Distribution							
667					95% Wilson Hilferty (WH) Approx. Gamma UPL	25.1					90% Percentile	22.37
668					95% Hawkins Wixley (HW) Approx. Gamma UPL	25.17					95% Percentile	25.14
669					95% WH Approx. Gamma UTL with 95% Coverage	26.23					99% Percentile	30.91
670					95% HW Approx. Gamma UTL with 95% Coverage	26.34						
671					95% WH USL	43.59					95% HW USL	45.11
672												
673					Lognormal GOF Test							
674					Shapiro Wilk Test Statistic	0.974					Shapiro Wilk Lognormal GOF Test	
675					10% Shapiro Wilk P Value	0.0107					Data Not Lognormal at 10% Significance Level	
676					Lilliefors Test Statistic	0.0514					Lilliefors Lognormal GOF Test	
677					10% Lilliefors Critical Value	0.0453					Data Not Lognormal at 10% Significance Level	
678					Data Not Lognormal at 10% Significance Level							
679												
680					Background Statistics assuming Lognormal Distribution							
681					95% UTL with 95% Coverage	26.85					90% Percentile (z)	22.23
682					95% UPL (t)	25.49					95% Percentile (z)	25.42
683					95% USL	51.85					99% Percentile (z)	32.7
684												
685					Nonparametric Distribution Free Background Statistics							
686					Data do not follow a Discernible Distribution							
687												
688					Nonparametric Upper Limits for Background Threshold Values							
689					Order of Statistic, order	316					95% UTL with 95% Coverage	29.6
690					Approx, f used to compute achieved CC	1.507					Approximate Actual Confidence Coefficient achieved by UTL	0.936
691											Approximate Sample Size needed to achieve specified CC	311
692					95% Percentile Bootstrap UTL with 95% Coverage	29.04					95% BCA Bootstrap UTL with 95% Coverage	28.34
693					95% UPL	26.07					90% Percentile	21.8
694					90% Chebyshev UPL	33.67					95% Percentile	26
695					95% Chebyshev UPL	42.17					99% Percentile	40.85
696					95% USL	44.6						
697												
698					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
699					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
700					and consists of observations collected from clean unimpacted locations.							

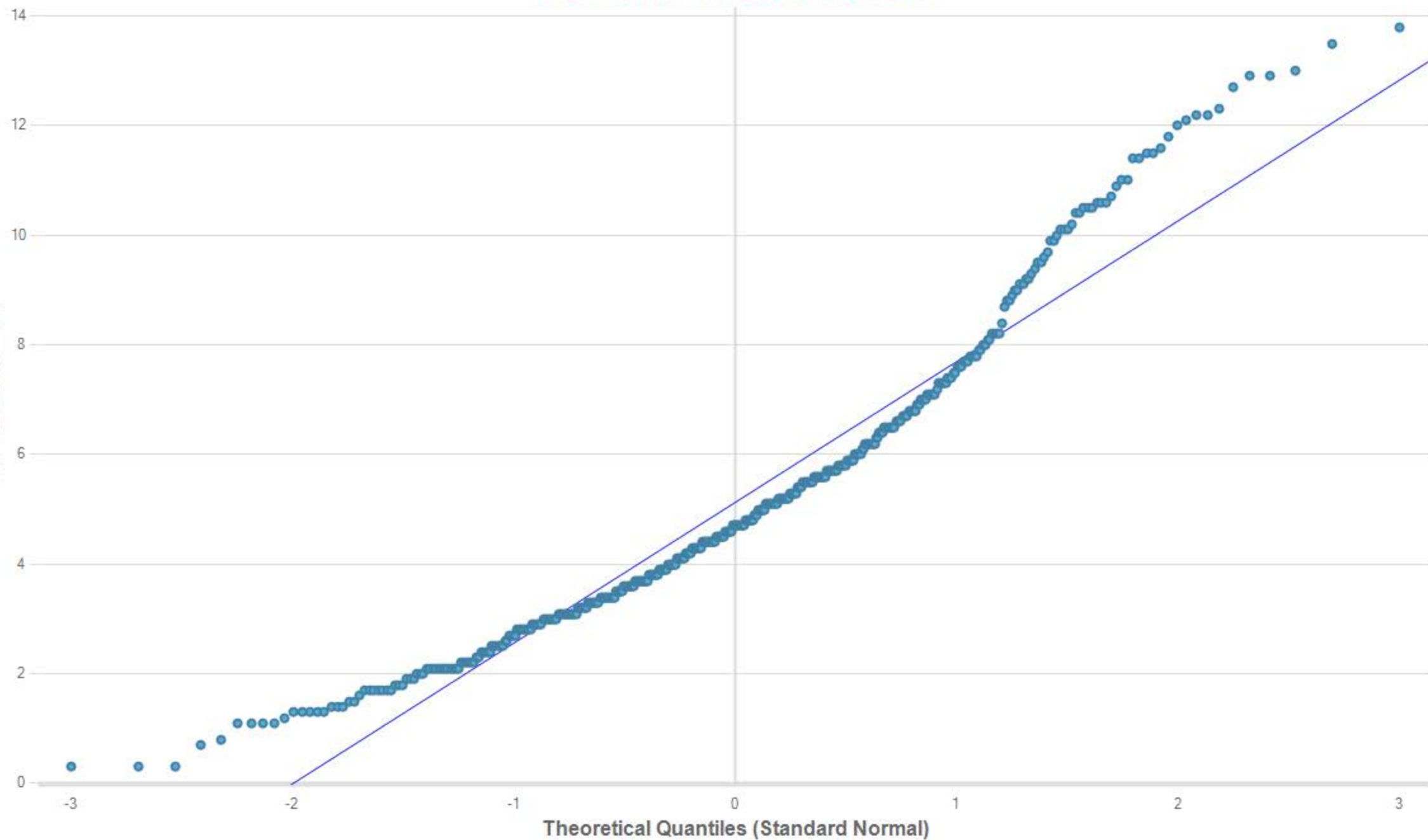
	A	B	C	D	E	F	G	H	I	J	K	L
701	The use of USL tends to provide a balance between false positives and false negatives provided the data											
702	represents a background data set and when many onsite observations need to be compared with the BTV.											
703												
704	OK Pb <30											
705												
706	General Statistics											
707	Total Number of Observations					316	Number of Distinct Observations					147
708	Minimum					5.3	First Quartile					10.8
709	Second Largest					29.2	Median					13.15
710	Maximum					29.6	Third Quartile					16.83
711	Mean					14.2	SD					4.764
712	Coefficient of Variation					0.335	Skewness					0.816
713	Mean of logged Data					2.599	SD of logged Data					0.33
714												
715	Critical Values for Background Threshold Values (BTVs)											
716	Tolerance Factor K (For UTL)					1.794	d2max (for USL)					3.567
717												
718	Normal GOF Test											
719	Shapiro Wilk Test Statistic					0.937	Normal GOF Test					
720	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
721	Lilliefors Test Statistic					0.0958	Lilliefors GOF Test					
722	1% Lilliefors Critical Value					0.0581	Data Not Normal at 1% Significance Level					
723	Data Not Normal at 1% Significance Level											
724												
725	Background Statistics Assuming Normal Distribution											
726	95% UTL with	95% Coverage			22.75	90% Percentile (z)					20.31	
727		95% UPL (t)			22.07	95% Percentile (z)					22.04	
728		95% USL			31.2	99% Percentile (z)					25.29	
729												
730	Gamma GOF Test											
731	A-D Test Statistic					1.086	Anderson-Darling Gamma GOF Test					
732	5% A-D Critical Value					0.755	Data Not Gamma Distributed at 5% Significance Level					
733	K-S Test Statistic					0.0558	Kolmogorov-Smirnov Gamma GOF Test					
734	5% K-S Critical Value					0.051	Data Not Gamma Distributed at 5% Significance Level					
735	Data Not Gamma Distributed at 5% Significance Level											
736												
737	Gamma Statistics											
738	k hat (MLE)					9.4	k star (bias corrected MLE)					9.312
739	Theta hat (MLE)					1.511	Theta star (bias corrected MLE)					1.525
740	nu hat (MLE)					5940	nu star (bias corrected)					5885
741	MLE Mean (bias corrected)					14.2	MLE Sd (bias corrected)					4.654
742												
743	Background Statistics Assuming Gamma Distribution											
744	95% Wilson Hilferty (WH) Approx.	Gamma UPL			22.63	90% Percentile					20.4	
745	95% Hawkins Wixley (HW) Approx.	Gamma UPL			22.75	95% Percentile					22.62	
746	95% WH Approx.	Gamma UTL with	95% Coverage		23.54	99% Percentile					27.2	
747	95% HW Approx.	Gamma UTL with	95% Coverage		23.71							
748		95% WH USL			37.05	95% HW USL					38.32	
749												
750	Lognormal GOF Test											
751	Shapiro Wilk Test Statistic					0.979	Shapiro Wilk Lognormal GOF Test					
752	10% Shapiro Wilk P Value					0.138	Data appear Lognormal at 10% Significance Level					
753	Lilliefors Test Statistic					0.0349	Lilliefors Lognormal GOF Test					
754	10% Lilliefors Critical Value					0.046	Data appear Lognormal at 10% Significance Level					
755	Data appear Lognormal at 10% Significance Level											
756												
757	Background Statistics assuming Lognormal Distribution											
758	95% UTL with	95% Coverage			24.33	90% Percentile (z)					20.54	
759		95% UPL (t)			23.21	95% Percentile (z)					23.16	
760		95% USL			43.68	99% Percentile (z)					29	
761												
762	Nonparametric Distribution Free Background Statistics											
763	Data appear Lognormal at 10% Significance Level											
764												
765	Nonparametric Upper Limits for Background Threshold Values											
766	Order of Statistic, order					307	95% UTL with 95% Coverage					25.8
767	Approx, f used to compute achieved CC					1.464	Approximate Actual Confidence Coefficient achieved by UTL					0.921
768							Approximate Sample Size needed to achieve specified CC					311
769	95% Percentile Bootstrap UTL with	95% Coverage			24.7	95% BCA Bootstrap UTL with 95% Coverage					24.58	
770		95% UPL			23.62	90% Percentile					20.9	

	A	B	C	D	E	F	G	H	I	J	K	L
771				90% Chebyshev UPL		28.52				95% Percentile		23.38
772				95% Chebyshev UPL		35				99% Percentile		27.94
773				95% USL		29.6						
774												
775				Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.								
776				Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers								
777				and consists of observations collected from clean unimpacted locations.								
778				The use of USL tends to provide a balance between false positives and false negatives provided the data								
779				represents a background data set and when many onsite observations need to be compared with the BTV.								

ProUCL Output Files – Wyoming

Q-Q Plot for WY USGS As - <14

WY USGS As - <14



WY USGS As - <14

N = 460

Mean = 5.119

Sd = 2.641

Slope = 2.573

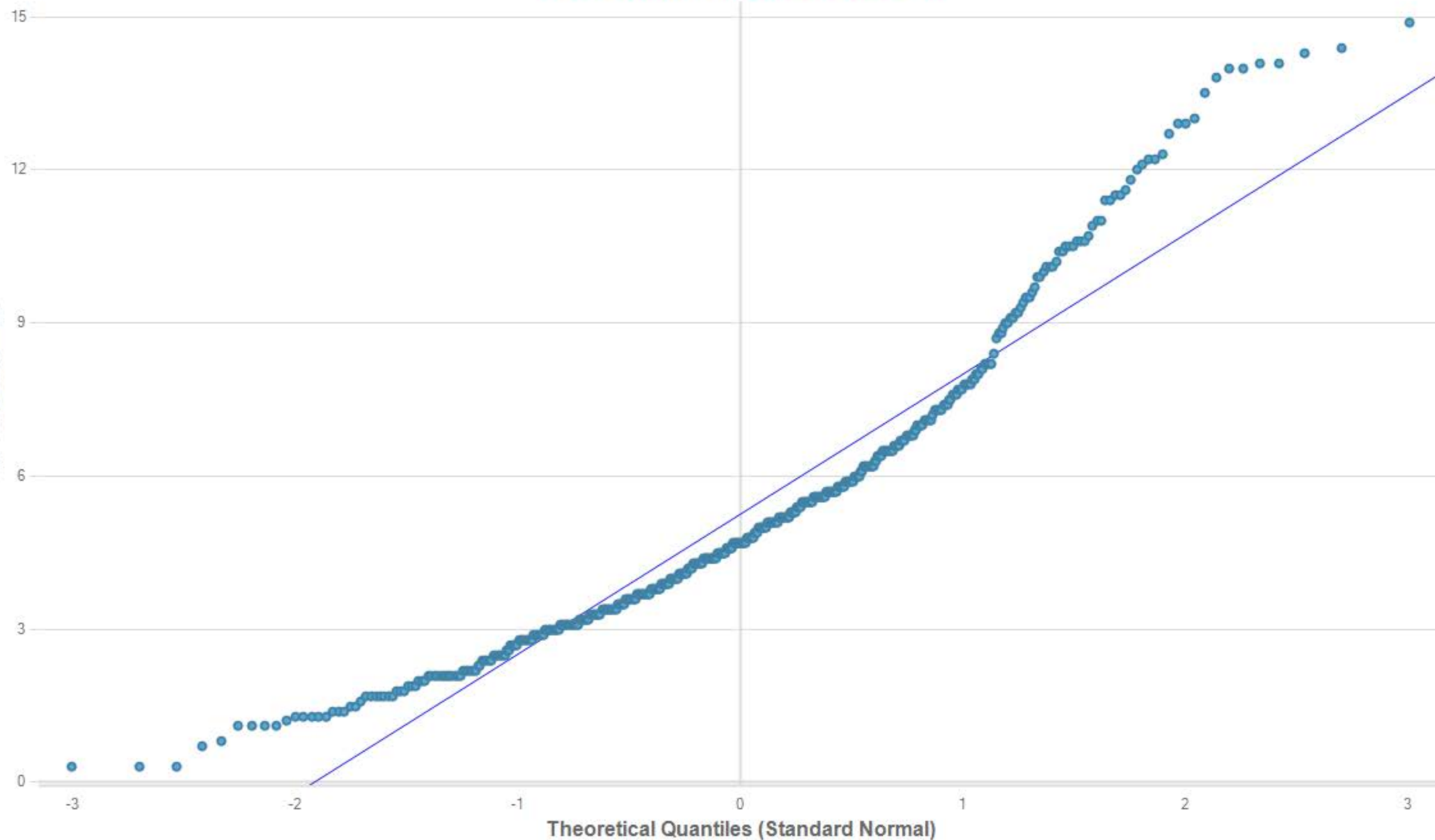
Intercept = 5.119

Correlation, R = 0.971

Best Fit Line

Q-Q Plot for WY USGS As - <15

WY USGS As - <15



WY USGS As - <15

N = 467

Mean = 5.256

Sd = 2.847

Slope = 2.749

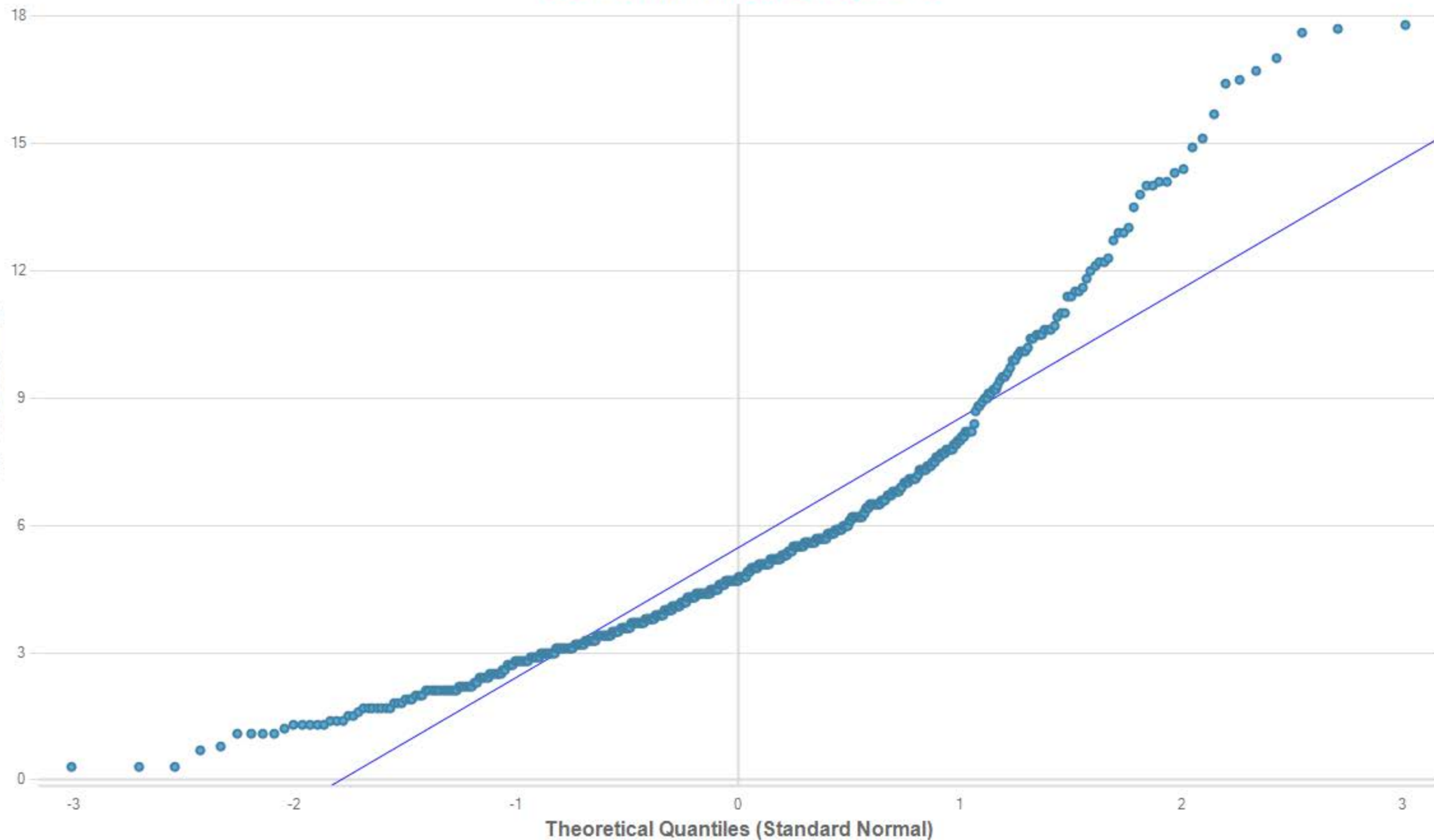
Intercept = 5.256

Correlation, R = 0.963

Best Fit Line

Q-Q Plot for WY USGS As - <18

WY USGS As - <18



WY USGS As - <18

N = 476

Mean = 5.473

Sd = 3.226

Slope = 3.057

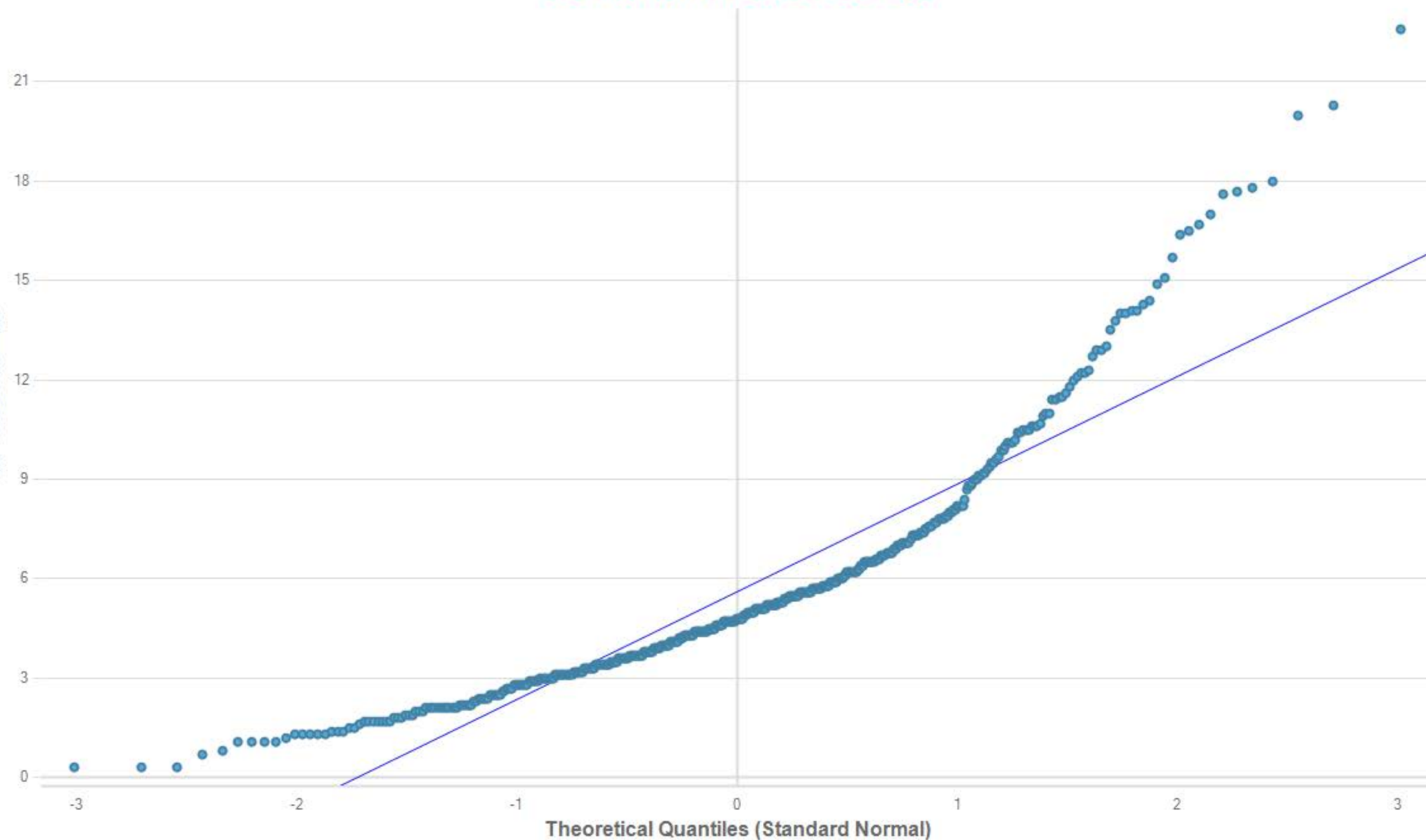
Intercept = 5.473

Correlation, R = 0.945

Best Fit Line

Q-Q Plot for WY USGS As - <23

WY USGS As - <23



WY USGS As - <23

N = 480

Mean = 5.596

Sd = 3.485

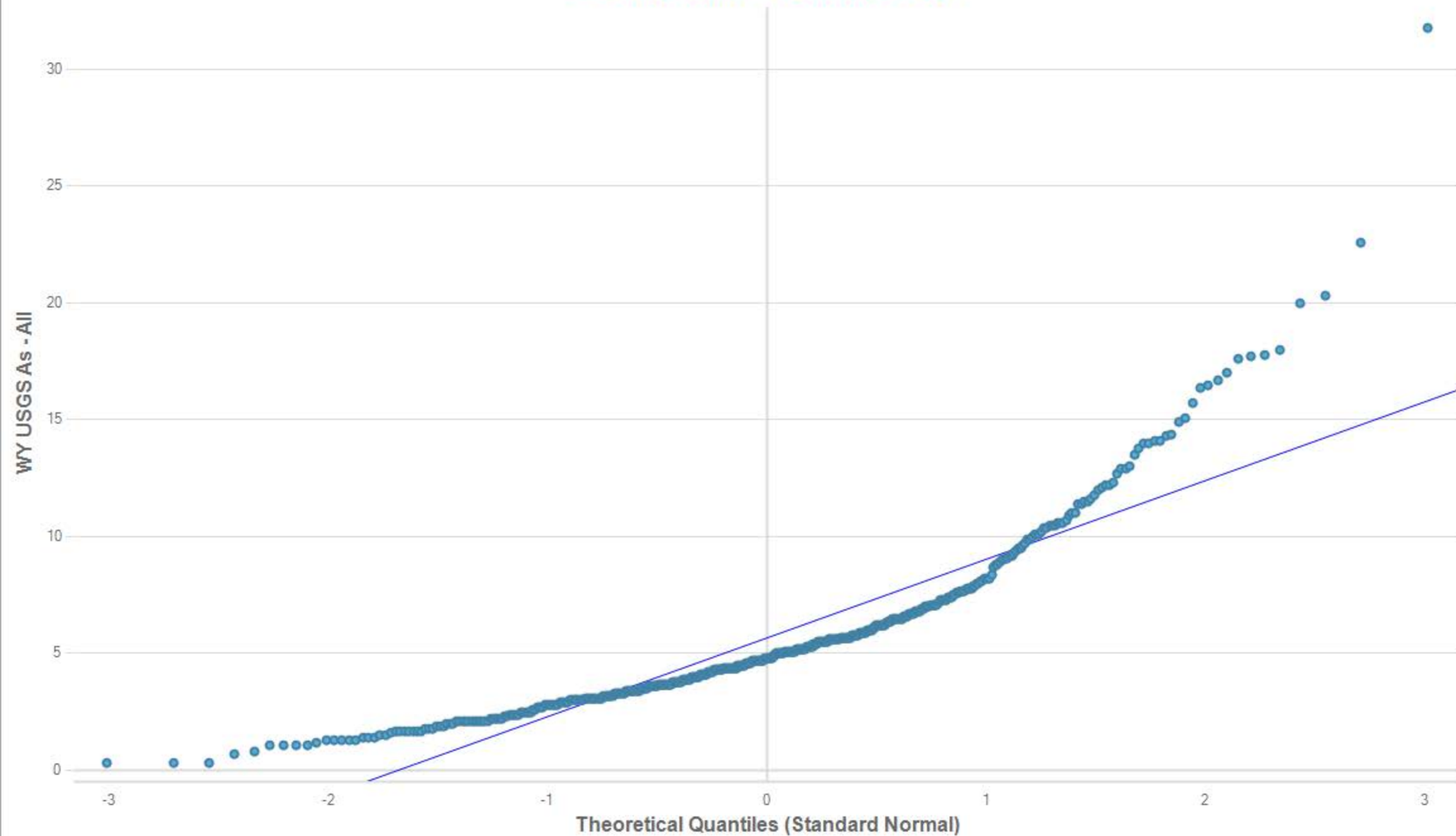
Slope = 3.253

Intercept = 5.596

Correlation, R = 0.931

Best Fit Line

Q-Q Plot for WY USGS As - All



WY USGS As - All

N = 481

Mean = 5.65

Sd = 3.681

Slope = 3.37

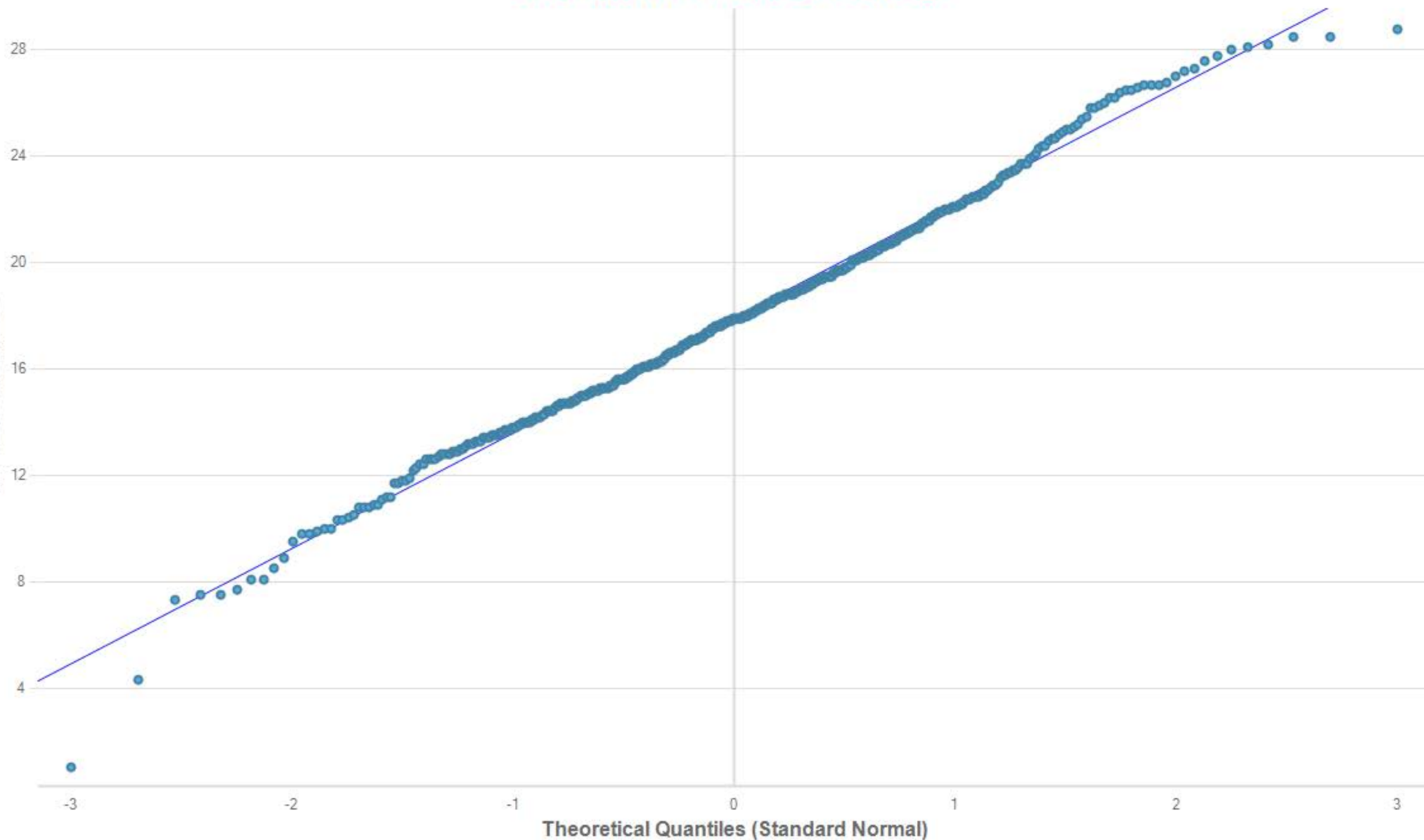
Intercept = 5.65

Correlation, R = 0.913

Best Fit Line

Q-Q Plot for WY USGS Pb-All <30

WY USGS Pb-All <30



WY USGS Pb-All <30

N = 459

Mean = 17.91

Sd = 4.341

Slope = 4.34

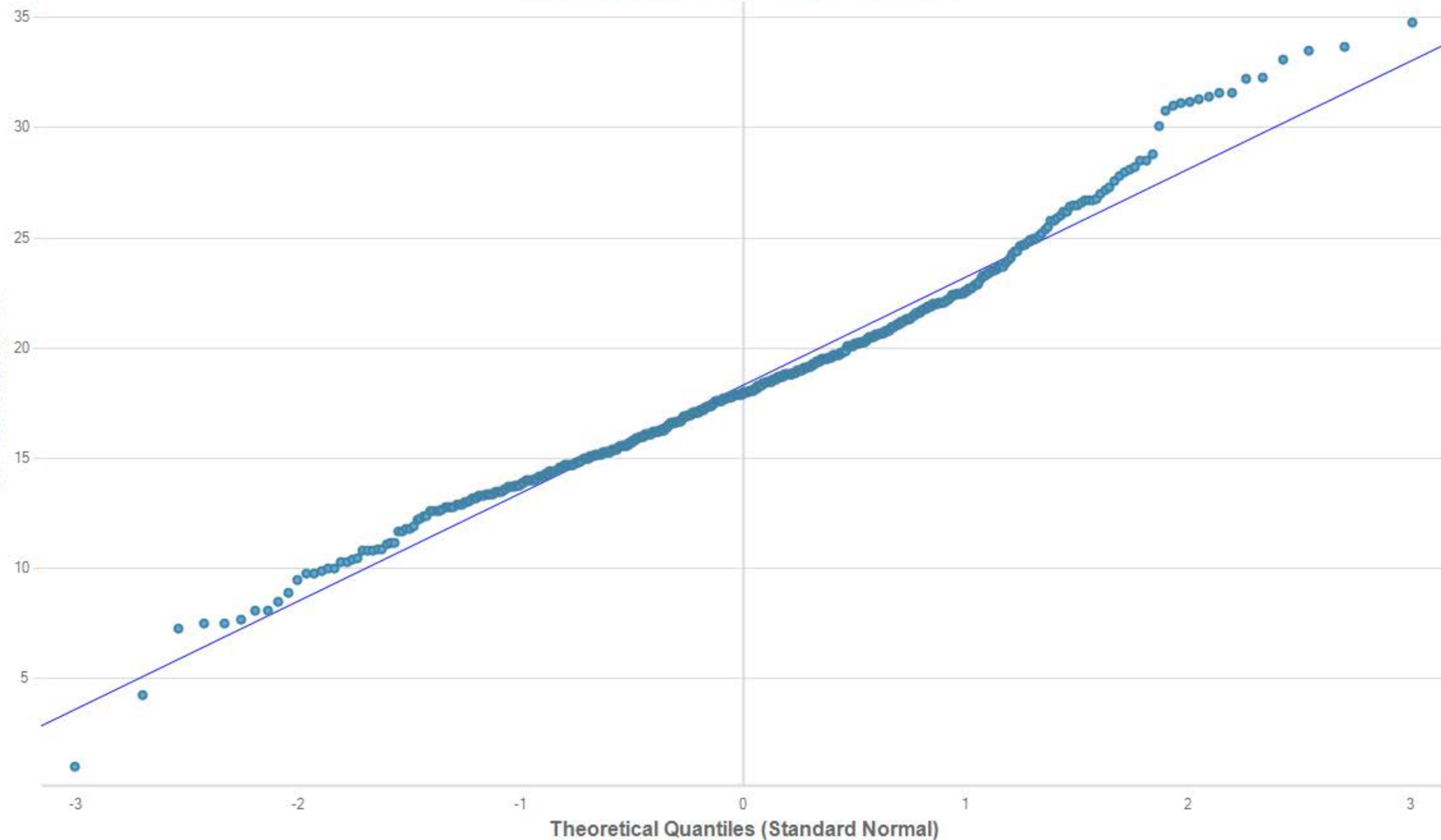
Intercept = 17.91

Correlation, R = 0.997

Best Fit Line

Q-Q Plot for WY USGS Pb-All <35

WY USGS Pb-All <35



WY USGS Pb-All <35

N = 474

Mean = 18.36

Sd = 4.937

Slope = 4.896

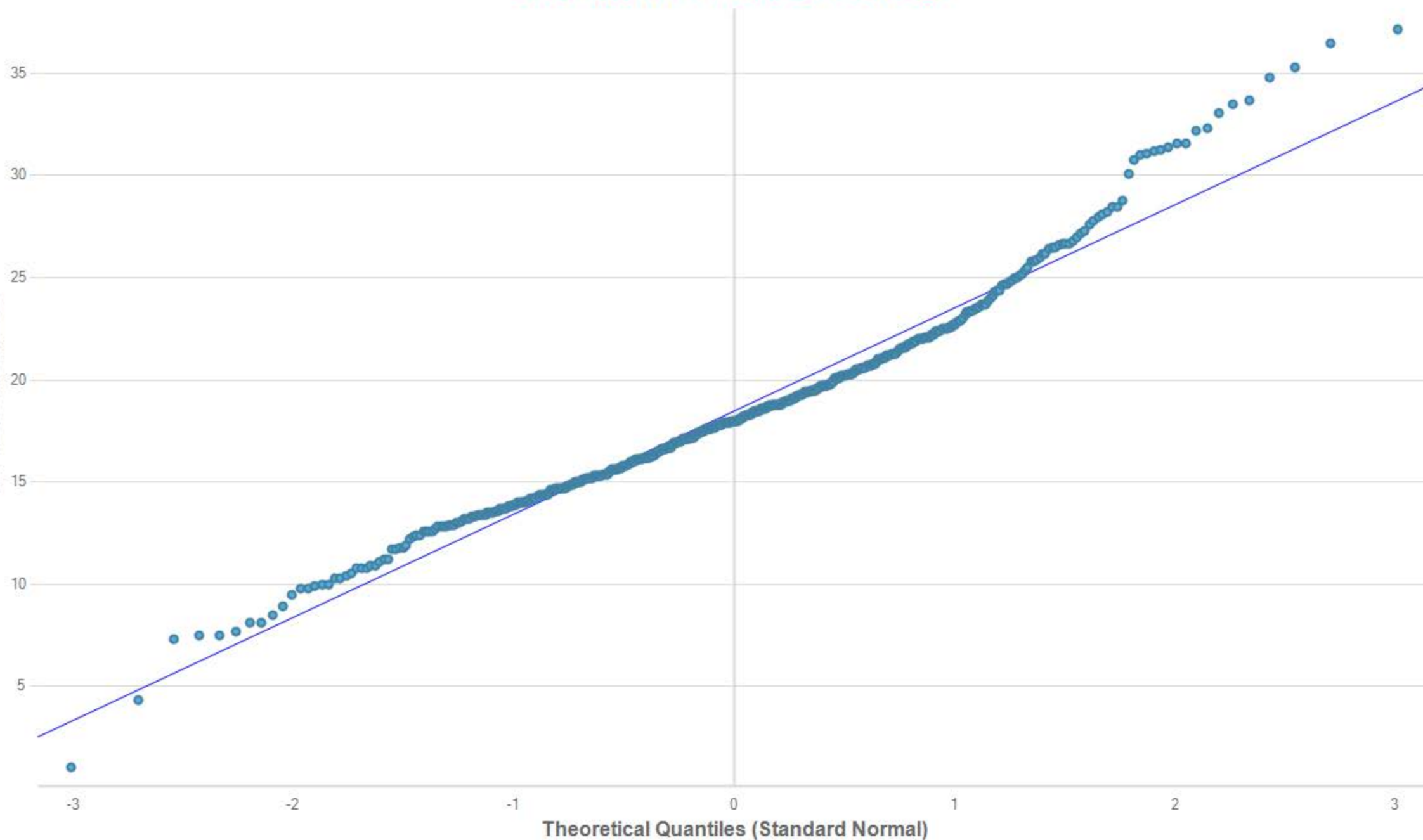
Intercept = 18.36

Correlation, R = 0.989

Best Fit Line

Q-Q Plot for WY USGS Pb-All <38

WY USGS Pb-All <38



WY USGS Pb-All <38

N = 477

Mean = 18.47

Sd = 5.123

Slope = 5.058

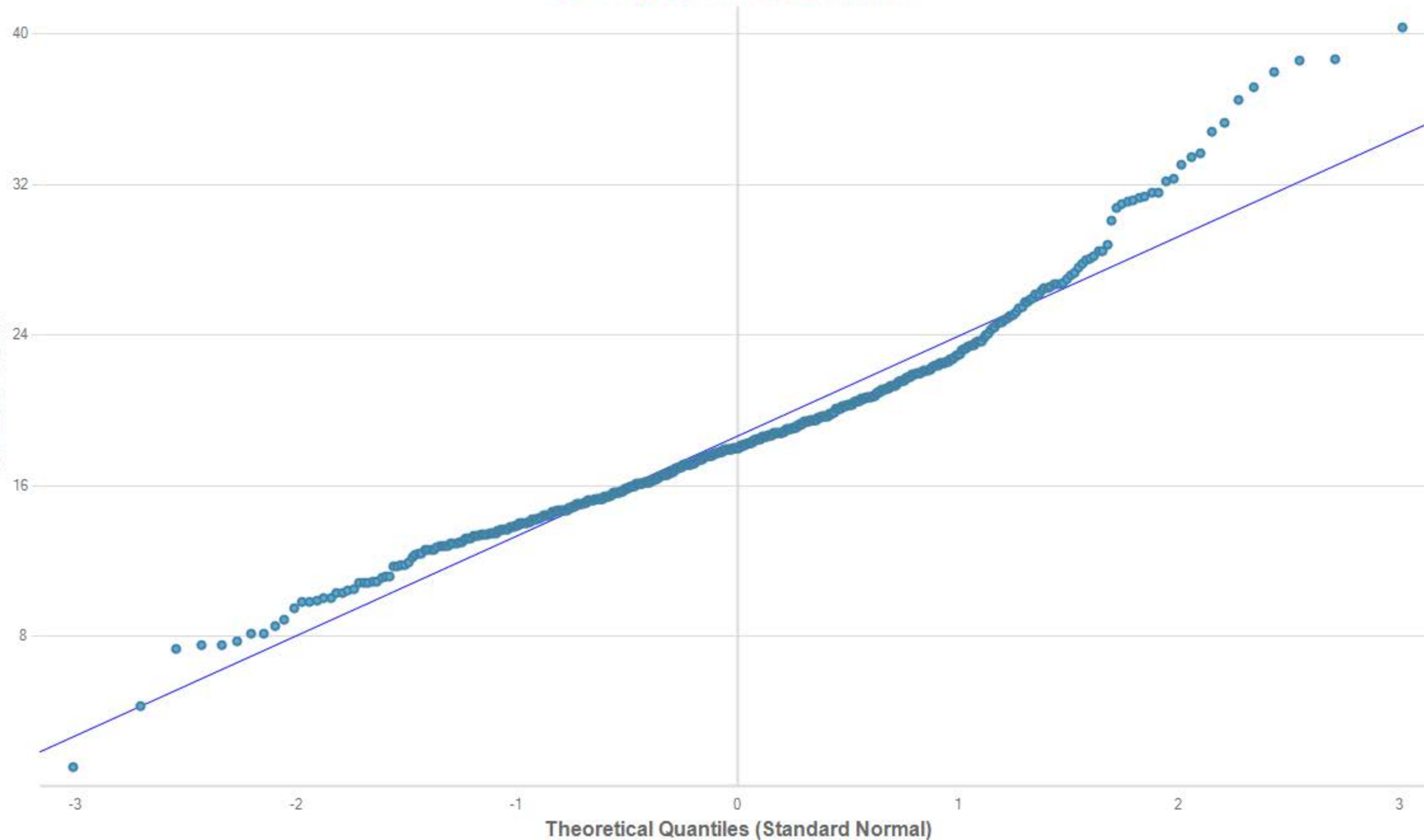
Intercept = 18.47

Correlation, R = 0.984

Best Fit Line

Q-Q Plot for WY USGS Pb-All

WY USGS Pb-All



WY USGS Pb-All

N = 481

Mean = 18.64

Sd = 5.431

Slope = 5.312

Intercept = 18.64

Correlation, R = 0.975

Best Fit Line

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.2 1/21/2024 5:35:39 PM								
4	From File			D:\Tramm\BACKGROUND EVAL\AEEG Article - Estimators\Wyoming\USGS 2013 Wyoming.xlsx								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	WY USGS Pb-All											
12												
13	General Statistics											
14	Total Number of Observations				481		Number of Distinct Observations				189	
15	Minimum				1		First Quartile				15.2	
16	Second Largest				38.7		Median				18	
17	Maximum				40.4		Third Quartile				21.2	
18	Mean				18.64		SD				5.431	
19	Coefficient of Variation				0.291		Skewness				0.885	
20	Mean of logged Data				2.881		SD of logged Data				0.315	
21												
22	Critical Values for Background Threshold Values (BTVs)											
23	Tolerance Factor K (For UTL)				1.765		d2max (for USL)				3.685	
24												
25	Normal GOF Test											
26	Shapiro Wilk Test Statistic				0.949		Normal GOF Test					
27	1% Shapiro Wilk P Value				0		Data Not Normal at 1% Significance Level					
28	Lilliefors Test Statistic				0.0816		Lilliefors GOF Test					
29	1% Lilliefors Critical Value				0.0471		Data Not Normal at 1% Significance Level					
30	Data Not Normal at 1% Significance Level											
31												
32	Background Statistics Assuming Normal Distribution											
33	95% UTL with		95% Coverage		28.22		90% Percentile (z)				25.6	
34			95% UPL (t)		27.6		95% Percentile (z)				27.57	
35			95% USL		38.65		99% Percentile (z)				31.27	
36												
37	Gamma GOF Test											
38	A-D Test Statistic				2.812		Anderson-Darling Gamma GOF Test					
39	5% A-D Critical Value				0.753		Data Not Gamma Distributed at 5% Significance Level					
40	K-S Test Statistic				0.0526		Kolmogorov-Smirnov Gamma GOF Test					
41	5% K-S Critical Value				0.0413		Data Not Gamma Distributed at 5% Significance Level					
42	Data Not Gamma Distributed at 5% Significance Level											
43												
44	Gamma Statistics											
45	k hat (MLE)				11.46		k star (bias corrected MLE)				11.39	
46	Theta hat (MLE)				1.627		Theta star (bias corrected MLE)				1.637	
47	nu hat (MLE)				11022		nu star (bias corrected)				10955	
48	MLE Mean (bias corrected)				18.64		MLE Sd (bias corrected)				5.524	
49												
50	Background Statistics Assuming Gamma Distribution											
51	95% Wilson Hilferty (WH) Approx. Gamma UPL				28.51		90% Percentile				25.98	
52	95% Hawkins Wixley (HW) Approx. Gamma UPL				28.77		95% Percentile				28.56	
53	95% WH Approx. Gamma UTL with		95% Coverage		29.36		99% Percentile				33.83	
54	95% HW Approx. Gamma UTL with		95% Coverage		29.66							
55	95% WH USL				46.03		95% HW USL				47.87	
56												

	A	B	C	D	E	F	G	H	I	J	K	L
57	Lognormal GOF Test											
58	Shapiro Wilk Test Statistic					0.927	Shapiro Wilk Lognormal GOF Test					
59	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
60	Lilliefors Test Statistic					0.0643	Lilliefors Lognormal GOF Test					
61	10% Lilliefors Critical Value					0.0373	Data Not Lognormal at 10% Significance Level					
62	Data Not Lognormal at 10% Significance Level											
63												
64	Background Statistics assuming Lognormal Distribution											
65	95% UTL with 95% Coverage					31.12	90% Percentile (z)					26.72
66	95% UPL (t)					30.01	95% Percentile (z)					29.96
67	95% USL					57.02	99% Percentile (z)					37.15
68												
69	Nonparametric Distribution Free Background Statistics											
70	Data do not follow a Discernible Distribution											
71												
72	Nonparametric Upper Limits for Background Threshold Values											
73	Order of Statistic, order					466	95% UTL with 95% Coverage					31.4
74	Approx, f used to compute achieved CC					1.44	Approximate Actual Confidence Coefficient achieved by UTL					0.949
75							Approximate Sample Size needed to achieve specified CC					458
76	95% Percentile Bootstrap UTL with 95% Coverage					31.2	95% BCA Bootstrap UTL with 95% Coverage					31.1
77	95% UPL					28.5	90% Percentile					25.4
78	90% Chebyshev UPL					34.95	95% Percentile					28.5
79	95% Chebyshev UPL					42.34	99% Percentile					36.64
80	95% USL					40.4						
81												
82	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
83	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
84	and consists of observations collected from clean unimpacted locations.											
85	The use of USL tends to provide a balance between false positives and false negatives provided the data											
86	represents a background data set and when many onsite observations need to be compared with the BTV.											
87												
88	WY USGS Pb-AII <38											
89												
90	General Statistics											
91	Total Number of Observations					477	Number of Distinct Observations					185
92	Minimum					1	First Quartile					15.2
93	Second Largest					36.5	Median					18
94	Maximum					37.2	Third Quartile					21.1
95	Mean					18.47	SD					5.123
96	Coefficient of Variation					0.277	Skewness					0.637
97	Mean of logged Data					2.874	SD of logged Data					0.309
98												
99	Critical Values for Background Threshold Values (BTVs)											
100	Tolerance Factor K (For UTL)					1.765	d2max (for USL)					3.682
101												
102	Normal GOF Test											
103	Shapiro Wilk Test Statistic					0.965	Normal GOF Test					
104	1% Shapiro Wilk P Value					3.5340E-8	Data Not Normal at 1% Significance Level					
105	Lilliefors Test Statistic					0.0697	Lilliefors GOF Test					
106	1% Lilliefors Critical Value					0.0473	Data Not Normal at 1% Significance Level					
107	Data Not Normal at 1% Significance Level											
108												
109	Background Statistics Assuming Normal Distribution											
110	95% UTL with 95% Coverage					27.51	90% Percentile (z)					25.03
111	95% UPL (t)					26.92	95% Percentile (z)					26.9
112	95% USL					37.33	99% Percentile (z)					30.39

	A	B	C	D	E	F	G	H	I	J	K	L
113												
114	Gamma GOF Test											
115	A-D Test Statistic					2.215	Anderson-Darling Gamma GOF Test					
116	5% A-D Critical Value					0.753	Data Not Gamma Distributed at 5% Significance Level					
117	K-S Test Statistic					0.0469	Kolmogorov-Smirnov Gamma GOF Test					
118	5% K-S Critical Value					0.0415	Data Not Gamma Distributed at 5% Significance Level					
119	Data Not Gamma Distributed at 5% Significance Level											
120												
121	Gamma Statistics											
122	k hat (MLE)					12.17	k star (bias corrected MLE)					12.09
123	Theta hat (MLE)					1.518	Theta star (bias corrected MLE)					1.527
124	nu hat (MLE)					11610	nu star (bias corrected)					11538
125	MLE Mean (bias corrected)					18.47	MLE Sd (bias corrected)					5.311
126												
127	Background Statistics Assuming Gamma Distribution											
128	95% Wilson Hilferty (WH) Approx. Gamma UPL					27.94	90% Percentile					25.52
129	95% Hawkins Wixley (HW) Approx. Gamma UPL					28.21	95% Percentile					27.98
130	95% WH Approx. Gamma UTL with 95% Coverage					28.75	99% Percentile					33.01
131	95% HW Approx. Gamma UTL with 95% Coverage					29.07						
132	95% WH USL					44.56	95% HW USL					46.35
133												
134	Lognormal GOF Test											
135	Shapiro Wilk Test Statistic					0.92	Shapiro Wilk Lognormal GOF Test					
136	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
137	Lilliefors Test Statistic					0.0651	Lilliefors Lognormal GOF Test					
138	10% Lilliefors Critical Value					0.0375	Data Not Lognormal at 10% Significance Level					
139	Data Not Lognormal at 10% Significance Level											
140												
141	Background Statistics assuming Lognormal Distribution											
142	95% UTL with 95% Coverage					30.54	90% Percentile (z)					26.31
143	95% UPL (t)					29.47	95% Percentile (z)					29.43
144	95% USL					55.18	99% Percentile (z)					36.31
145												
146	Nonparametric Distribution Free Background Statistics											
147	Data do not follow a Discernible Distribution											
148												
149	Nonparametric Upper Limits for Background Threshold Values											
150	Order of Statistic, order					462	95% UTL with 95% Coverage					31
151	Approx, f used to compute achieved CC					1.427	Approximate Actual Confidence Coefficient achieved by UTL					0.945
152							Approximate Sample Size needed to achieve specified CC					458
153	95% Percentile Bootstrap UTL with 95% Coverage					30.1	95% BCA Bootstrap UTL with 95% Coverage					30.28
154	95% UPL					28.01	90% Percentile					25
155	90% Chebyshev UPL					33.85	95% Percentile					27.84
156	95% Chebyshev UPL					40.82	99% Percentile					33.55
157	95% USL					37.2						
158												
159	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
160	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
161	and consists of observations collected from clean unimpacted locations.											
162	The use of USL tends to provide a balance between false positives and false negatives provided the data											
163	represents a background data set and when many onsite observations need to be compared with the BTV.											
164												
165	WY USGS Pb-AII <35											
166												
167	General Statistics											
168	Total Number of Observations					474	Number of Distinct Observations					182

	A	B	C	D	E	F	G	H	I	J	K	L
169				Minimum	1					First Quartile	15.13	
170				Second Largest	33.7					Median	18	
171				Maximum	34.8					Third Quartile	21	
172				Mean	18.36					SD	4.937	
173				Coefficient of Variation	0.269					Skewness	0.481	
174				Mean of logged Data	2.87					SD of logged Data	0.304	
175												
176	Critical Values for Background Threshold Values (BTVs)											
177				Tolerance Factor K (For UTL)	1.766					d2max (for USL)	3.681	
178												
179	Normal GOF Test											
180				Shapiro Wilk Test Statistic	0.972					Normal GOF Test		
181				1% Shapiro Wilk P Value	2.0304E-4					Data Not Normal at 1% Significance Level		
182				Lilliefors Test Statistic	0.0615					Lilliefors GOF Test		
183				1% Lilliefors Critical Value	0.0475					Data Not Normal at 1% Significance Level		
184	Data Not Normal at 1% Significance Level											
185												
186	Background Statistics Assuming Normal Distribution											
187				95% UTL with 95% Coverage	27.07					90% Percentile (z)	24.68	
188				95% UPL (t)	26.5					95% Percentile (z)	26.48	
189				95% USL	36.53					99% Percentile (z)	29.84	
190												
191	Gamma GOF Test											
192				A-D Test Statistic	1.965					Anderson-Darling Gamma GOF Test		
193				5% A-D Critical Value	0.753					Data Not Gamma Distributed at 5% Significance Level		
194				K-S Test Statistic	0.0453					Kolmogorov-Smirnov Gamma GOF Test		
195				5% K-S Critical Value	0.0416					Data Not Gamma Distributed at 5% Significance Level		
196	Data Not Gamma Distributed at 5% Significance Level											
197												
198	Gamma Statistics											
199				k hat (MLE)	12.65					k star (bias corrected MLE)	12.57	
200				Theta hat (MLE)	1.451					Theta star (bias corrected MLE)	1.46	
201				nu hat (MLE)	11990					nu star (bias corrected)	11916	
202				MLE Mean (bias corrected)	18.36					MLE Sd (bias corrected)	5.178	
203												
204	Background Statistics Assuming Gamma Distribution											
205				95% Wilson Hilferty (WH) Approx. Gamma UPL	27.58					90% Percentile	25.23	
206				95% Hawkins Wixley (HW) Approx. Gamma UPL	27.85					95% Percentile	27.62	
207				95% WH Approx. Gamma UTL with 95% Coverage	28.37					99% Percentile	32.49	
208				95% HW Approx. Gamma UTL with 95% Coverage	28.69							
209				95% WH USL	43.64					95% HW USL	45.4	
210												
211	Lognormal GOF Test											
212				Shapiro Wilk Test Statistic	0.913					Shapiro Wilk Lognormal GOF Test		
213				10% Shapiro Wilk P Value	0					Data Not Lognormal at 10% Significance Level		
214				Lilliefors Test Statistic	0.0658					Lilliefors Lognormal GOF Test		
215				10% Lilliefors Critical Value	0.0376					Data Not Lognormal at 10% Significance Level		
216	Data Not Lognormal at 10% Significance Level											
217												
218	Background Statistics assuming Lognormal Distribution											
219				95% UTL with 95% Coverage	30.17					90% Percentile (z)	26.04	
220				95% UPL (t)	29.13					95% Percentile (z)	29.08	
221				95% USL	54.02					99% Percentile (z)	35.78	
222												
223	Nonparametric Distribution Free Background Statistics											
224	Data do not follow a Discernible Distribution											

	A	B	C	D	E	F	G	H	I	J	K	L
225												
226	Nonparametric Upper Limits for Background Threshold Values											
227	Order of Statistic, order					459	95% UTL with 95% Coverage					28.8
228	Approx, f used to compute achieved CC					1.418	Approximate Actual Confidence Coefficient achieved by UTL					0.942
229							Approximate Sample Size needed to achieve specified CC					458
230	95% Percentile Bootstrap UTL with 95% Coverage					28.5	95% BCA Bootstrap UTL with 95% Coverage					28.5
231	95% UPL					27.38	90% Percentile					24.77
232	90% Chebyshev UPL					33.18	95% Percentile					27.24
233	95% Chebyshev UPL					39.9	99% Percentile					32.23
234	95% USL					34.8						
235												
236	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
237	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
238	and consists of observations collected from clean unimpacted locations.											
239	The use of USL tends to provide a balance between false positives and false negatives provided the data											
240	represents a background data set and when many onsite observations need to be compared with the BTV.											
241												
242	WY USGS Pb-All <30											
243												
244	General Statistics											
245	Total Number of Observations					459	Number of Distinct Observations					168
246	Minimum					1	First Quartile					15
247	Second Largest					28.5	Median					17.9
248	Maximum					28.8	Third Quartile					20.6
249	Mean					17.91	SD					4.341
250	Coefficient of Variation					0.242	Skewness					-0.00117
251	Mean of logged Data					2.85	SD of logged Data					0.289
252												
253	Critical Values for Background Threshold Values (BTVs)											
254	Tolerance Factor K (For UTL)					1.768	d2max (for USL)					3.672
255												
256	Normal GOF Test											
257	Shapiro Wilk Test Statistic					0.984	Normal GOF Test					
258	1% Shapiro Wilk P Value					0.445	Data appear Normal at 1% Significance Level					
259	Lilliefors Test Statistic					0.0308	Lilliefors GOF Test					
260	1% Lilliefors Critical Value					0.0482	Data appear Normal at 1% Significance Level					
261	Data appear Normal at 1% Significance Level											
262												
263	Background Statistics Assuming Normal Distribution											
264	95% UTL with 95% Coverage					25.58	90% Percentile (z)					23.47
265	95% UPL (t)					25.07	95% Percentile (z)					25.05
266	95% USL					33.85	99% Percentile (z)					28.01
267												
268	Gamma GOF Test											
269	A-D Test Statistic					2.047	Anderson-Darling Gamma GOF Test					
270	5% A-D Critical Value					0.753	Data Not Gamma Distributed at 5% Significance Level					
271	K-S Test Statistic					0.0458	Kolmogorov-Smirnov Gamma GOF Test					
272	5% K-S Critical Value					0.0423	Data Not Gamma Distributed at 5% Significance Level					
273	Data Not Gamma Distributed at 5% Significance Level											
274												
275	Gamma Statistics											
276	k hat (MLE)					14.48	k star (bias corrected MLE)					14.39
277	Theta hat (MLE)					1.237	Theta star (bias corrected MLE)					1.245
278	nu hat (MLE)					13293	nu star (bias corrected)					13208
279	MLE Mean (bias corrected)					17.91	MLE Sd (bias corrected)					4.722
280												

	A	B	C	D	E	F	G	H	I	J	K	L
281	Background Statistics Assuming Gamma Distribution											
282	95% Wilson Hilferty (WH) Approx. Gamma UPL					26.28	90% Percentile					24.17
283	95% Hawkins Wixley (HW) Approx. Gamma UPL					26.57	95% Percentile					26.32
284	95% WH Approx. Gamma UTL with 95% Coverage					27	99% Percentile					30.68
285	95% HW Approx. Gamma UTL with 95% Coverage					27.33						
286	95% WH USL					40.48	95% HW USL					42.1
287												
288	Lognormal GOF Test											
289	Shapiro Wilk Test Statistic					0.884	Shapiro Wilk Lognormal GOF Test					
290	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
291	Lilliefors Test Statistic					0.0711	Lilliefors Lognormal GOF Test					
292	10% Lilliefors Critical Value					0.0382	Data Not Lognormal at 10% Significance Level					
293	Data Not Lognormal at 10% Significance Level											
294												
295	Background Statistics assuming Lognormal Distribution											
296	95% UTL with 95% Coverage					28.83	90% Percentile (z)					25.05
297	95% UPL (t)					27.86	95% Percentile (z)					27.82
298	95% USL					49.98	99% Percentile (z)					33.88
299												
300	Nonparametric Distribution Free Background Statistics											
301	Data appear Normal at 1% Significance Level											
302												
303	Nonparametric Upper Limits for Background Threshold Values											
304	Order of Statistic, order					444	95% UTL with 95% Coverage					26.6
305	Approx, f used to compute achieved CC					1.372	Approximate Actual Confidence Coefficient achieved by UTL					0.922
306							Approximate Sample Size needed to achieve specified CC					458
307	95% Percentile Bootstrap UTL with 95% Coverage					26.5	95% BCA Bootstrap UTL with 95% Coverage					26.5
308	95% UPL					25.9	90% Percentile					23.52
309	90% Chebyshev UPL					30.95	95% Percentile					25.81
310	95% Chebyshev UPL					36.85	99% Percentile					28.04
311	95% USL					28.8						
312												
313	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
314	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
315	and consists of observations collected from clean unimpacted locations.											
316	The use of USL tends to provide a balance between false positives and false negatives provided the data											
317	represents a background data set and when many onsite observations need to be compared with the BTV.											
318												
319	WY USGS As - All											
320												
321	General Statistics											
322	Total Number of Observations					481	Number of Distinct Observations					129
323	Minimum					0.3	First Quartile					3.3
324	Second Largest					22.6	Median					4.8
325	Maximum					31.8	Third Quartile					6.8
326	Mean					5.65	SD					3.681
327	Coefficient of Variation					0.651	Skewness					2.106
328	Mean of logged Data					1.547	SD of logged Data					0.627
329												
330	Critical Values for Background Threshold Values (BTVs)											
331	Tolerance Factor K (For UTL)					1.765	d2max (for USL)					3.685
332												
333	Normal GOF Test											
334	Shapiro Wilk Test Statistic					0.843	Normal GOF Test					
335	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
336	Lilliefors Test Statistic					0.147	Lilliefors GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L	
337	1% Lilliefors Critical Value					0.0471	Data Not Normal at 1% Significance Level						
338	Data Not Normal at 1% Significance Level												
339													
340	Background Statistics Assuming Normal Distribution												
341	95% UTL with		95% Coverage		12.15	90% Percentile (z)					10.37		
342			95% UPL (t)		11.72	95% Percentile (z)					11.7		
343			95% USL		19.21	99% Percentile (z)					14.21		
344													
345	Gamma GOF Test												
346			A-D Test Statistic		2.672	Anderson-Darling Gamma GOF Test							
347			5% A-D Critical Value		0.762	Data Not Gamma Distributed at 5% Significance Level							
348			K-S Test Statistic		0.0667	Kolmogorov-Smirnov Gamma GOF Test							
349			5% K-S Critical Value		0.0417	Data Not Gamma Distributed at 5% Significance Level							
350	Data Not Gamma Distributed at 5% Significance Level												
351													
352	Gamma Statistics												
353			k hat (MLE)		2.87	k star (bias corrected MLE)					2.853		
354			Theta hat (MLE)		1.969	Theta star (bias corrected MLE)					1.98		
355			nu hat (MLE)		2761	nu star (bias corrected)					2745		
356			MLE Mean (bias corrected)		5.65	MLE Sd (bias corrected)					3.345		
357													
358	Background Statistics Assuming Gamma Distribution												
359	95% Wilson Hilferty (WH) Approx.		Gamma UPL		11.95	90% Percentile					10.13		
360	95% Hawkins Wixley (HW) Approx.		Gamma UPL		12.14	95% Percentile					12.03		
361	95% WH Approx.		Gamma UTL with 95% Coverage		12.59	99% Percentile					16.15		
362	95% HW Approx.		Gamma UTL with 95% Coverage		12.84								
363			95% WH USL		26.9	95% HW USL					29.53		
364													
365	Lognormal GOF Test												
366			Shapiro Wilk Test Statistic		0.974	Shapiro Wilk Lognormal GOF Test							
367			10% Shapiro Wilk P Value		7.8820E-4	Data Not Lognormal at 10% Significance Level							
368			Lilliefors Test Statistic		0.0542	Lilliefors Lognormal GOF Test							
369			10% Lilliefors Critical Value		0.0373	Data Not Lognormal at 10% Significance Level							
370	Data Not Lognormal at 10% Significance Level												
371													
372	Background Statistics assuming Lognormal Distribution												
373	95% UTL with		95% Coverage		14.22	90% Percentile (z)					10.5		
374			95% UPL (t)		13.23	95% Percentile (z)					13.19		
375			95% USL		47.4	99% Percentile (z)					20.22		
376													
377	Nonparametric Distribution Free Background Statistics												
378	Data do not follow a Discernible Distribution												
379													
380	Nonparametric Upper Limits for Background Threshold Values												
381	Order of Statistic, order		466		95% UTL with 95% Coverage					14.4			
382	Approx, f used to compute achieved CC		1.44		Approximate Actual Confidence Coefficient achieved by UTL					0.949			
383					Approximate Sample Size needed to achieve specified CC					458			
384	95% Percentile Bootstrap UTL with		95% Coverage		14.1	95% BCA Bootstrap UTL with 95% Coverage					14		
385			95% UPL		12.99	90% Percentile					10.4		
386			90% Chebyshev UPL		16.7	95% Percentile					12.9		
387			95% Chebyshev UPL		21.71	99% Percentile					17.84		
388			95% USL		31.8								
389													
390	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
391	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
392	and consists of observations collected from clean unimpacted locations.												

	A	B	C	D	E	F	G	H	I	J	K	L
393	The use of USL tends to provide a balance between false positives and false negatives provided the data											
394	represents a background data set and when many onsite observations need to be compared with the BTV.											
395												
396	WY USGS As - <23											
397												
398	General Statistics											
399	Total Number of Observations				480	Number of Distinct Observations				128		
400	Minimum				0.3	First Quartile				3.3		
401	Second Largest				20.3	Median				4.8		
402	Maximum				22.6	Third Quartile				6.725		
403	Mean				5.596	SD				3.485		
404	Coefficient of Variation				0.623	Skewness				1.648		
405	Mean of logged Data				1.544	SD of logged Data				0.622		
406												
407	Critical Values for Background Threshold Values (BTVs)											
408	Tolerance Factor K (For UTL)				1.765	d2max (for USL)				3.684		
409												
410	Normal GOF Test											
411	Shapiro Wilk Test Statistic				0.861	Normal GOF Test						
412	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level						
413	Lilliefors Test Statistic				0.14	Lilliefors GOF Test						
414	1% Lilliefors Critical Value				0.0472	Data Not Normal at 1% Significance Level						
415	Data Not Normal at 1% Significance Level											
416												
417	Background Statistics Assuming Normal Distribution											
418	95% UTL with		95% Coverage		11.75	90% Percentile (z)				10.06		
419			95% UPL (t)		11.35	95% Percentile (z)				11.33		
420			95% USL		18.44	99% Percentile (z)				13.7		
421												
422	Gamma GOF Test											
423	A-D Test Statistic				2.302	Anderson-Darling Gamma GOF Test						
424	5% A-D Critical Value				0.761	Data Not Gamma Distributed at 5% Significance Level						
425	K-S Test Statistic				0.0624	Kolmogorov-Smirnov Gamma GOF Test						
426	5% K-S Critical Value				0.0417	Data Not Gamma Distributed at 5% Significance Level						
427	Data Not Gamma Distributed at 5% Significance Level											
428												
429	Gamma Statistics											
430	k hat (MLE)				2.957	k star (bias corrected MLE)				2.94		
431	Theta hat (MLE)				1.892	Theta star (bias corrected MLE)				1.903		
432	nu hat (MLE)				2839	nu star (bias corrected)				2822		
433	MLE Mean (bias corrected)				5.596	MLE Sd (bias corrected)				3.264		
434												
435	Background Statistics Assuming Gamma Distribution											
436	95% Wilson Hilferty (WH) Approx. Gamma UPL				11.75	90% Percentile				9.971		
437	95% Hawkins Wixley (HW) Approx. Gamma UPL				11.95	95% Percentile				11.81		
438	95% WH Approx. Gamma UTL with		95% Coverage		12.37	99% Percentile				15.81		
439	95% HW Approx. Gamma UTL with		95% Coverage		12.63							
440			95% WH USL		26.22	95% HW USL				28.81		
441												
442	Lognormal GOF Test											
443	Shapiro Wilk Test Statistic				0.969	Shapiro Wilk Lognormal GOF Test						
444	10% Shapiro Wilk P Value				4.7087E-6	Data Not Lognormal at 10% Significance Level						
445	Lilliefors Test Statistic				0.0538	Lilliefors Lognormal GOF Test						
446	10% Lilliefors Critical Value				0.0373	Data Not Lognormal at 10% Significance Level						
447	Data Not Lognormal at 10% Significance Level											
448												

	A	B	C	D	E	F	G	H	I	J	K	L
449	Background Statistics assuming Lognormal Distribution											
450	95% UTL with 95% Coverage					14.03	90% Percentile (z)					10.38
451	95% UPL (t)					13.06	95% Percentile (z)					13.02
452	95% USL					46.25	99% Percentile (z)					19.88
453												
454	Nonparametric Distribution Free Background Statistics											
455	Data do not follow a Discernible Distribution											
456												
457	Nonparametric Upper Limits for Background Threshold Values											
458	Order of Statistic, order					465	95% UTL with 95% Coverage					14.3
459	Approx, f used to compute achieved CC					1.437	Approximate Actual Confidence Coefficient achieved by UTL					0.948
460							Approximate Sample Size needed to achieve specified CC					458
461	95% Percentile Bootstrap UTL with 95% Coverage					14.1	95% BCA Bootstrap UTL with 95% Coverage					14.01
462	95% UPL					12.9	90% Percentile					10.4
463	90% Chebyshev UPL					16.06	95% Percentile					12.9
464	95% Chebyshev UPL					20.8	99% Percentile					17.72
465	95% USL					22.6						
466												
467	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
468	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
469	and consists of observations collected from clean unimpacted locations.											
470	The use of USL tends to provide a balance between false positives and false negatives provided the data											
471	represents a background data set and when many onsite observations need to be compared with the BTV.											
472												
473	WY USGS As - <18											
474												
475	General Statistics											
476	Total Number of Observations					476	Number of Distinct Observations					124
477	Minimum					0.3	First Quartile					3.3
478	Second Largest					17.7	Median					4.75
479	Maximum					17.8	Third Quartile					6.7
480	Mean					5.473	SD					3.226
481	Coefficient of Variation					0.59	Skewness					1.391
482	Mean of logged Data					1.531	SD of logged Data					0.61
483												
484	Critical Values for Background Threshold Values (BTVs)											
485	Tolerance Factor K (For UTL)					1.766	d2max (for USL)					3.682
486												
487	Normal GOF Test											
488	Shapiro Wilk Test Statistic					0.88	Normal GOF Test					
489	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
490	Lilliefors Test Statistic					0.128	Lilliefors GOF Test					
491	1% Lilliefors Critical Value					0.0474	Data Not Normal at 1% Significance Level					
492	Data Not Normal at 1% Significance Level											
493												
494	Background Statistics Assuming Normal Distribution											
495	95% UTL with 95% Coverage					11.17	90% Percentile (z)					9.608
496	95% UPL (t)					10.8	95% Percentile (z)					10.78
497	95% USL					17.35	99% Percentile (z)					12.98
498												
499	Gamma GOF Test											
500	A-D Test Statistic					1.643	Anderson-Darling Gamma GOF Test					
501	5% A-D Critical Value					0.761	Data Not Gamma Distributed at 5% Significance Level					
502	K-S Test Statistic					0.054	Kolmogorov-Smirnov Gamma GOF Test					
503	5% K-S Critical Value					0.0419	Data Not Gamma Distributed at 5% Significance Level					
504	Data Not Gamma Distributed at 5% Significance Level											

	A	B	C	D	E	F	G	H	I	J	K	L
505												
506	Gamma Statistics											
507	k hat (MLE)					3.123	k star (bias corrected MLE)					3.105
508	Theta hat (MLE)					1.753	Theta star (bias corrected MLE)					1.763
509	nu hat (MLE)					2973	nu star (bias corrected)					2955
510	MLE Mean (bias corrected)					5.473	MLE Sd (bias corrected)					3.106
511												
512	Background Statistics Assuming Gamma Distribution											
513	95% Wilson Hilferty (WH) Approx. Gamma UPL					11.33	90% Percentile					9.638
514	95% Hawkins Wixley (HW) Approx. Gamma UPL					11.54	95% Percentile					11.37
515	95% WH Approx. Gamma UTL with 95% Coverage					11.92	99% Percentile					15.13
516	95% HW Approx. Gamma UTL with 95% Coverage					12.18						
517	95% WH USL					24.87	95% HW USL					27.32
518												
519	Lognormal GOF Test											
520	Shapiro Wilk Test Statistic					0.964	Shapiro Wilk Lognormal GOF Test					
521	10% Shapiro Wilk P Value					4.0206E-9	Data Not Lognormal at 10% Significance Level					
522	Lilliefors Test Statistic					0.0541	Lilliefors Lognormal GOF Test					
523	10% Lilliefors Critical Value					0.0375	Data Not Lognormal at 10% Significance Level					
524	Data Not Lognormal at 10% Significance Level											
525												
526	Background Statistics assuming Lognormal Distribution											
527	95% UTL with 95% Coverage					13.57	90% Percentile (z)					10.1
528	95% UPL (t)					12.64	95% Percentile (z)					12.6
529	95% USL					43.64	99% Percentile (z)					19.1
530												
531	Nonparametric Distribution Free Background Statistics											
532	Data do not follow a Discernible Distribution											
533												
534	Nonparametric Upper Limits for Background Threshold Values											
535	Order of Statistic, order					461	95% UTL with 95% Coverage					14
536	Approx, f used to compute achieved CC					1.424	Approximate Actual Confidence Coefficient achieved by UTL					0.944
537							Approximate Sample Size needed to achieve specified CC					458
538	95% Percentile Bootstrap UTL with 95% Coverage					13.5	95% BCA Bootstrap UTL with 95% Coverage					13.5
539	95% UPL					12.22	90% Percentile					10.1
540	90% Chebyshev UPL					15.16	95% Percentile					12.2
541	95% Chebyshev UPL					19.55	99% Percentile					16.55
542	95% USL					17.8						
543												
544	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
545	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
546	and consists of observations collected from clean unimpacted locations.											
547	The use of USL tends to provide a balance between false positives and false negatives provided the data											
548	represents a background data set and when many onsite observations need to be compared with the BTV.											
549												
550	WY USGS As - <15											
551												
552	General Statistics											
553	Total Number of Observations					467	Number of Distinct Observations					115
554	Minimum					0.3	First Quartile					3.3
555	Second Largest					14.4	Median					4.7
556	Maximum					14.9	Third Quartile					6.5
557	Mean					5.256	SD					2.847
558	Coefficient of Variation					0.542	Skewness					1.077
559	Mean of logged Data					1.506	SD of logged Data					0.589
560												

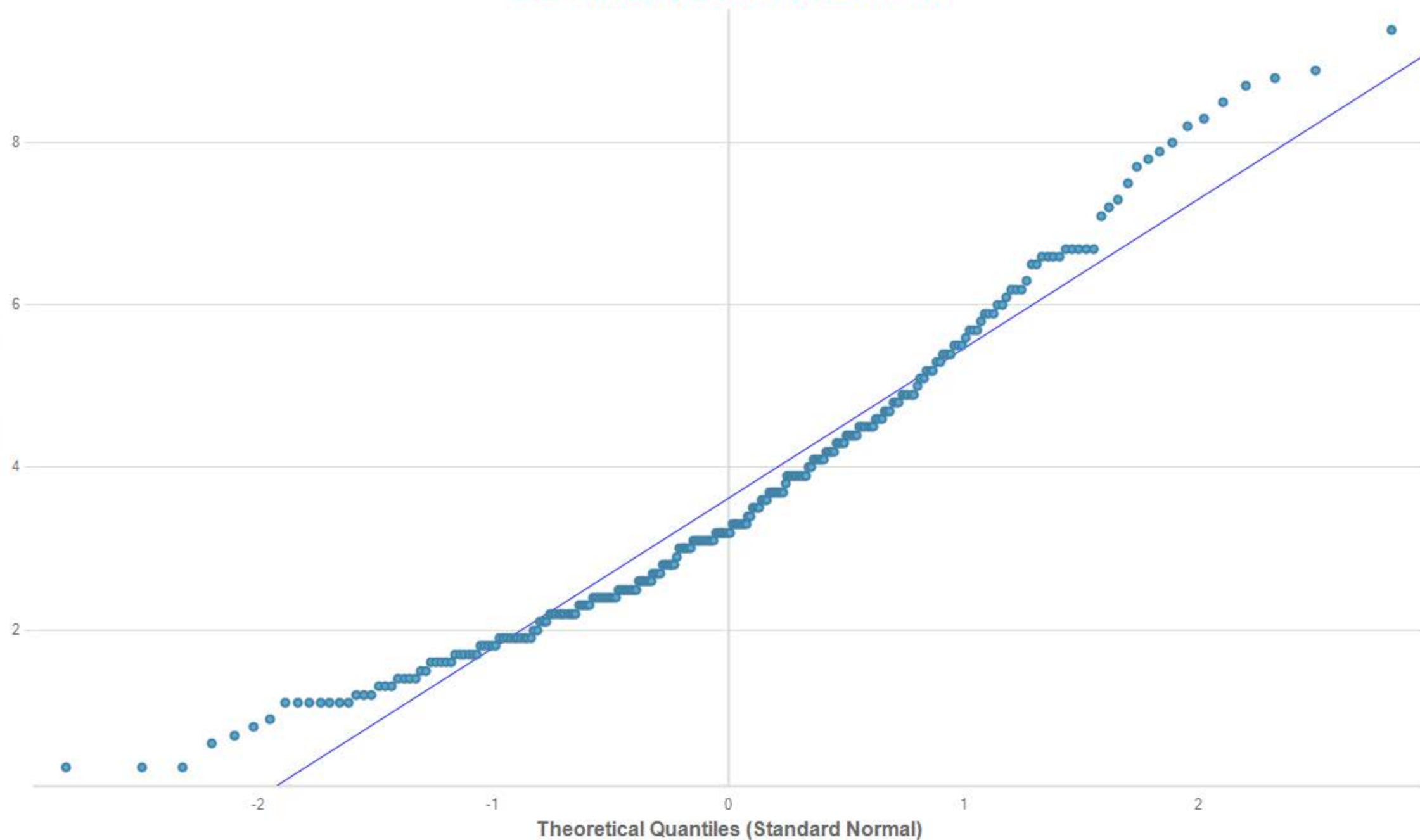
	A	B	C	D	E	F	G	H	I	J	K	L
561	Critical Values for Background Threshold Values (BTVs)											
562	Tolerance Factor K (For UTL)					1.767	d2max (for USL)					3.677
563												
564	Normal GOF Test											
565	Shapiro Wilk Test Statistic					0.91	Normal GOF Test					
566	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
567	Lilliefors Test Statistic					0.106	Lilliefors GOF Test					
568	1% Lilliefors Critical Value					0.0478	Data Not Normal at 1% Significance Level					
569	Data Not Normal at 1% Significance Level											
570												
571	Background Statistics Assuming Normal Distribution											
572	95% UTL with 95% Coverage					10.29	90% Percentile (z)					8.905
573	95% UPL (t)					9.953	95% Percentile (z)					9.939
574	95% USL					15.72	99% Percentile (z)					11.88
575												
576	Gamma GOF Test											
577	A-D Test Statistic					0.852	Anderson-Darling Gamma GOF Test					
578	5% A-D Critical Value					0.76	Data Not Gamma Distributed at 5% Significance Level					
579	K-S Test Statistic					0.0393	Kolmogorov-Smirnov Gamma GOF Test					
580	5% K-S Critical Value					0.0423	Detected data appear Gamma Distributed at 5% Significance Level					
581	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
582												
583	Gamma Statistics											
584	k hat (MLE)					3.428	k star (bias corrected MLE)					3.407
585	Theta hat (MLE)					1.533	Theta star (bias corrected MLE)					1.543
586	nu hat (MLE)					3201	nu star (bias corrected)					3182
587	MLE Mean (bias corrected)					5.256	MLE Sd (bias corrected)					2.848
588												
589	Background Statistics Assuming Gamma Distribution											
590	95% Wilson Hilferty (WH) Approx. Gamma UPL					10.61	90% Percentile					9.074
591	95% Hawkins Wixley (HW) Approx. Gamma UPL					10.83	95% Percentile					10.64
592	95% WH Approx. Gamma UTL with 95% Coverage					11.15	99% Percentile					14.02
593	95% HW Approx. Gamma UTL with 95% Coverage					11.41						
594	95% WH USL					22.66	95% HW USL					24.87
595												
596	Lognormal GOF Test											
597	Shapiro Wilk Test Statistic					0.956	Shapiro Wilk Lognormal GOF Test					
598	10% Shapiro Wilk P Value					7.661E-15	Data Not Lognormal at 10% Significance Level					
599	Lilliefors Test Statistic					0.0557	Lilliefors Lognormal GOF Test					
600	10% Lilliefors Critical Value					0.0378	Data Not Lognormal at 10% Significance Level					
601	Data Not Lognormal at 10% Significance Level											
602												
603	Background Statistics assuming Lognormal Distribution											
604	95% UTL with 95% Coverage					12.76	90% Percentile (z)					9.59
605	95% UPL (t)					11.91	95% Percentile (z)					11.88
606	95% USL					39.26	99% Percentile (z)					17.74
607												
608	Nonparametric Distribution Free Background Statistics											
609	Data appear Approximate Gamma Distribution at 5% Significance Level											
610												
611	Nonparametric Upper Limits for Background Threshold Values											
612	Order of Statistic, order					452	95% UTL with 95% Coverage					12.2
613	Approx, f used to compute achieved CC					1.396	Approximate Actual Confidence Coefficient achieved by UTL					0.933
614							Approximate Sample Size needed to achieve specified CC					458
615	95% Percentile Bootstrap UTL with 95% Coverage					12.07	95% BCA Bootstrap UTL with 95% Coverage					12
616	95% UPL					11.4	90% Percentile					9.44

	A	B	C	D	E	F	G	H	I	J	K	L
617				90% Chebyshev UPL		13.81				95% Percentile		11.28
618				95% Chebyshev UPL		17.68				99% Percentile		14.03
619				95% USL		14.9						
620												
621				Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.								
622				Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers								
623				and consists of observations collected from clean unimpacted locations.								
624				The use of USL tends to provide a balance between false positives and false negatives provided the data								
625				represents a background data set and when many onsite observations need to be compared with the BTV.								
626												
627	WY USGS As - <14											
628												
629	General Statistics											
630				Total Number of Observations		460				Number of Distinct Observations		110
631				Minimum		0.3				First Quartile		3.2
632				Second Largest		13.5				Median		4.7
633				Maximum		13.8				Third Quartile		6.5
634				Mean		5.119				SD		2.641
635				Coefficient of Variation		0.516				Skewness		0.918
636				Mean of logged Data		1.489				SD of logged Data		0.575
637												
638				Critical Values for Background Threshold Values (BTVs)								
639				Tolerance Factor K (For UTL)		1.768				d2max (for USL)		3.672
640												
641				Normal GOF Test								
642				Shapiro Wilk Test Statistic		0.927				Normal GOF Test		
643				1% Shapiro Wilk P Value		0				Data Not Normal at 1% Significance Level		
644				Lilliefors Test Statistic		0.0912				Lilliefors GOF Test		
645				1% Lilliefors Critical Value		0.0482				Data Not Normal at 1% Significance Level		
646				Data Not Normal at 1% Significance Level								
647												
648				Background Statistics Assuming Normal Distribution								
649				95% UTL with 95% Coverage		9.787				90% Percentile (z)		8.503
650				95% UPL (t)		9.476				95% Percentile (z)		9.463
651				95% USL		14.82				99% Percentile (z)		11.26
652												
653				Gamma GOF Test								
654				A-D Test Statistic		0.59				Anderson-Darling Gamma GOF Test		
655				5% A-D Critical Value		0.76				Detected data appear Gamma Distributed at 5% Significance Level		
656				K-S Test Statistic		0.0346				Kolmogorov-Smirnov Gamma GOF Test		
657				5% K-S Critical Value		0.0426				Detected data appear Gamma Distributed at 5% Significance Level		
658				Detected data appear Gamma Distributed at 5% Significance Level								
659												
660				Gamma Statistics								
661				k hat (MLE)		3.63				k star (bias corrected MLE)		3.608
662				Theta hat (MLE)		1.41				Theta star (bias corrected MLE)		1.419
663				nu hat (MLE)		3340				nu star (bias corrected)		3319
664				MLE Mean (bias corrected)		5.119				MLE Sd (bias corrected)		2.695
665												
666				Background Statistics Assuming Gamma Distribution								
667				95% Wilson Hilferty (WH) Approx. Gamma UPL		10.18				90% Percentile		8.733
668				95% Hawkins Wixley (HW) Approx. Gamma UPL		10.39				95% Percentile		10.2
669				95% WH Approx. Gamma UTL with 95% Coverage		10.69				99% Percentile		13.36
670				95% HW Approx. Gamma UTL with 95% Coverage		10.95						
671				95% WH USL		21.37				95% HW USL		23.43
672												

	A	B	C	D	E	F	G	H	I	J	K	L
673	Lognormal GOF Test											
674	Shapiro Wilk Test Statistic					0.95	Shapiro Wilk Lognormal GOF Test					
675	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
676	Lilliefors Test Statistic					0.0575	Lilliefors Lognormal GOF Test					
677	10% Lilliefors Critical Value					0.0381	Data Not Lognormal at 10% Significance Level					
678	Data Not Lognormal at 10% Significance Level											
679												
680	Background Statistics assuming Lognormal Distribution											
681	95% UTL with 95% Coverage					12.26	90% Percentile (z)					9.267
682	95% UPL (t)					11.46	95% Percentile (z)					11.42
683	95% USL					36.68	99% Percentile (z)					16.91
684												
685	Nonparametric Distribution Free Background Statistics											
686	Data appear Gamma Distributed at 5% Significance Level											
687												
688	Nonparametric Upper Limits for Background Threshold Values											
689	Order of Statistic, order					445	95% UTL with 95% Coverage					11.4
690	Approx, f used to compute achieved CC					1.375	Approximate Actual Confidence Coefficient achieved by UTL					0.923
691							Approximate Sample Size needed to achieve specified CC					458
692	95% Percentile Bootstrap UTL with 95% Coverage					11.4	95% BCA Bootstrap UTL with 95% Coverage					11.4
693	95% UPL					10.6	90% Percentile					9.01
694	90% Chebyshev UPL					13.05	95% Percentile					10.6
695	95% Chebyshev UPL					16.64	99% Percentile					12.78
696	95% USL					13.8						
697												
698	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
699	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
700	and consists of observations collected from clean unimpacted locations.											
701	The use of USL tends to provide a balance between false positives and false negatives provided the data											
702	represents a background data set and when many onsite observations need to be compared with the BTV.											
703												

Q-Q Plot for USGS2013 As WI <10

USGS2013 As WI <10



USGS2013 As WI <10

N = 258

Mean = 3.622

Sd = 1.879

Slope = 1.846

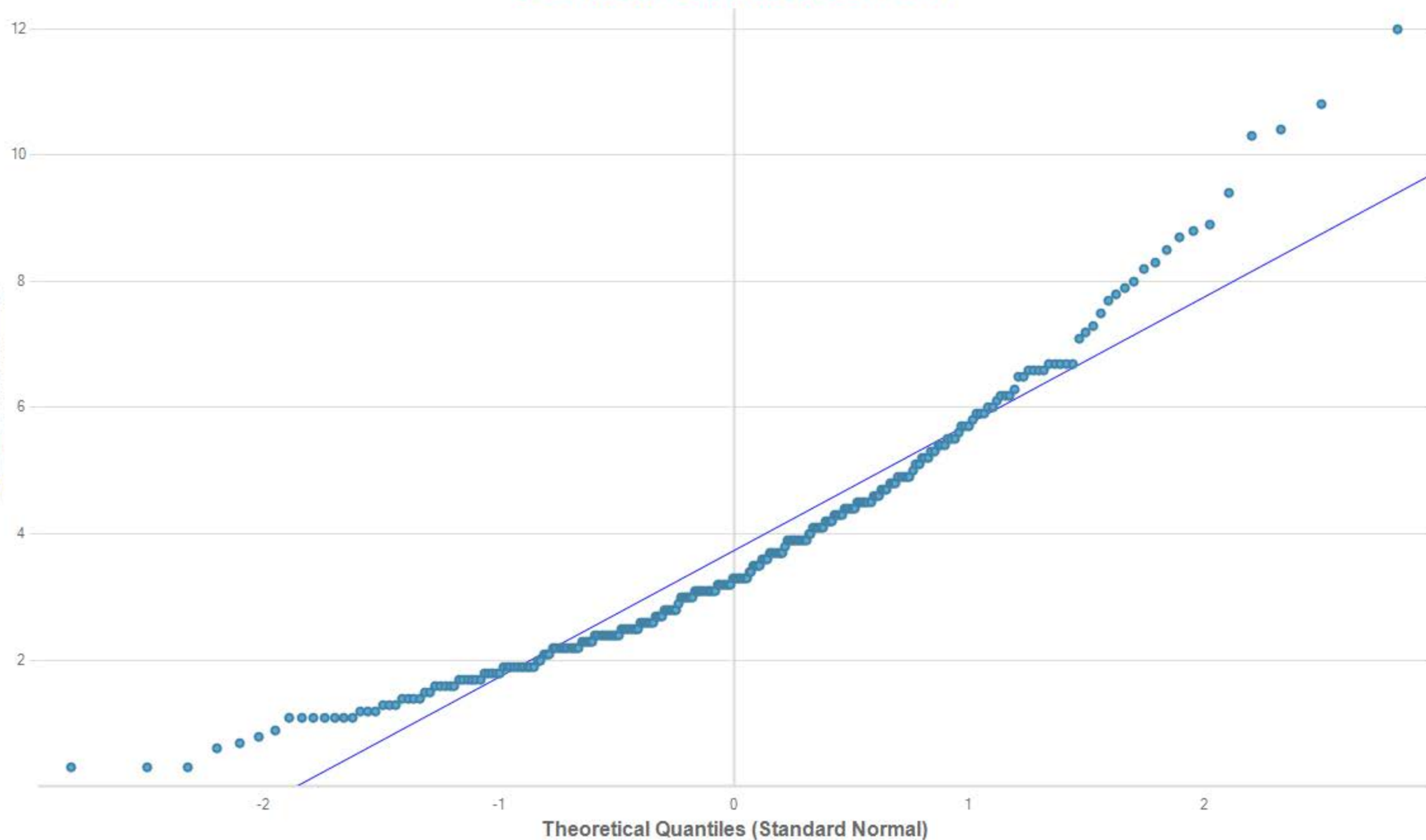
Intercept = 3.622

Correlation, R = 0.978

■ Best Fit Line

Q-Q Plot for USGS2013 As WI <=12

USGS2013 As WI <=12



USGS2013 As WI <=12

N = 262

Mean = 3.733

Sd = 2.068

Slope = 2.007

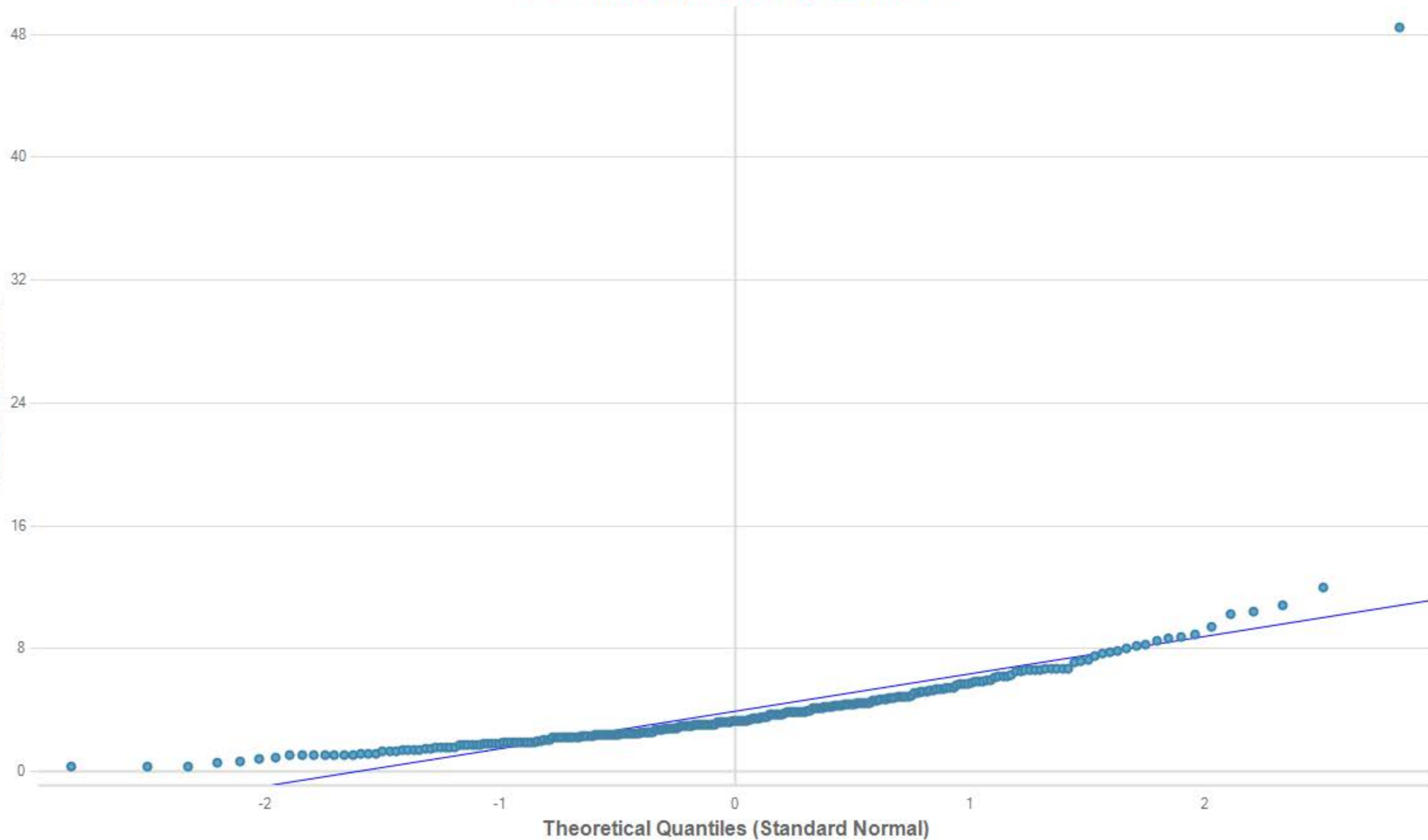
Intercept = 3.733

Correlation, R = 0.965

Best Fit Line

Q-Q Plot for USGS2013 As WI <49

USGS2013 As WI <49



USGS2013 As WI <49

N = 263

Mean = 3.903

Sd = 3.447

Slope = 2.451

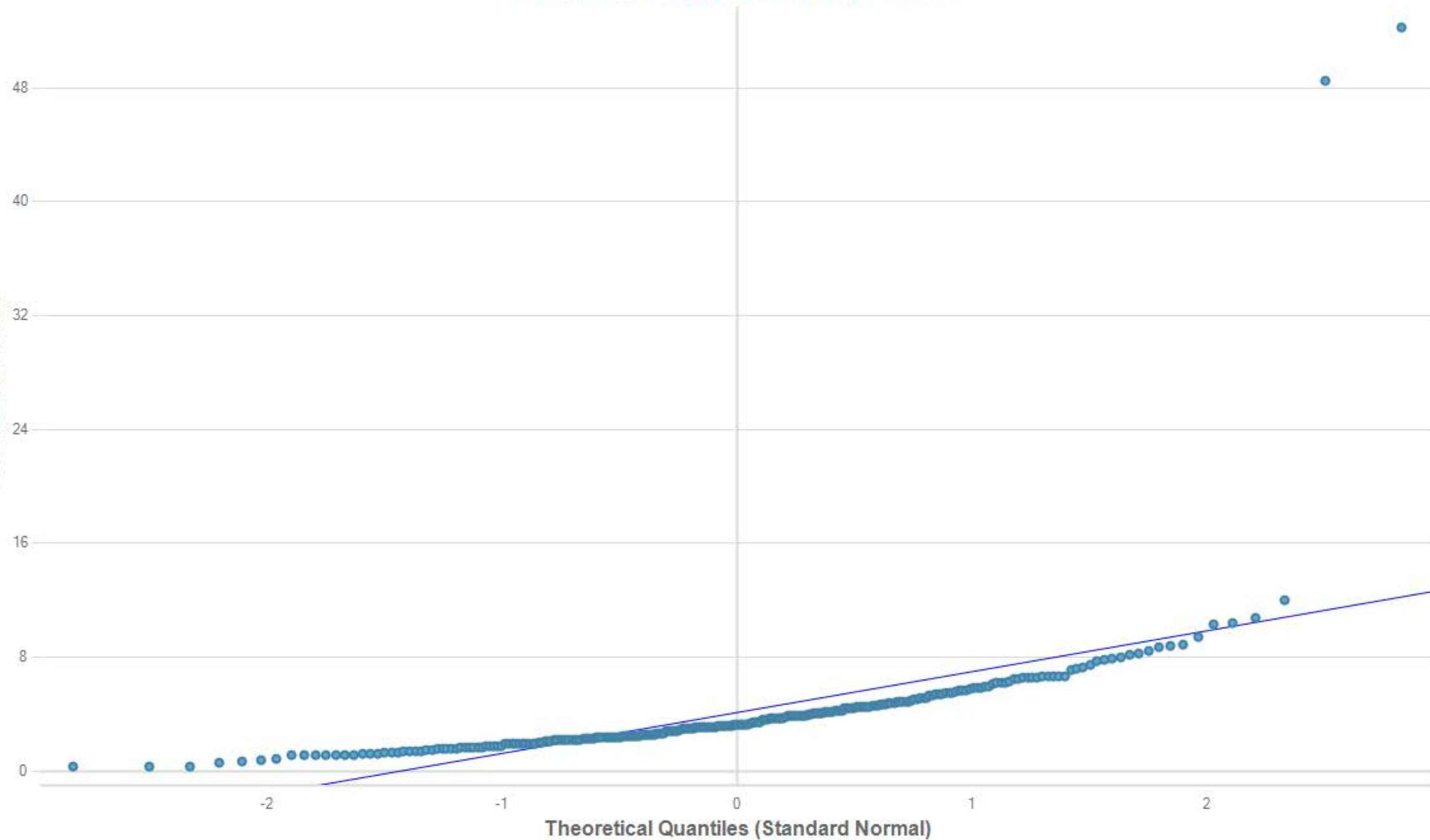
Intercept = 3.903

Correlation, R = 0.707

Best Fit Line

Q-Q Plot for USGS2013 As Wl-all

USGS2013 As Wl-all



USGS2013 As Wl-all

N = 264

Mean = 4.086

Sd = 4.551

Slope = 2.886

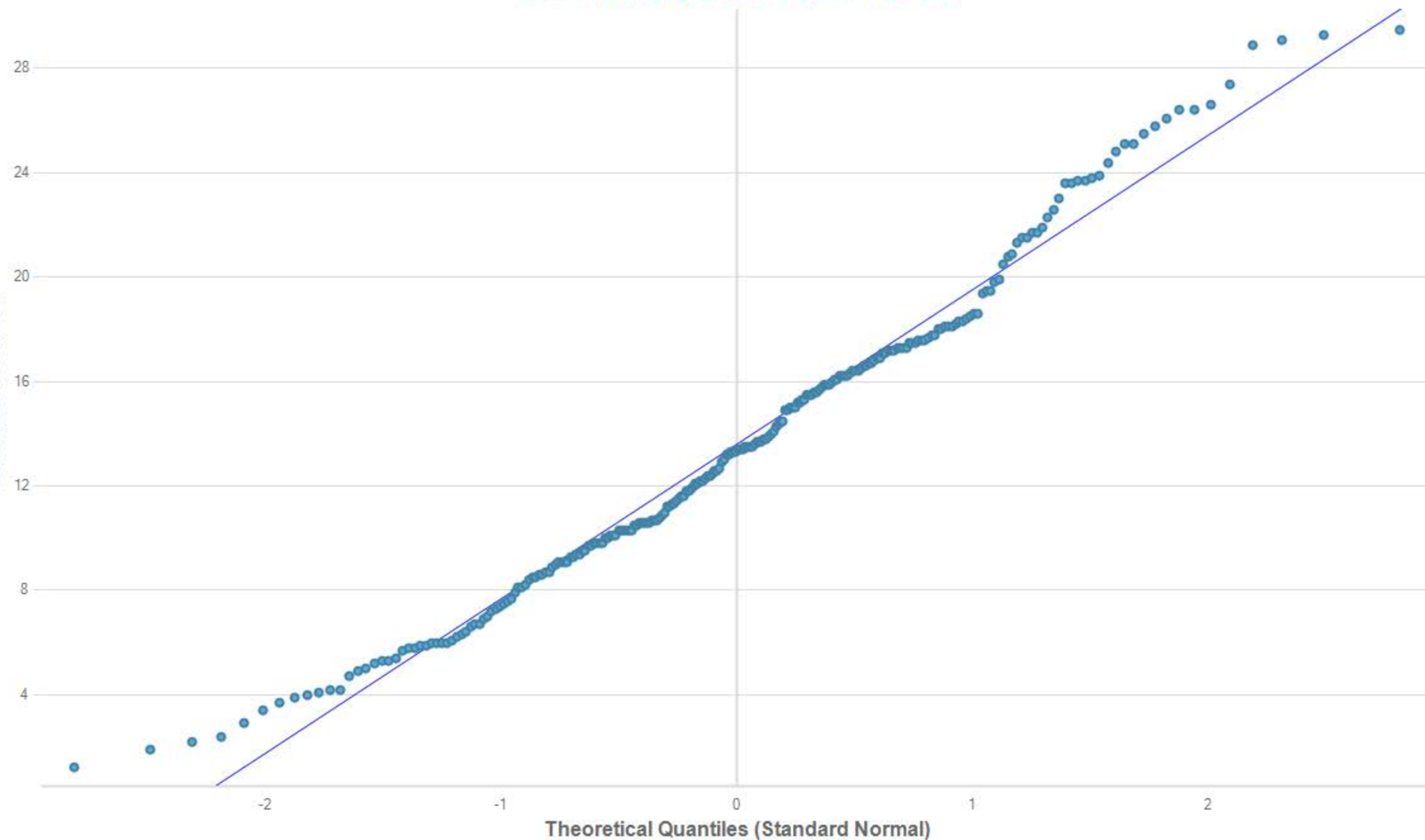
Intercept = 4.086

Correlation, R = 0.631

Best Fit Line

Q-Q Plot for USGS2013 WI Pb <30

USGS2013 WI Pb <30



USGS2013 WI Pb <30

N = 252

Mean = 13.59

Sd = 5.953

Slope = 5.934

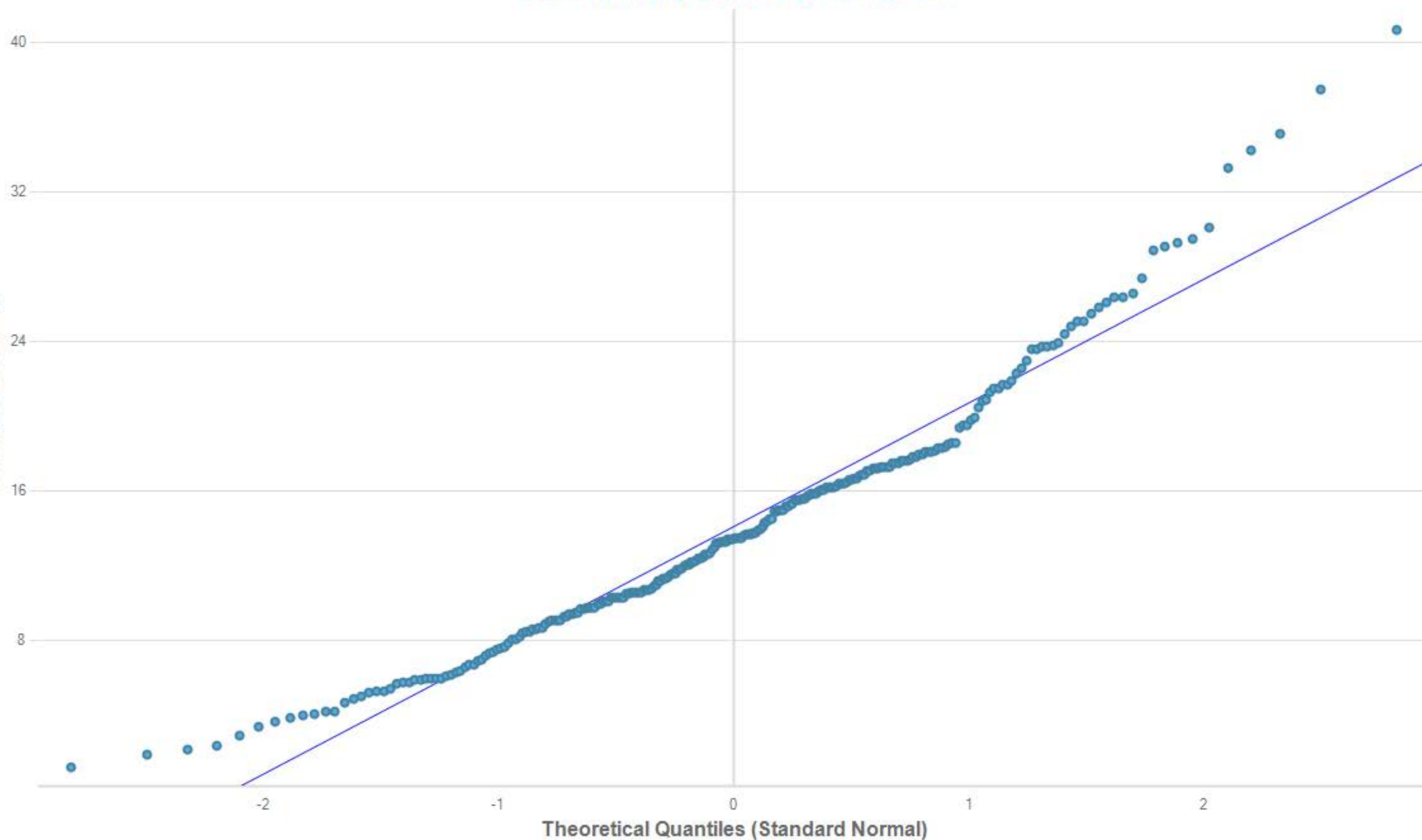
Intercept = 13.59

Correlation, R = 0.992

Best Fit Line

Q-Q Plot for USGS2013 WI Pb <41

USGS2013 WI Pb <41



USGS2013 WI Pb <41

N = 258

Mean = 14.09

Sd = 6.743

Slope = 6.63

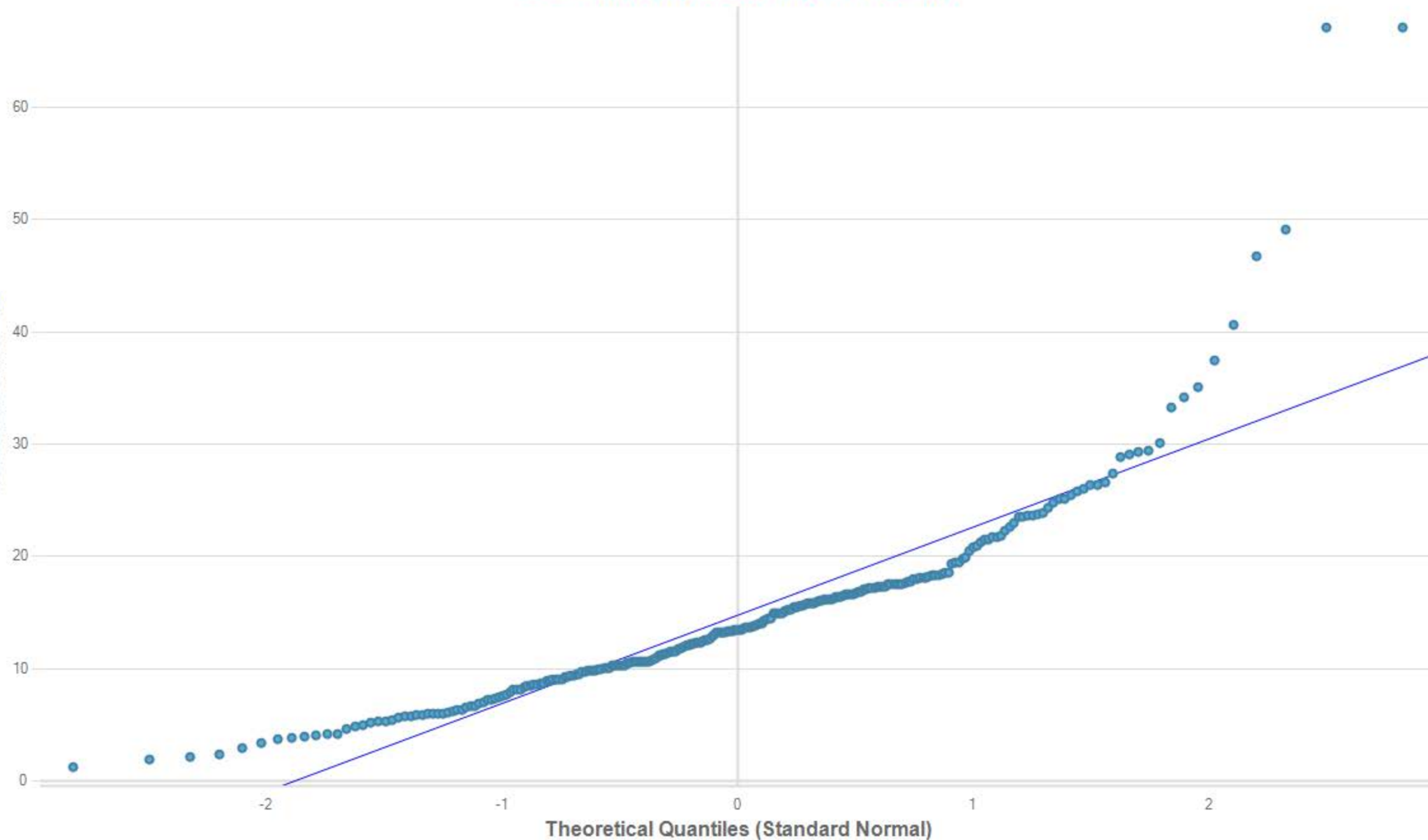
Intercept = 14.09

Correlation, R = 0.978

■ Best Fit Line

Q-Q Plot for USGS2013 WI Pb <68

USGS2013 WI Pb <68



USGS2013 WI Pb <68

N = 262

Mean = 14.75

Sd = 8.645

Slope = 7.872

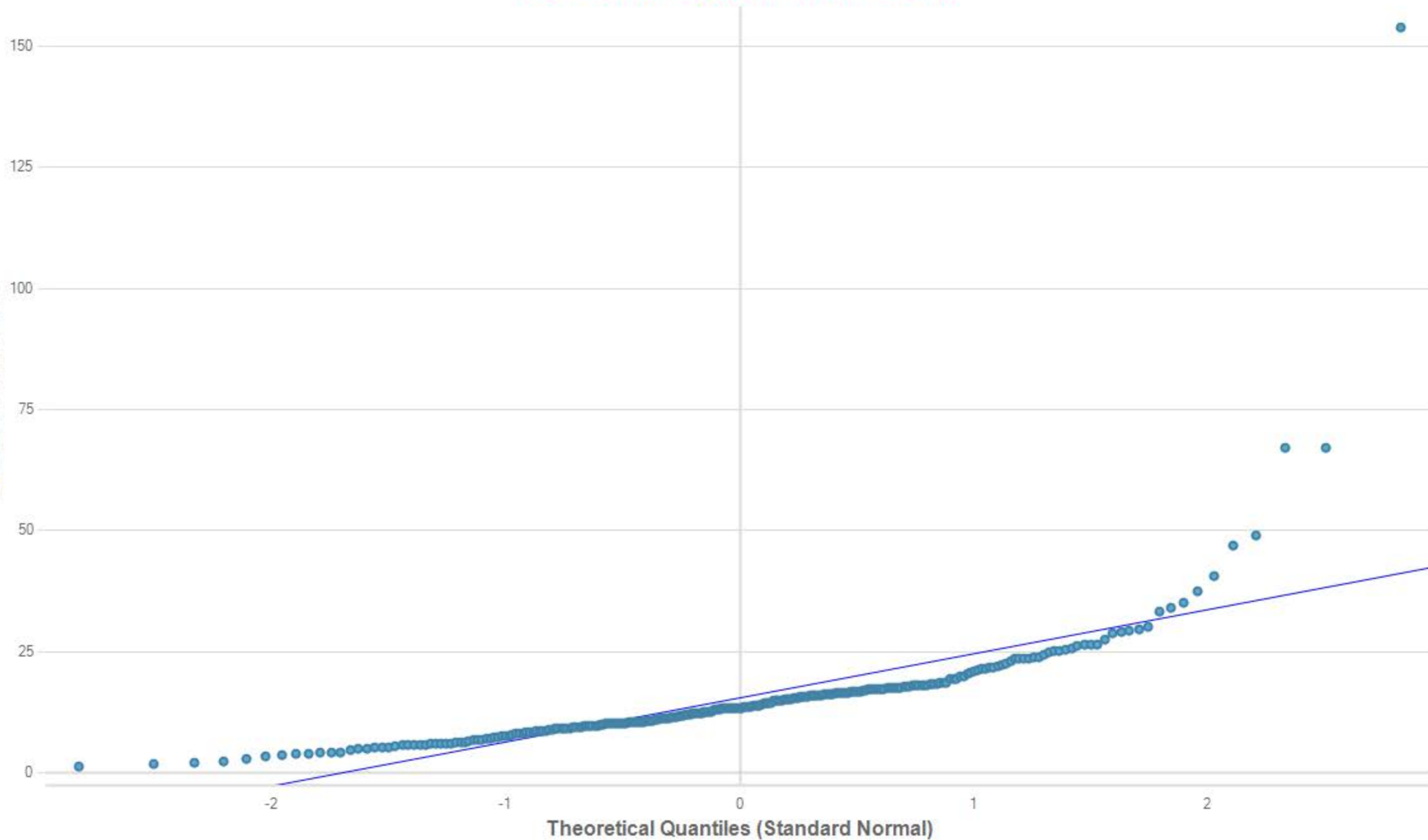
Intercept = 14.75

Correlation, R = 0.906

Best Fit Line

Q-Q Plot for USGS2013 WI Pb <160

USGS2013 WI Pb <160



USGS2013 WI Pb <160

N = 263

Mean = 15.28

Sd = 12.17

Slope = 9.175

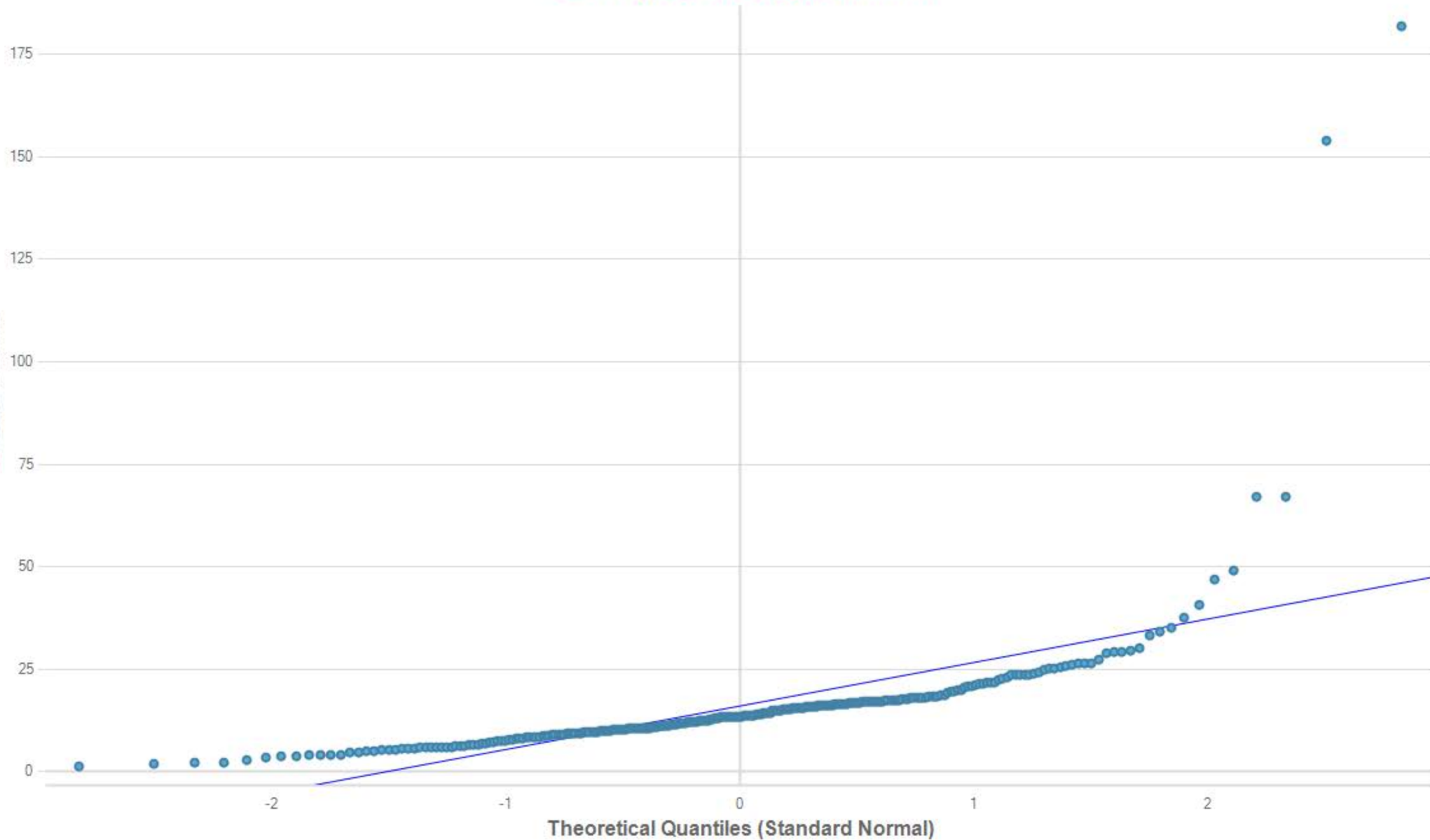
Intercept = 15.28

Correlation, R = 0.75

Best Fit Line

Q-Q Plot for USGS2013 WI Pb

USGS2013 WI Pb



USGS2013 WI Pb

N = 264

Mean = 15.92

Sd = 15.9

Slope = 10.65

Intercept = 15.92

Correlation, R = 0.666

Best Fit Line

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.2 1/21/2024 4:35:20 PM								
4	From File			D:\Tramm\BACKGROUND EVAL\AEEG Article - Estimators\Wisconsin\2013 USGS\USGS 2013 Wisconsin.xls								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	USGS2013 WI Pb											
12												
13	General Statistics											
14	Total Number of Observations					264	Number of Distinct Observations					164
15	Minimum					1.2	First Quartile					9.65
16	Second Largest					154	Median					13.5
17	Maximum					182	Third Quartile					17.6
18	Mean					15.92	SD					15.9
19	Coefficient of Variation					0.999	Skewness					7.195
20	Mean of logged Data					2.562	SD of logged Data					0.608
21												
22	Critical Values for Background Threshold Values (BTVs)											
23	Tolerance Factor K (For UTL)					1.809	d2max (for USL)					3.515
24												
25	Normal GOF Test											
26	Shapiro Wilk Test Statistic					0.489	Normal GOF Test					
27	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
28	Lilliefors Test Statistic					0.244	Lilliefors GOF Test					
29	1% Lilliefors Critical Value					0.0635	Data Not Normal at 1% Significance Level					
30	Data Not Normal at 1% Significance Level											
31												
32	Background Statistics Assuming Normal Distribution											
33	95% UTL with		95% Coverage	44.69	90% Percentile (z)					36.3		
34			95% UPL (t)	42.21	95% Percentile (z)					42.07		
35			95% USL	71.82	99% Percentile (z)					52.91		
36												
37	Gamma GOF Test											
38	A-D Test Statistic					5.013	Anderson-Darling Gamma GOF Test					
39	5% A-D Critical Value					0.762	Data Not Gamma Distributed at 5% Significance Level					
40	K-S Test Statistic					0.132	Kolmogorov-Smirnov Gamma GOF Test					
41	5% K-S Critical Value					0.0568	Data Not Gamma Distributed at 5% Significance Level					
42	Data Not Gamma Distributed at 5% Significance Level											
43												
44	Gamma Statistics											
45	k hat (MLE)					2.584	k star (bias corrected MLE)					2.558
46	Theta hat (MLE)					6.158	Theta star (bias corrected MLE)					6.223
47	nu hat (MLE)					1365	nu star (bias corrected)					1350
48	MLE Mean (bias corrected)					15.92	MLE Sd (bias corrected)					9.952
49												
50	Background Statistics Assuming Gamma Distribution											
51	95% Wilson Hilferty (WH) Approx. Gamma UPL				34.19	90% Percentile					29.25	
52	95% Hawkins Wixley (HW) Approx. Gamma UPL				34.1	95% Percentile					35	
53	95% WH Approx. Gamma UTL with		95% Coverage	36.77	99% Percentile					47.57		
54	95% HW Approx. Gamma UTL with		95% Coverage	36.82								
55	95% WH USL				74.07	95% HW USL					78.46	
56												
57	Lognormal GOF Test											
58	Shapiro Wilk Test Statistic					0.965	Shapiro Wilk Lognormal GOF Test					
59	10% Shapiro Wilk P Value					3.2315E-4	Data Not Lognormal at 10% Significance Level					
60	Lilliefors Test Statistic					0.0867	Lilliefors Lognormal GOF Test					
61	10% Lilliefors Critical Value					0.0503	Data Not Lognormal at 10% Significance Level					
62	Data Not Lognormal at 10% Significance Level											
63												

	A	B	C	D	E	F	G	H	I	J	K	L
64	Background Statistics assuming Lognormal Distribution											
65	95% UTL with 95% Coverage				38.96	90% Percentile (z)						28.26
66	95% UPL (t)				35.44	95% Percentile (z)						35.25
67	95% USL				110	99% Percentile (z)						53.36
68												
69	Nonparametric Distribution Free Background Statistics											
70	Data do not follow a Discernible Distribution											
71												
72	Nonparametric Upper Limits for Background Threshold Values											
73	Order of Statistic, order				257	95% UTL with 95% Coverage						37.5
74	Approx, f used to compute achieved CC				1.497	Approximate Actual Confidence Coefficient achieved by UTL						0.915
75						Approximate Sample Size needed to achieve specified CC						260
76	95% Percentile Bootstrap UTL with 95% Coverage				34.97	95% BCA Bootstrap UTL with 95% Coverage						34.97
77	95% UPL				29.45	90% Percentile						24.25
78	90% Chebyshev UPL				63.71	95% Percentile						29.27
79	95% Chebyshev UPL				85.36	99% Percentile						67.2
80	95% USL				182							
81												
82	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
83	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
84	and consists of observations collected from clean unimpacted locations.											
85	The use of USL tends to provide a balance between false positives and false negatives provided the data											
86	represents a background data set and when many onsite observations need to be compared with the BTV.											
87												
88	USGS2013 WI Pb <160											
89												
90	General Statistics											
91	Total Number of Observations				263	Number of Distinct Observations						163
92	Minimum				1.2	First Quartile						9.6
93	Second Largest				67.2	Median						13.5
94	Maximum				154	Third Quartile						17.6
95	Mean				15.28	SD						12.17
96	Coefficient of Variation				0.796	Skewness						6.493
97	Mean of logged Data				2.551	SD of logged Data						0.587
98												
99	Critical Values for Background Threshold Values (BTVs)											
100	Tolerance Factor K (For UTL)				1.81	d2max (for USL)						3.514
101												
102	Normal GOF Test											
103	Shapiro Wilk Test Statistic				0.618	Normal GOF Test						
104	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level						
105	Lilliefors Test Statistic				0.206	Lilliefors GOF Test						
106	1% Lilliefors Critical Value				0.0637	Data Not Normal at 1% Significance Level						
107	Data Not Normal at 1% Significance Level											
108												
109	Background Statistics Assuming Normal Distribution											
110	95% UTL with 95% Coverage				37.31	90% Percentile (z)						30.88
111	95% UPL (t)				35.42	95% Percentile (z)						35.31
112	95% USL				58.06	99% Percentile (z)						43.6
113												
114	Gamma GOF Test											
115	A-D Test Statistic				2.728	Anderson-Darling Gamma GOF Test						
116	5% A-D Critical Value				0.76	Data Not Gamma Distributed at 5% Significance Level						
117	K-S Test Statistic				0.107	Kolmogorov-Smirnov Gamma GOF Test						
118	5% K-S Critical Value				0.0567	Data Not Gamma Distributed at 5% Significance Level						
119	Data Not Gamma Distributed at 5% Significance Level											
120												
121	Gamma Statistics											
122	k hat (MLE)				3.008	k star (bias corrected MLE)						2.976
123	Theta hat (MLE)				5.081	Theta star (bias corrected MLE)						5.135
124	nu hat (MLE)				1582	nu star (bias corrected)						1566
125	MLE Mean (bias corrected)				15.28	MLE Sd (bias corrected)						8.859
126												

	A	B	C	D	E	F	G	H	I	J	K	L
127	Background Statistics Assuming Gamma Distribution											
128	95% Wilson Hilferty (WH) Approx. Gamma UPL					31.73	90% Percentile					27.16
129	95% Hawkins Wixley (HW) Approx. Gamma UPL					31.94	95% Percentile					32.15
130	95% WH Approx. Gamma UTL with 95% Coverage					34	99% Percentile					42.96
131	95% HW Approx. Gamma UTL with 95% Coverage					34.37						
132	95% WH USL					66.14	95% HW USL					70.74
133												
134	Lognormal GOF Test											
135	Shapiro Wilk Test Statistic					0.976	Shapiro Wilk Lognormal GOF Test					
136	10% Shapiro Wilk P Value					0.0609	Data Not Lognormal at 10% Significance Level					
137	Lilliefors Test Statistic					0.0771	Lilliefors Lognormal GOF Test					
138	10% Lilliefors Critical Value					0.0504	Data Not Lognormal at 10% Significance Level					
139	Data Not Lognormal at 10% Significance Level											
140												
141	Background Statistics assuming Lognormal Distribution											
142	95% UTL with 95% Coverage					37.13	90% Percentile (z)					27.22
143	95% UPL (t)					33.88	95% Percentile (z)					33.7
144	95% USL					101	99% Percentile (z)					50.28
145												
146	Nonparametric Distribution Free Background Statistics											
147	Data do not follow a Discernible Distribution											
148												
149	Nonparametric Upper Limits for Background Threshold Values											
150	Order of Statistic, order					256	95% UTL with 95% Coverage					35.1
151	Approx, f used to compute achieved CC					1.491	Approximate Actual Confidence Coefficient achieved by UTL					0.913
152							Approximate Sample Size needed to achieve specified CC					260
153	95% Percentile Bootstrap UTL with 95% Coverage					34.11	95% BCA Bootstrap UTL with 95% Coverage					33.71
154	95% UPL					29.26	90% Percentile					23.88
155	90% Chebyshev UPL					51.87	95% Percentile					29.08
156	95% Chebyshev UPL					68.44	99% Percentile					55.98
157	95% USL					154						
158												
159	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
160	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
161	and consists of observations collected from clean unimpacted locations.											
162	The use of USL tends to provide a balance between false positives and false negatives provided the data											
163	represents a background data set and when many onsite observations need to be compared with the BTV.											
164												
165	USGS2013 WI Pb <68											
166												
167	General Statistics											
168	Total Number of Observations					262	Number of Distinct Observations					162
169	Minimum					1.2	First Quartile					9.55
170	Second Largest					67.2	Median					13.5
171	Maximum					67.2	Third Quartile					17.58
172	Mean					14.75	SD					8.645
173	Coefficient of Variation					0.586	Skewness					2.431
174	Mean of logged Data					2.542	SD of logged Data					0.568
175												
176	Critical Values for Background Threshold Values (BTVs)											
177	Tolerance Factor K (For UTL)					1.81	d2max (for USL)					3.513
178												
179	Normal GOF Test											
180	Shapiro Wilk Test Statistic					0.833	Normal GOF Test					
181	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
182	Lilliefors Test Statistic					0.145	Lilliefors GOF Test					
183	1% Lilliefors Critical Value					0.0638	Data Not Normal at 1% Significance Level					
184	Data Not Normal at 1% Significance Level											
185												
186	Background Statistics Assuming Normal Distribution											
187	95% UTL with 95% Coverage					30.4	90% Percentile (z)					25.83
188	95% UPL (t)					29.05	95% Percentile (z)					28.97
189	95% USL					45.13	99% Percentile (z)					34.87

	A	B	C	D	E	F	G	H	I	J	K	L
190												
191	Gamma GOF Test											
192	A-D Test Statistic					1.273	Anderson-Darling Gamma GOF Test					
193	5% A-D Critical Value					0.759	Data Not Gamma Distributed at 5% Significance Level					
194	K-S Test Statistic					0.0823	Kolmogorov-Smirnov Gamma GOF Test					
195	5% K-S Critical Value					0.0568	Data Not Gamma Distributed at 5% Significance Level					
196	Data Not Gamma Distributed at 5% Significance Level											
197												
198	Gamma Statistics											
199	k hat (MLE)					3.501	k star (bias corrected MLE)					3.464
200	Theta hat (MLE)					4.214	Theta star (bias corrected MLE)					4.26
201	nu hat (MLE)					1835	nu star (bias corrected)					1815
202	MLE Mean (bias corrected)					14.75	MLE Sd (bias corrected)					7.928
203												
204	Background Statistics Assuming Gamma Distribution											
205	95% Wilson Hilferty (WH) Approx. Gamma UPL					29.62	90% Percentile					25.38
206	95% Hawkins Wixley (HW) Approx. Gamma UPL					30.08	95% Percentile					29.74
207	95% WH Approx. Gamma UTL with 95% Coverage					31.62	99% Percentile					39.1
208	95% HW Approx. Gamma UTL with 95% Coverage					32.25						
209	95% WH USL					59.49	95% HW USL					64.26
210												
211	Lognormal GOF Test											
212	Shapiro Wilk Test Statistic					0.971	Shapiro Wilk Lognormal GOF Test					
213	10% Shapiro Wilk P Value					0.00727	Data Not Lognormal at 10% Significance Level					
214	Lilliefors Test Statistic					0.0678	Lilliefors Lognormal GOF Test					
215	10% Lilliefors Critical Value					0.0505	Data Not Lognormal at 10% Significance Level					
216	Data Not Lognormal at 10% Significance Level											
217												
218	Background Statistics assuming Lognormal Distribution											
219	95% UTL with 95% Coverage					35.51	90% Percentile (z)					26.3
220	95% UPL (t)					32.5	95% Percentile (z)					32.33
221	95% USL					93.4	99% Percentile (z)					47.61
222												
223	Nonparametric Distribution Free Background Statistics											
224	Data do not follow a Discernible Distribution											
225												
226	Nonparametric Upper Limits for Background Threshold Values											
227	Order of Statistic, order					255	95% UTL with 95% Coverage					34.2
228	Approx, f used to compute achieved CC					1.485	Approximate Actual Confidence Coefficient achieved by UTL					0.91
229							Approximate Sample Size needed to achieve specified CC					260
230	95% Percentile Bootstrap UTL with 95% Coverage					33.14	95% BCA Bootstrap UTL with 95% Coverage					33.3
231	95% UPL					29.07	90% Percentile					23.79
232	90% Chebyshev UPL					40.74	95% Percentile					28.83
233	95% Chebyshev UPL					52.51	99% Percentile					47.7
234	95% USL					67.2						
235												
236	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
237	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
238	and consists of observations collected from clean unimpacted locations.											
239	The use of USL tends to provide a balance between false positives and false negatives provided the data											
240	represents a background data set and when many onsite observations need to be compared with the BTV.											
241												
242	USGS2013 WI Pb <41											
243												
244	General Statistics											
245	Total Number of Observations					258	Number of Distinct Observations					159
246	Minimum					1.2	First Quartile					9.5
247	Second Largest					37.5	Median					13.45
248	Maximum					40.7	Third Quartile					17.45
249	Mean					14.09	SD					6.743
250	Coefficient of Variation					0.479	Skewness					0.873
251	Mean of logged Data					2.519	SD of logged Data					0.54
252												

	A	B	C	D	E	F	G	H	I	J	K	L
253	Critical Values for Background Threshold Values (BTVs)											
254	Tolerance Factor K (For UTL)					1.811	d2max (for USL)					3.509
255												
256	Normal GOF Test											
257	Shapiro Wilk Test Statistic					0.949	Normal GOF Test					
258	1% Shapiro Wilk P Value					2.3017E-9	Data Not Normal at 1% Significance Level					
259	Lilliefors Test Statistic					0.0813	Lilliefors GOF Test					
260	1% Lilliefors Critical Value					0.0643	Data Not Normal at 1% Significance Level					
261	Data Not Normal at 1% Significance Level											
262												
263	Background Statistics Assuming Normal Distribution											
264	95% UTL with 95% Coverage					26.31	90% Percentile (z)					22.73
265	95% UPL (t)					25.24	95% Percentile (z)					25.18
266	95% USL					37.75	99% Percentile (z)					29.78
267												
268	Gamma GOF Test											
269	A-D Test Statistic					0.73	Anderson-Darling Gamma GOF Test					
270	5% A-D Critical Value					0.758	Detected data appear Gamma Distributed at 5% Significance Level					
271	K-S Test Statistic					0.0557	Kolmogorov-Smirnov Gamma GOF Test					
272	5% K-S Critical Value					0.0572	Detected data appear Gamma Distributed at 5% Significance Level					
273	Detected data appear Gamma Distributed at 5% Significance Level											
274												
275	Gamma Statistics											
276	k hat (MLE)					4.105	k star (bias corrected MLE)					4.06
277	Theta hat (MLE)					3.433	Theta star (bias corrected MLE)					3.471
278	nu hat (MLE)					2118	nu star (bias corrected)					2095
279	MLE Mean (bias corrected)					14.09	MLE Sd (bias corrected)					6.993
280												
281	Background Statistics Assuming Gamma Distribution											
282	95% Wilson Hilferty (WH) Approx. Gamma UPL					27.2	90% Percentile					23.46
283	95% Hawkins Wixley (HW) Approx. Gamma UPL					27.75	95% Percentile					27.21
284	95% WH Approx. Gamma UTL with 95% Coverage					28.93	99% Percentile					35.19
285	95% HW Approx. Gamma UTL with 95% Coverage					29.65						
286	95% WH USL					52.45	95% HW USL					56.83
287												
288	Lognormal GOF Test											
289	Shapiro Wilk Test Statistic					0.955	Shapiro Wilk Lognormal GOF Test					
290	10% Shapiro Wilk P Value					3.8103E-7	Data Not Lognormal at 10% Significance Level					
291	Lilliefors Test Statistic					0.0763	Lilliefors Lognormal GOF Test					
292	10% Lilliefors Critical Value					0.0509	Data Not Lognormal at 10% Significance Level					
293	Data Not Lognormal at 10% Significance Level											
294												
295	Background Statistics assuming Lognormal Distribution											
296	95% UTL with 95% Coverage					33.02	90% Percentile (z)					24.8
297	95% UPL (t)					30.32	95% Percentile (z)					30.18
298	95% USL					82.55	99% Percentile (z)					43.6
299												
300	Nonparametric Distribution Free Background Statistics											
301	Data appear Gamma Distributed at 5% Significance Level											
302												
303	Nonparametric Upper Limits for Background Threshold Values											
304	Order of Statistic, order					252	95% UTL with 95% Coverage					29.5
305	Approx, f used to compute achieved CC					1.651	Approximate Actual Confidence Coefficient achieved by UTL					0.947
306							Approximate Sample Size needed to achieve specified CC					234
307	95% Percentile Bootstrap UTL with 95% Coverage					29.1	95% BCA Bootstrap UTL with 95% Coverage					28.93
308	95% UPL					26.41	90% Percentile					23.6
309	90% Chebyshev UPL					34.36	95% Percentile					26.4
310	95% Chebyshev UPL					43.54	99% Percentile					34.59
311	95% USL					40.7						
312												
313	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
314	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
315	and consists of observations collected from clean unimpacted locations.											

	A	B	C	D	E	F	G	H	I	J	K	L
316	The use of USL tends to provide a balance between false positives and false negatives provided the data											
317	represents a background data set and when many onsite observations need to be compared with the BTV.											
318												
319	USGS2013 WI Pb <30											
320												
321	General Statistics											
322	Total Number of Observations					252	Number of Distinct Observations					153
323	Minimum					1.2	First Quartile					9.4
324	Second Largest					29.3	Median					13.35
325	Maximum					29.5	Third Quartile					17.23
326	Mean					13.59	SD					5.953
327	Coefficient of Variation					0.438	Skewness					0.408
328	Mean of logged Data					2.494	SD of logged Data					0.522
329												
330	Critical Values for Background Threshold Values (BTVs)											
331	Tolerance Factor K (For UTL)					1.814	d2max (for USL)					3.502
332												
333	Normal GOF Test											
334	Shapiro Wilk Test Statistic					0.964	Normal GOF Test					
335	1% Shapiro Wilk P Value					1.9972E-4	Data Not Normal at 1% Significance Level					
336	Lilliefors Test Statistic					0.0553	Lilliefors GOF Test					
337	1% Lilliefors Critical Value					0.065	Data appear Normal at 1% Significance Level					
338	Data appear Approximate Normal at 1% Significance Level											
339												
340	Background Statistics Assuming Normal Distribution											
341	95% UTL with	95% Coverage			24.39	90% Percentile (z)					21.22	
342		95% UPL (t)			23.44	95% Percentile (z)					23.38	
343		95% USL			34.43	99% Percentile (z)					27.44	
344												
345	Gamma GOF Test											
346	A-D Test Statistic					1.11	Anderson-Darling Gamma GOF Test					
347	5% A-D Critical Value					0.757	Data Not Gamma Distributed at 5% Significance Level					
348	K-S Test Statistic					0.0594	Kolmogorov-Smirnov Gamma GOF Test					
349	5% K-S Critical Value					0.0578	Data Not Gamma Distributed at 5% Significance Level					
350	Data Not Gamma Distributed at 5% Significance Level											
351												
352	Gamma Statistics											
353	k hat (MLE)					4.502	k star (bias corrected MLE)					4.451
354	Theta hat (MLE)					3.019	Theta star (bias corrected MLE)					3.053
355	nu hat (MLE)					2269	nu star (bias corrected)					2243
356	MLE Mean (bias corrected)					13.59	MLE Sd (bias corrected)					6.441
357												
358	Background Statistics Assuming Gamma Distribution											
359	95% Wilson Hilferty (WH) Approx. Gamma UPL					25.63	90% Percentile					22.22
360	95% Hawkins Wixley (HW) Approx. Gamma UPL					26.19	95% Percentile					25.62
361	95% WH Approx. Gamma UTL with	95% Coverage			27.22	99% Percentile					32.84	
362	95% HW Approx. Gamma UTL with	95% Coverage			27.93							
363	95% WH USL					48.23	95% HW USL					52.23
364												
365	Lognormal GOF Test											
366	Shapiro Wilk Test Statistic					0.936	Shapiro Wilk Lognormal GOF Test					
367	10% Shapiro Wilk P Value					1.610E-14	Data Not Lognormal at 10% Significance Level					
368	Lilliefors Test Statistic					0.0854	Lilliefors Lognormal GOF Test					
369	10% Lilliefors Critical Value					0.0515	Data Not Lognormal at 10% Significance Level					
370	Data Not Lognormal at 10% Significance Level											
371												
372	Background Statistics assuming Lognormal Distribution											
373	95% UTL with	95% Coverage			31.19	90% Percentile (z)					23.63	
374		95% UPL (t)			28.7	95% Percentile (z)					28.56	
375		95% USL			75.23	99% Percentile (z)					40.75	
376												
377	Nonparametric Distribution Free Background Statistics											
378	Data appear Approximate Normal at 1% Significance Level											

	A	B	C	D	E	F	G	H	I	J	K	L
379												
380	Nonparametric Upper Limits for Background Threshold Values											
381	Order of Statistic, order					246	95% UTL with 95% Coverage					26.4
382	Approx, f used to compute achieved CC					1.612	Approximate Actual Confidence Coefficient achieved by UTL					0.938
383							Approximate Sample Size needed to achieve specified CC					234
384	95% Percentile Bootstrap UTL with 95% Coverage					26.24	95% BCA Bootstrap UTL with 95% Coverage					26.24
385	95% UPL					25.1	90% Percentile					21.7
386	90% Chebyshev UPL					31.48	95% Percentile					24.94
387	95% Chebyshev UPL					39.59	99% Percentile					29
388	95% USL					29.5						
389												
390	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
391	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
392	and consists of observations collected from clean unimpacted locations.											
393	The use of USL tends to provide a balance between false positives and false negatives provided the data											
394	represents a background data set and when many onsite observations need to be compared with the BTV.											
395												
396	USGS2013 As WI-all											
397												
398	General Statistics											
399	Total Number of Observations					264	Number of Distinct Observations					82
400	Minimum					0.3	First Quartile					2.2
401	Second Largest					48.5	Median					3.3
402	Maximum					52.3	Third Quartile					4.825
403	Mean					4.086	SD					4.551
404	Coefficient of Variation					1.114	Skewness					8.17
405	Mean of logged Data					1.177	SD of logged Data					0.649
406												
407	Critical Values for Background Threshold Values (BTVs)											
408	Tolerance Factor K (For UTL)					1.809	d2max (for USL)					3.515
409												
410	Normal GOF Test											
411	Shapiro Wilk Test Statistic					0.443	Normal GOF Test					
412	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
413	Lilliefors Test Statistic					0.229	Lilliefors GOF Test					
414	1% Lilliefors Critical Value					0.0635	Data Not Normal at 1% Significance Level					
415	Data Not Normal at 1% Significance Level											
416												
417	Background Statistics Assuming Normal Distribution											
418	95% UTL with 95% Coverage					12.32	90% Percentile (z)					9.918
419	95% UPL (t)					11.61	95% Percentile (z)					11.57
420	95% USL					20.08	99% Percentile (z)					14.67
421												
422	Gamma GOF Test											
423	A-D Test Statistic					3.276	Anderson-Darling Gamma GOF Test					
424	5% A-D Critical Value					0.764	Data Not Gamma Distributed at 5% Significance Level					
425	K-S Test Statistic					0.0766	Kolmogorov-Smirnov Gamma GOF Test					
426	5% K-S Critical Value					0.0569	Data Not Gamma Distributed at 5% Significance Level					
427	Data Not Gamma Distributed at 5% Significance Level											
428												
429	Gamma Statistics											
430	k hat (MLE)					2.317	k star (bias corrected MLE)					2.293
431	Theta hat (MLE)					1.763	Theta star (bias corrected MLE)					1.782
432	nu hat (MLE)					1224	nu star (bias corrected)					1211
433	MLE Mean (bias corrected)					4.086	MLE Sd (bias corrected)					2.698
434												
435	Background Statistics Assuming Gamma Distribution											
436	95% Wilson Hilferty (WH) Approx. Gamma UPL					9.03	90% Percentile					7.698
437	95% Hawkins Wixley (HW) Approx. Gamma UPL					9.016	95% Percentile					9.288
438	95% WH Approx. Gamma UTL with 95% Coverage					9.742	99% Percentile					12.78
439	95% HW Approx. Gamma UTL with 95% Coverage					9.769						
440	95% WH USL					20.14	95% HW USL					21.48
441												

	A	B	C	D	E	F	G	H	I	J	K	L
442	Lognormal GOF Test											
443	Shapiro Wilk Test Statistic					0.966	Shapiro Wilk Lognormal GOF Test					
444	10% Shapiro Wilk P Value					3.6636E-4	Data Not Lognormal at 10% Significance Level					
445	Lilliefors Test Statistic					0.0591	Lilliefors Lognormal GOF Test					
446	10% Lilliefors Critical Value					0.0503	Data Not Lognormal at 10% Significance Level					
447	Data Not Lognormal at 10% Significance Level											
448												
449	Background Statistics assuming Lognormal Distribution											
450	95% UTL with 95% Coverage					10.5	90% Percentile (z)					7.454
451	95% UPL (t)					9.491	95% Percentile (z)					9.437
452	95% USL					31.79	99% Percentile (z)					14.69
453												
454	Nonparametric Distribution Free Background Statistics											
455	Data do not follow a Discernible Distribution											
456												
457	Nonparametric Upper Limits for Background Threshold Values											
458	Order of Statistic, order					257	95% UTL with 95% Coverage					8.9
459	Approx, f used to compute achieved CC					1.497	Approximate Actual Confidence Coefficient achieved by UTL					0.915
460							Approximate Sample Size needed to achieve specified CC					260
461	95% Percentile Bootstrap UTL with 95% Coverage					8.8	95% BCA Bootstrap UTL with 95% Coverage					8.785
462	95% UPL					8.15	90% Percentile					6.6
463	90% Chebyshev UPL					17.76	95% Percentile					7.985
464	95% Chebyshev UPL					23.96	99% Percentile					11.24
465	95% USL					52.3						
466												
467	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
468	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
469	and consists of observations collected from clean unimpacted locations.											
470	The use of USL tends to provide a balance between false positives and false negatives provided the data											
471	represents a background data set and when many onsite observations need to be compared with the BTV.											
472												
473	USGS2013 As WI <49											
474												
475	General Statistics											
476	Total Number of Observations					263	Number of Distinct Observations					81
477	Minimum					0.3	First Quartile					2.2
478	Second Largest					12	Median					3.3
479	Maximum					48.5	Third Quartile					4.8
480	Mean					3.903	SD					3.447
481	Coefficient of Variation					0.883	Skewness					8.509
482	Mean of logged Data					1.166	SD of logged Data					0.627
483												
484	Critical Values for Background Threshold Values (BTVs)											
485	Tolerance Factor K (For UTL)					1.81	d2max (for USL)					3.514
486												
487	Normal GOF Test											
488	Shapiro Wilk Test Statistic					0.565	Normal GOF Test					
489	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
490	Lilliefors Test Statistic					0.181	Lilliefors GOF Test					
491	1% Lilliefors Critical Value					0.0637	Data Not Normal at 1% Significance Level					
492	Data Not Normal at 1% Significance Level											
493												
494	Background Statistics Assuming Normal Distribution											
495	95% UTL with 95% Coverage					10.14	90% Percentile (z)					8.32
496	95% UPL (t)					9.604	95% Percentile (z)					9.573
497	95% USL					16.02	99% Percentile (z)					11.92
498												
499	Gamma GOF Test											
500	A-D Test Statistic					1.24	Anderson-Darling Gamma GOF Test					
501	5% A-D Critical Value					0.762	Data Not Gamma Distributed at 5% Significance Level					
502	K-S Test Statistic					0.0497	Kolmogorov-Smirnov Gamma GOF Test					
503	5% K-S Critical Value					0.0568	Detected data appear Gamma Distributed at 5% Significance Level					
504	Detected data follow Appr. Gamma Distribution at 5% Significance Level											

	A	B	C	D	E	F	G	H	I	J	K	L
505												
506	Gamma Statistics											
507	k hat (MLE)					2.71	k star (bias corrected MLE)					2.682
508	Theta hat (MLE)					1.44	Theta star (bias corrected MLE)					1.455
509	nu hat (MLE)					1426	nu star (bias corrected)					1411
510	MLE Mean (bias corrected)					3.903	MLE Sd (bias corrected)					2.383
511												
512	Background Statistics Assuming Gamma Distribution											
513	95% Wilson Hilferty (WH) Approx. Gamma UPL					8.333	90% Percentile					7.097
514	95% Hawkins Wixley (HW) Approx. Gamma UPL					8.408	95% Percentile					8.463
515	95% WH Approx. Gamma UTL with 95% Coverage					8.953	99% Percentile					11.44
516	95% HW Approx. Gamma UTL with 95% Coverage					9.075						
517	95% WH USL					17.84	95% HW USL					19.24
518												
519	Lognormal GOF Test											
520	Shapiro Wilk Test Statistic					0.975	Shapiro Wilk Lognormal GOF Test					
521	10% Shapiro Wilk P Value					0.047	Data Not Lognormal at 10% Significance Level					
522	Lilliefors Test Statistic					0.0569	Lilliefors Lognormal GOF Test					
523	10% Lilliefors Critical Value					0.0504	Data Not Lognormal at 10% Significance Level					
524	Data Not Lognormal at 10% Significance Level											
525												
526	Background Statistics assuming Lognormal Distribution											
527	95% UTL with 95% Coverage					9.988	90% Percentile (z)					7.171
528	95% UPL (t)					9.057	95% Percentile (z)					9.006
529	95% USL					29.1	99% Percentile (z)					13.81
530												
531	Nonparametric Distribution Free Background Statistics											
532	Data appear Approximate Gamma Distribution at 5% Significance Level											
533												
534	Nonparametric Upper Limits for Background Threshold Values											
535	Order of Statistic, order					256	95% UTL with 95% Coverage					8.8
536	Approx, f used to compute achieved CC					1.491	Approximate Actual Confidence Coefficient achieved by UTL					0.913
537							Approximate Sample Size needed to achieve specified CC					260
538	95% Percentile Bootstrap UTL with 95% Coverage					8.68	95% BCA Bootstrap UTL with 95% Coverage					8.7
539	95% UPL					7.98	90% Percentile					6.6
540	90% Chebyshev UPL					14.26	95% Percentile					7.89
541	95% Chebyshev UPL					18.96	99% Percentile					10.55
542	95% USL					48.5						
543												
544	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
545	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
546	and consists of observations collected from clean unimpacted locations.											
547	The use of USL tends to provide a balance between false positives and false negatives provided the data											
548	represents a background data set and when many onsite observations need to be compared with the BTV.											
549												
550	USGS2013 As WI <=12											
551												
552	General Statistics											
553	Total Number of Observations					262	Number of Distinct Observations					80
554	Minimum					0.3	First Quartile					2.2
555	Second Largest					10.8	Median					3.3
556	Maximum					12	Third Quartile					4.8
557	Mean					3.733	SD					2.068
558	Coefficient of Variation					0.554	Skewness					1.081
559	Mean of logged Data					1.156	SD of logged Data					0.606
560												
561	Critical Values for Background Threshold Values (BTVs)											
562	Tolerance Factor K (For UTL)					1.81	d2max (for USL)					3.513
563												
564	Normal GOF Test											
565	Shapiro Wilk Test Statistic					0.923	Normal GOF Test					
566	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
567	Lilliefors Test Statistic					0.106	Lilliefors GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L	
568	1% Lilliefors Critical Value					0.0638	Data Not Normal at 1% Significance Level						
569	Data Not Normal at 1% Significance Level												
570													
571	Background Statistics Assuming Normal Distribution												
572	95% UTL with		95% Coverage		7.477	90% Percentile (z)					6.383		
573			95% UPL (t)		7.153	95% Percentile (z)					7.135		
574			95% USL		11	99% Percentile (z)					8.544		
575													
576	Gamma GOF Test												
577			A-D Test Statistic		0.257	Anderson-Darling Gamma GOF Test							
578			5% A-D Critical Value		0.759	Detected data appear Gamma Distributed at 5% Significance Level							
579			K-S Test Statistic		0.0349	Kolmogorov-Smirnov Gamma GOF Test							
580			5% K-S Critical Value		0.0568	Detected data appear Gamma Distributed at 5% Significance Level							
581	Detected data appear Gamma Distributed at 5% Significance Level												
582													
583	Gamma Statistics												
584			k hat (MLE)		3.254	k star (bias corrected MLE)					3.219		
585			Theta hat (MLE)		1.147	Theta star (bias corrected MLE)					1.16		
586			nu hat (MLE)		1705	nu star (bias corrected)					1687		
587			MLE Mean (bias corrected)		3.733	MLE Sd (bias corrected)					2.081		
588													
589	Background Statistics Assuming Gamma Distribution												
590	95% Wilson Hilferty (WH) Approx.		Gamma UPL		7.667	90% Percentile					6.523		
591	95% Hawkins Wixley (HW) Approx.		Gamma UPL		7.83	95% Percentile					7.678		
592	95% WH Approx.		Gamma UTL with 95% Coverage		8.2	99% Percentile					10.17		
593	95% HW Approx.		Gamma UTL with 95% Coverage		8.417								
594			95% WH USL		15.69	95% HW USL					17.18		
595													
596	Lognormal GOF Test												
597			Shapiro Wilk Test Statistic		0.96	Shapiro Wilk Lognormal GOF Test							
598			10% Shapiro Wilk P Value		1.0047E-5	Data Not Lognormal at 10% Significance Level							
599			Lilliefors Test Statistic		0.0545	Lilliefors Lognormal GOF Test							
600			10% Lilliefors Critical Value		0.0505	Data Not Lognormal at 10% Significance Level							
601	Data Not Lognormal at 10% Significance Level												
602													
603	Background Statistics assuming Lognormal Distribution												
604	95% UTL with		95% Coverage		9.505	90% Percentile (z)					6.901		
605			95% UPL (t)		8.647	95% Percentile (z)					8.6		
606			95% USL		26.66	99% Percentile (z)					12.99		
607													
608	Nonparametric Distribution Free Background Statistics												
609	Data appear Gamma Distributed at 5% Significance Level												
610													
611	Nonparametric Upper Limits for Background Threshold Values												
612	Order of Statistic, order		255		95% UTL with 95% Coverage					8.7			
613	Approx, f used to compute achieved CC		1.485		Approximate Actual Confidence Coefficient achieved by UTL					0.91			
614					Approximate Sample Size needed to achieve specified CC					260			
615	95% Percentile Bootstrap UTL with		95% Coverage		8.49	95% BCA Bootstrap UTL with 95% Coverage					8.49		
616			95% UPL		7.885	90% Percentile					6.6		
617			90% Chebyshev UPL		9.949	95% Percentile					7.795		
618			95% Chebyshev UPL		12.77	99% Percentile					10.34		
619			95% USL		12								
620													
621	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
622	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
623	and consists of observations collected from clean unimpacted locations.												
624	The use of USL tends to provide a balance between false positives and false negatives provided the data												
625	represents a background data set and when many onsite observations need to be compared with the BTV.												
626													
627	USGS2013 As WI <10												
628													
629	General Statistics												
630	Total Number of Observations		258		Number of Distinct Observations					76			

	A	B	C	D	E	F	G	H	I	J	K	L
631					Minimum	0.3					First Quartile	2.2
632					Second Largest	8.9					Median	3.2
633					Maximum	9.4					Third Quartile	4.7
634					Mean	3.622					SD	1.879
635					Coefficient of Variation	0.519					Skewness	0.757
636					Mean of logged Data	1.137					SD of logged Data	0.59
637												
638					Critical Values for Background Threshold Values (BTVs)							
639					Tolerance Factor K (For UTL)	1.811					d2max (for USL)	3.509
640												
641					Normal GOF Test							
642					Shapiro Wilk Test Statistic	0.938					Normal GOF Test	
643					1% Shapiro Wilk P Value	6.917E-14					Data Not Normal at 1% Significance Level	
644					Lilliefors Test Statistic	0.0991					Lilliefors GOF Test	
645					1% Lilliefors Critical Value	0.0643					Data Not Normal at 1% Significance Level	
646					Data Not Normal at 1% Significance Level							
647												
648					Background Statistics Assuming Normal Distribution							
649					95% UTL with 95% Coverage	7.026					90% Percentile (z)	6.03
650					95% UPL (t)	6.73					95% Percentile (z)	6.713
651					95% USL	10.21					99% Percentile (z)	7.993
652												
653					Gamma GOF Test							
654					A-D Test Statistic	0.269					Anderson-Darling Gamma GOF Test	
655					5% A-D Critical Value	0.759					Detected data appear Gamma Distributed at 5% Significance Level	
656					K-S Test Statistic	0.0295					Kolmogorov-Smirnov Gamma GOF Test	
657					5% K-S Critical Value	0.0573					Detected data appear Gamma Distributed at 5% Significance Level	
658					Detected data appear Gamma Distributed at 5% Significance Level							
659												
660					Gamma Statistics							
661					k hat (MLE)	3.482					k star (bias corrected MLE)	3.444
662					Theta hat (MLE)	1.04					Theta star (bias corrected MLE)	1.052
663					nu hat (MLE)	1797					nu star (bias corrected)	1777
664					MLE Mean (bias corrected)	3.622					MLE Sd (bias corrected)	1.952
665												
666					Background Statistics Assuming Gamma Distribution							
667					95% Wilson Hilferty (WH) Approx. Gamma UPL	7.307					90% Percentile	6.239
668					95% Hawkins Wixley (HW) Approx. Gamma UPL	7.471					95% Percentile	7.311
669					95% WH Approx. Gamma UTL with 95% Coverage	7.805					99% Percentile	9.618
670					95% HW Approx. Gamma UTL with 95% Coverage	8.021						
671					95% WH USL	14.68					95% HW USL	16.05
672												
673					Lognormal GOF Test							
674					Shapiro Wilk Test Statistic	0.949					Shapiro Wilk Lognormal GOF Test	
675					10% Shapiro Wilk P Value	1.4821E-9					Data Not Lognormal at 10% Significance Level	
676					Lilliefors Test Statistic	0.0596					Lilliefors Lognormal GOF Test	
677					10% Lilliefors Critical Value	0.0509					Data Not Lognormal at 10% Significance Level	
678					Data Not Lognormal at 10% Significance Level							
679												
680					Background Statistics assuming Lognormal Distribution							
681					95% UTL with 95% Coverage	9.079					90% Percentile (z)	6.64
682					95% UPL (t)	8.273					95% Percentile (z)	8.229
683					95% USL	24.72					99% Percentile (z)	12.3
684												
685					Nonparametric Distribution Free Background Statistics							
686					Data appear Gamma Distributed at 5% Significance Level							
687												
688					Nonparametric Upper Limits for Background Threshold Values							
689					Order of Statistic, order	252					95% UTL with 95% Coverage	8.2
690					Approx, f used to compute achieved CC	1.651					Approximate Actual Confidence Coefficient achieved by UTL	0.947
691											Approximate Sample Size needed to achieve specified CC	234
692					95% Percentile Bootstrap UTL with 95% Coverage	7.9					95% BCA Bootstrap UTL with 95% Coverage	7.915
693					95% UPL	7.31					90% Percentile	6.36

	A	B	C	D	E	F	G	H	I	J	K	L
694	90% Chebyshev UPL					9.27	95% Percentile					7.215
695	95% Chebyshev UPL					11.83	99% Percentile					8.743
696	95% USL					9.4						
697												
698	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
699	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
700	and consists of observations collected from clean unimpacted locations.											
701	The use of USL tends to provide a balance between false positives and false negatives provided the data											
702	represents a background data set and when many onsite observations need to be compared with the BTV.											

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.2 2/17/2024 10:37:10 AM								
4	From File			D:\Tramm\BACKGROUND EVAL\2013 USGS National Review\USGS_2013_Compiled_State_Data_Sorted.xls								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	AL_As											
12												
13	General Statistics											
14	Total Number of Observations			255	Number of Distinct Observations			96				
15	Minimum			0.3	First Quartile			2.1				
16	Second Largest			23.9	Median			3.3				
17	Maximum			29.6	Third Quartile			5.7				
18	Mean			4.389	SD			3.685				
19	Coefficient of Variation			0.84	Skewness			2.85				
20	Mean of logged Data			1.204	SD of logged Data			0.755				
21												
22	Critical Values for Background Threshold Values (BTVs)											
23	Tolerance Factor K (For UTL)			1.813	d2max (for USL)			3.505				
24												
25	Normal GOF Test											
26	Shapiro Wilk Test Statistic			0.774	Normal GOF Test							
27	1% Shapiro Wilk P Value			0	Data Not Normal at 1% Significance Level							
28	Lilliefors Test Statistic			0.147	Lilliefors GOF Test							
29	1% Lilliefors Critical Value			0.0646	Data Not Normal at 1% Significance Level							
30	Data Not Normal at 1% Significance Level											
31												
32	Background Statistics Assuming Normal Distribution											
33	95% UTL with	95% Coverage	11.07	90% Percentile (z)			9.111					
34		95% UPL (t)	10.48	95% Percentile (z)			10.45					
35		95% USL	17.31	99% Percentile (z)			12.96					
36												
37	Gamma GOF Test											
38	A-D Test Statistic			1.164	Anderson-Darling Gamma GOF Test							
39	5% A-D Critical Value			0.766	Data Not Gamma Distributed at 5% Significance Level							
40	K-S Test Statistic			0.0677	Kolmogorov-Smirnov Gamma GOF Test							
41	5% K-S Critical Value			0.0581	Data Not Gamma Distributed at 5% Significance Level							
42	Data Not Gamma Distributed at 5% Significance Level											
43												
44	Gamma Statistics											
45	k hat (MLE)			1.967	k star (bias corrected MLE)			1.946				
46	Theta hat (MLE)			2.231	Theta star (bias corrected MLE)			2.255				
47	nu hat (MLE)			1003	nu star (bias corrected)			992.7				
48	MLE Mean (bias corrected)			4.389	MLE Sd (bias corrected)			3.146				
49												
50	Background Statistics Assuming Gamma Distribution											
51	95% Wilson Hiferty (WH) Approx.	Gamma UPL	10.39	90% Percentile			8.59					
52	95% Hawkins Wixley (HW) Approx.	Gamma UPL	10.56	95% Percentile			10.5					
53	95% WH Approx.	Gamma UTL with 95% Coverage	11.29	99% Percentile			14.74					
54	95% HW Approx.	Gamma UTL with 95% Coverage	11.55									
55		95% WH USL	24.36	95% HW USL			27.07					
56												
57	Lognormal GOF Test											
58	Shapiro Wilk Test Statistic			0.987	Shapiro Wilk Lognormal GOF Test							
59	10% Shapiro Wilk P Value			0.79	Data appear Lognormal at 10% Significance Level							
60	Lilliefors Test Statistic			0.0339	Lilliefors Lognormal GOF Test							
61	10% Lilliefors Critical Value			0.0512	Data appear Lognormal at 10% Significance Level							
62	Data appear Lognormal at 10% Significance Level											
63												
64	Background Statistics assuming Lognormal Distribution											
65	95% UTL with	95% Coverage	13.09	90% Percentile (z)			8.769					
66		95% UPL (t)	11.62	95% Percentile (z)			11.54					
67		95% USL	46.98	99% Percentile (z)			19.3					
68												
69	Nonparametric Distribution Free Background Statistics											
70	Data appear Lognormal at 10% Significance Level											
71												

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L	
72	Nonparametric Upper Limits for Background Threshold Values												
73	Order of Statistic, order					249	95% UTL with 95% Coverage					13	
74	Approx, f used to compute achieved CC					1.632	Approximate Actual Confidence Coefficient achieved by UTL					0.943	
75							Approximate Sample Size needed to achieve specified CC					234	
76	95% Percentile Bootstrap UTL with 95% Coverage					11.86	95% BCA Bootstrap UTL with 95% Coverage					11.5	
77	95% UPL					10.44	90% Percentile					8.2	
78	90% Chebyshev UPL					15.47	95% Percentile					10.26	
79	95% Chebyshev UPL					20.48	99% Percentile					19.7	
80	95% USL					29.6							
81													
82	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
83	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
84	and consists of observations collected from clean unimpacted locations.												
85	The use of USL tends to provide a balance between false positives and false negatives provided the data												
86	represents a background data set and when many onsite observations need to be compared with the BTV.												
87													
88	AL_As <24												
89													
90	General Statistics												
91	Total Number of Observations					254	Number of Distinct Observations					95	
92	Minimum					0.3	First Quartile					2.1	
93	Second Largest					22.4	Median					3.25	
94	Maximum					23.9	Third Quartile					5.675	
95	Mean					4.289	SD					3.334	
96	Coefficient of Variation					0.777	Skewness					2.232	
97	Mean of logged Data					1.195	SD of logged Data					0.744	
98													
99	Critical Values for Background Threshold Values (BTVs)												
100	Tolerance Factor K (For UTL)					1.813	d2max (for USL)					3.504	
101													
102	Normal GOF Test												
103	Shapiro Wilk Test Statistic					0.822	Normal GOF Test						
104	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
105	Lilliefors Test Statistic					0.129	Lilliefors GOF Test						
106	1% Lilliefors Critical Value					0.0648	Data Not Normal at 1% Significance Level						
107	Data Not Normal at 1% Significance Level												
108													
109	Background Statistics Assuming Normal Distribution												
110	95% UTL with 95% Coverage					10.33	90% Percentile (z)					8.561	
111	95% UPL (t)					9.803	95% Percentile (z)					9.772	
112	95% USL					15.97	99% Percentile (z)					12.04	
113													
114	Gamma GOF Test												
115	A-D Test Statistic					0.891	Anderson-Darling Gamma GOF Test						
116	5% A-D Critical Value					0.766	Data Not Gamma Distributed at 5% Significance Level						
117	K-S Test Statistic					0.0661	Kolmogorov-Smirnov Gamma GOF Test						
118	5% K-S Critical Value					0.0581	Data Not Gamma Distributed at 5% Significance Level						
119	Data Not Gamma Distributed at 5% Significance Level												
120													
121	Gamma Statistics												
122	k hat (MLE)					2.067	k star (bias corrected MLE)					2.045	
123	Theta hat (MLE)					2.075	Theta star (bias corrected MLE)					2.097	
124	nu hat (MLE)					1050	nu star (bias corrected)					1039	
125	MLE Mean (bias corrected)					4.289	MLE Sd (bias corrected)					2.999	
126													
127	Background Statistics Assuming Gamma Distribution												
128	95% Wilson Hilferty (WH) Approx. Gamma UPL					10.02	90% Percentile					8.298	
129	95% Hawkins Wixley (HW) Approx. Gamma UPL					10.22	95% Percentile					10.1	
130	95% WH Approx. Gamma UTL with 95% Coverage					10.88	99% Percentile					14.1	
131	95% HW Approx. Gamma UTL with 95% Coverage					11.16							
132	95% WH USL					23.17	95% HW USL					25.8	
133													
134	Lognormal GOF Test												
135	Shapiro Wilk Test Statistic					0.984	Shapiro Wilk Lognormal GOF Test						
136	10% Shapiro Wilk P Value					0.58	Data appear Lognormal at 10% Significance Level						
137	Lilliefors Test Statistic					0.036	Lilliefors Lognormal GOF Test						
138	10% Lilliefors Critical Value					0.0513	Data appear Lognormal at 10% Significance Level						
139	Data appear Lognormal at 10% Significance Level												
140													
141	Background Statistics assuming Lognormal Distribution												
142	95% UTL with 95% Coverage					12.72	90% Percentile (z)					8.571	

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	A	B	C	D	E	F	G	H	I	J	K	L
143					95% UPL (t)	11.31				95% Percentile (z)		11.23
144					95% USL	44.76				99% Percentile (z)		18.64
145												
146					Nonparametric Distribution Free Background Statistics							
147					Data appear Lognormal at 10% Significance Level							
148												
149					Nonparametric Upper Limits for Background Threshold Values							
150					Order of Statistic, order	248				95% UTL with 95% Coverage		12.7
151					Approx, f used to compute achieved CC	1.625				Approximate Actual Confidence Coefficient achieved by UTL		0.942
152										Approximate Sample Size needed to achieve specified CC		234
153					95% Percentile Bootstrap UTL with 95% Coverage	11.4				95% BCA Bootstrap UTL with 95% Coverage		10.98
154					95% UPL	10.25				90% Percentile		8.17
155					90% Chebyshev UPL	14.31				95% Percentile		10.2
156					95% Chebyshev UPL	18.85				99% Percentile		15.7
157					95% USL	23.9						
158												
159					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
160					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
161					and consists of observations collected from clean unimpacted locations.							
162					The use of USL tends to provide a balance between false positives and false negatives provided the data							
163					represents a background data set and when many onsite observations need to be compared with the BTV.							
164												
165					AL_As <18							
166												
167					General Statistics							
168					Total Number of Observations	252				Number of Distinct Observations		93
169					Minimum	0.3				First Quartile		2.075
170					Second Largest	14.2				Median		3.2
171					Maximum	17.4				Third Quartile		5.6
172					Mean	4.14				SD		2.888
173					Coefficient of Variation	0.698				Skewness		1.37
174					Mean of logged Data	1.18				SD of logged Data		0.726
175												
176					Critical Values for Background Threshold Values (BTVs)							
177					Tolerance Factor K (For UTL)	1.814				d2max (for USL)		3.502
178												
179					Normal GOF Test							
180					Shapiro Wilk Test Statistic	0.883				Normal GOF Test		
181					1% Shapiro Wilk P Value	0				Data Not Normal at 1% Significance Level		
182					Lilliefors Test Statistic	0.132				Lilliefors GOF Test		
183					1% Lilliefors Critical Value	0.065				Data Not Normal at 1% Significance Level		
184					Data Not Normal at 1% Significance Level							
185												
186					Background Statistics Assuming Normal Distribution							
187					95% UTL with 95% Coverage	9.377				90% Percentile (z)		7.841
188					95% UPL (t)	8.917				95% Percentile (z)		8.89
189					95% USL	14.25				99% Percentile (z)		10.86
190												
191					Gamma GOF Test							
192					A-D Test Statistic	0.689				Anderson-Darling Gamma GOF Test		
193					5% A-D Critical Value	0.765				Detected data appear Gamma Distributed at 5% Significance Level		
194					K-S Test Statistic	0.063				Kolmogorov-Smirnov Gamma GOF Test		
195					5% K-S Critical Value	0.0583				Data Not Gamma Distributed at 5% Significance Level		
196					Detected data follow Appr. Gamma Distribution at 5% Significance Level							
197												
198					Gamma Statistics							
199					k hat (MLE)	2.228				k star (bias corrected MLE)		2.204
200					Theta hat (MLE)	1.858				Theta star (bias corrected MLE)		1.878
201					nu hat (MLE)	1123				nu star (bias corrected)		1111
202					MLE Mean (bias corrected)	4.14				MLE Sd (bias corrected)		2.788
203												
204					Background Statistics Assuming Gamma Distribution							
205					95% Wilson Hilferty (WH) Approx. Gamma UPL	9.488				90% Percentile		7.871
206					95% Hawkins Wixley (HW) Approx. Gamma UPL	9.702				95% Percentile		9.525
207					95% WH Approx. Gamma UTL with 95% Coverage	10.28				99% Percentile		13.17
208					95% HW Approx. Gamma UTL with 95% Coverage	10.58						
209					95% WH USL	21.46				95% HW USL		23.93
210												
211					Lognormal GOF Test							
212					Shapiro Wilk Test Statistic	0.977				Shapiro Wilk Lognormal GOF Test		
213					10% Shapiro Wilk P Value	0.124				Data appear Lognormal at 10% Significance Level		

	A	B	C	D	E	F	G	H	I	J	K	L	
214	Lilliefors Test Statistic					0.0424	Lilliefors Lognormal GOF Test						
215	10% Lilliefors Critical Value					0.0515	Data appear Lognormal at 10% Significance Level						
216	Data appear Lognormal at 10% Significance Level												
217													
218	Background Statistics assuming Lognormal Distribution												
219	95% UTL with		95% Coverage		12.14	90% Percentile (z)					8.25		
220			95% UPL (t)		10.81	95% Percentile (z)					10.74		
221			95% USL		41.35	99% Percentile (z)					17.62		
222													
223	Nonparametric Distribution Free Background Statistics												
224	Data appear Approximate Gamma Distribution at 5% Significance Level												
225													
226	Nonparametric Upper Limits for Background Threshold Values												
227	Order of Statistic, order				246	95% UTL with 95% Coverage					11.4		
228	Approx, f used to compute achieved CC				1.612	Approximate Actual Confidence Coefficient achieved by UTL					0.938		
229						Approximate Sample Size needed to achieve specified CC					234		
230	95% Percentile Bootstrap UTL with		95% Coverage		10.65	95% BCA Bootstrap UTL with 95% Coverage					10.65		
231			95% UPL		10.07	90% Percentile					8		
232			90% Chebyshev UPL		12.82	95% Percentile					9.89		
233			95% Chebyshev UPL		16.75	99% Percentile					13.25		
234			95% USL		17.4								
235													
236	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
237	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
238	and consists of observations collected from clean unimpacted locations.												
239	The use of USL tends to provide a balance between false positives and false negatives provided the data												
240	represents a background data set and when many onsite observations need to be compared with the BTV.												
241													
242	AL_As <14												
243													
244	General Statistics												
245	Total Number of Observations				250	Number of Distinct Observations					91		
246	Minimum				0.3	First Quartile					2.025		
247	Second Largest				13	Median					3.2		
248	Maximum				13.5	Third Quartile					5.6		
249	Mean				4.046	SD					2.699		
250	Coefficient of Variation				0.667	Skewness					1.106		
251	Mean of logged Data				1.167	SD of logged Data					0.715		
252													
253	Critical Values for Background Threshold Values (BTVs)												
254	Tolerance Factor K (For UTL)				1.814	d2max (for USL)					3.499		
255													
256	Normal GOF Test												
257	Shapiro Wilk Test Statistic				0.893	Normal GOF Test							
258	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level							
259	Lilliefors Test Statistic				0.131	Lilliefors GOF Test							
260	1% Lilliefors Critical Value				0.0653	Data Not Normal at 1% Significance Level							
261	Data Not Normal at 1% Significance Level												
262													
263	Background Statistics Assuming Normal Distribution												
264	95% UTL with		95% Coverage		8.943	90% Percentile (z)					7.505		
265			95% UPL (t)		8.511	95% Percentile (z)					8.486		
266			95% USL		13.49	99% Percentile (z)					10.33		
267													
268	Gamma GOF Test												
269	A-D Test Statistic				0.66	Anderson-Darling Gamma GOF Test							
270	5% A-D Critical Value				0.764	Detected data appear Gamma Distributed at 5% Significance Level							
271	K-S Test Statistic				0.0606	Kolmogorov-Smirnov Gamma GOF Test							
272	5% K-S Critical Value				0.0585	Data Not Gamma Distributed at 5% Significance Level							
273	Detected data follow Appr. Gamma Distribution at 5% Significance Level												
274													
275	Gamma Statistics												
276	k hat (MLE)				2.32	k star (bias corrected MLE)					2.295		
277	Theta hat (MLE)				1.744	Theta star (bias corrected MLE)					1.763		
278	nu hat (MLE)				1160	nu star (bias corrected)					1148		
279	MLE Mean (bias corrected)				4.046	MLE Sd (bias corrected)					2.671		
280													
281	Background Statistics Assuming Gamma Distribution												
282	95% Wilson Hilferty (WH) Approx. Gamma UPL				9.171	90% Percentile					7.622		
283	95% Hawkins Wixley (HW) Approx. Gamma UPL				9.387	95% Percentile					9.195		
284	95% WH Approx. Gamma UTL with		95% Coverage		9.924	99% Percentile					12.66		

	A	B	C	D	E	F	G	H	I	J	K	L	
285	95% HW Approx. Gamma UTL with 95% Coverage					10.22							
286	95% WH USL					20.49						95% HW USL	22.84
287													
288	Lognormal GOF Test												
289	Shapiro Wilk Test Statistic					0.971	Shapiro Wilk Lognormal GOF Test						
290	10% Shapiro Wilk P Value					0.0113	Data Not Lognormal at 10% Significance Level						
291	Lilliefors Test Statistic					0.0462	Lilliefors Lognormal GOF Test						
292	10% Lilliefors Critical Value					0.0517	Data appear Lognormal at 10% Significance Level						
293	Data appear Approximate Lognormal at 10% Significance Level												
294													
295	Background Statistics assuming Lognormal Distribution												
296	95% UTL with		95% Coverage		11.76						90% Percentile (z)	8.032	
297			95% UPL (t)		10.49						95% Percentile (z)	10.41	
298			95% USL		39.22						99% Percentile (z)	16.95	
299													
300	Nonparametric Distribution Free Background Statistics												
301	Data appear Approximate Gamma Distribution at 5% Significance Level												
302													
303	Nonparametric Upper Limits for Background Threshold Values												
304	Order of Statistic, order				244	95% UTL with 95% Coverage				10.6			
305	Approx, f used to compute achieved CC				1.599	Approximate Actual Confidence Coefficient achieved by UTL				0.935			
306						Approximate Sample Size needed to achieve specified CC				234			
307	95% Percentile Bootstrap UTL with		95% Coverage		10.4	95% BCA Bootstrap UTL with		95% Coverage		10.31			
308			95% UPL		9.69			90% Percentile		7.91			
309			90% Chebyshev UPL		12.16			95% Percentile		9.555			
310			95% Chebyshev UPL		15.83			99% Percentile		12.11			
311			95% USL		13.5								
312													
313	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
314	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
315	and consists of observations collected from clean unimpacted locations.												
316	The use of USL tends to provide a balance between false positives and false negatives provided the data												
317	represents a background data set and when many onsite observations need to be compared with the BTV.												
318													
319	AL_As <12												
320													
321	General Statistics												
322	Total Number of Observations				247	Number of Distinct Observations				88			
323	Minimum				0.3	First Quartile				2			
324	Second Largest				11.4	Median				3.2			
325	Maximum				11.5	Third Quartile				5.5			
326	Mean				3.937	SD				2.524			
327	Coefficient of Variation				0.641	Skewness				0.938			
328	Mean of logged Data				1.15	SD of logged Data				0.702			
329													
330	Critical Values for Background Threshold Values (BTVs)												
331	Tolerance Factor K (For UTL)				1.815	d2max (for USL)				3.496			
332													
333	Normal GOF Test												
334	Shapiro Wilk Test Statistic				0.901	Normal GOF Test							
335	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level							
336	Lilliefors Test Statistic				0.129	Lilliefors GOF Test							
337	1% Lilliefors Critical Value				0.0657	Data Not Normal at 1% Significance Level							
338	Data Not Normal at 1% Significance Level												
339													
340	Background Statistics Assuming Normal Distribution												
341	95% UTL with		95% Coverage		8.518	90% Percentile (z)					7.171		
342			95% UPL (t)		8.112	95% Percentile (z)					8.088		
343			95% USL		12.76	99% Percentile (z)					9.807		
344													
345	Gamma GOF Test												
346	A-D Test Statistic				0.664	Anderson-Darling Gamma GOF Test							
347	5% A-D Critical Value				0.764	Detected data appear Gamma Distributed at 5% Significance Level							
348	K-S Test Statistic				0.0574	Kolmogorov-Smirnov Gamma GOF Test							
349	5% K-S Critical Value				0.0588	Detected data appear Gamma Distributed at 5% Significance Level							
350	Detected data appear Gamma Distributed at 5% Significance Level												
351													
352	Gamma Statistics												
353	k hat (MLE)				2.423	k star (bias corrected MLE)					2.397		
354	Theta hat (MLE)				1.624	Theta star (bias corrected MLE)					1.643		
355	nu hat (MLE)				1197	nu star (bias corrected)					1184		

	A	B	C	D	E	F	G	H	I	J	K	L
356	MLE Mean (bias corrected)					3.937	MLE Sd (bias corrected)					2.543
357												
358	Background Statistics Assuming Gamma Distribution											
359	95% Wilson Hilferty (WH) Approx. Gamma UPL					8.814	90% Percentile					7.342
360	95% Hawkins Wixley (HW) Approx. Gamma UPL					9.028	95% Percentile					8.828
361	95% WH Approx. Gamma UTL with 95% Coverage					9.529	99% Percentile					12.09
362	95% HW Approx. Gamma UTL with 95% Coverage					9.824						
363	95% WH USL					19.42	95% HW USL					21.63
364												
365	Lognormal GOF Test											
366	Shapiro Wilk Test Statistic					0.966	Shapiro Wilk Lognormal GOF Test					
367	10% Shapiro Wilk P Value					7.6512E-4	Data Not Lognormal at 10% Significance Level					
368	Lilliefors Test Statistic					0.0504	Lilliefors Lognormal GOF Test					
369	10% Lilliefors Critical Value					0.052	Data appear Lognormal at 10% Significance Level					
370	Data appear Approximate Lognormal at 10% Significance Level											
371												
372	Background Statistics assuming Lognormal Distribution											
373	95% UTL with 95% Coverage					11.3	90% Percentile (z)					7.769
374	95% UPL (t)					10.09	95% Percentile (z)					10.03
375	95% USL					36.78	99% Percentile (z)					16.18
376												
377	Nonparametric Distribution Free Background Statistics											
378	Data appear Gamma Distributed at 5% Significance Level											
379												
380	Nonparametric Upper Limits for Background Threshold Values											
381	Order of Statistic, order					241	95% UTL with 95% Coverage					10.2
382	Approx, f used to compute achieved CC					1.579	Approximate Actual Confidence Coefficient achieved by UTL					0.93
383							Approximate Sample Size needed to achieve specified CC					234
384	95% Percentile Bootstrap UTL with 95% Coverage					9.85	95% BCA Bootstrap UTL with 95% Coverage					9.8
385	95% UPL					9.26	90% Percentile					7.44
386	90% Chebyshev UPL					11.52	95% Percentile					9.2
387	95% Chebyshev UPL					14.96	99% Percentile					10.65
388	95% USL					11.5						
389												
390	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
391	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
392	and consists of observations collected from clean unimpacted locations.											
393	The use of USL tends to provide a balance between false positives and false negatives provided the data											
394	represents a background data set and when many onsite observations need to be compared with the BTV.											
395												
396	AL_Pb											
397												
398	General Statistics											
399	Total Number of Observations					255	Number of Distinct Observations					153
400	Minimum					2.9	First Quartile					9.85
401	Second Largest					57.6	Median					12.9
402	Maximum					62.9	Third Quartile					17.25
403	Mean					14.5	SD					7.95
404	Coefficient of Variation					0.548	Skewness					2.202
405	Mean of logged Data					2.549	SD of logged Data					0.501
406												
407	Critical Values for Background Threshold Values (BTVs)											
408	Tolerance Factor K (For UTL)					1.813	d2max (for USL)					3.505
409												
410	Normal GOF Test											
411	Shapiro Wilk Test Statistic					0.847	Normal GOF Test					
412	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
413	Lilliefors Test Statistic					0.136	Lilliefors GOF Test					
414	1% Lilliefors Critical Value					0.0646	Data Not Normal at 1% Significance Level					
415	Data Not Normal at 1% Significance Level											
416												
417	Background Statistics Assuming Normal Distribution											
418	95% UTL with 95% Coverage					28.91	90% Percentile (z)					24.69
419	95% UPL (t)					27.65	95% Percentile (z)					27.58
420	95% USL					42.37	99% Percentile (z)					33
421												
422	Gamma GOF Test											
423	A-D Test Statistic					1.313	Anderson-Darling Gamma GOF Test					
424	5% A-D Critical Value					0.758	Data Not Gamma Distributed at 5% Significance Level					
425	K-S Test Statistic					0.0681	Kolmogorov-Smirnov Gamma GOF Test					
426	5% K-S Critical Value					0.0575	Data Not Gamma Distributed at 5% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L	
427	Data Not Gamma Distributed at 5% Significance Level												
428													
429	Gamma Statistics												
430	k hat (MLE)				4.153				k star (bias corrected MLE)				4.106
431	Theta hat (MLE)				3.492				Theta star (bias corrected MLE)				3.531
432	nu hat (MLE)				2118				nu star (bias corrected)				2094
433	MLE Mean (bias corrected)				14.5				MLE Sd (bias corrected)				7.156
434													
435	Background Statistics Assuming Gamma Distribution												
436	95% Wilson Hilferty (WH) Approx. Gamma UPL				27.84				90% Percentile				24.09
437	95% Hawkins Wixley (HW) Approx. Gamma UPL				28.09				95% Percentile				27.92
438	95% WH Approx. Gamma UTL with 95% Coverage				29.62				99% Percentile				36.07
439	95% HW Approx. Gamma UTL with 95% Coverage				29.98								
440	95% WH USL				53.53				95% HW USL				56.79
441													
442	Lognormal GOF Test												
443	Shapiro Wilk Test Statistic				0.984				Shapiro Wilk Lognormal GOF Test				
444	10% Shapiro Wilk P Value				0.588				Data appear Lognormal at 10% Significance Level				
445	Lilliefors Test Statistic				0.0597				Lilliefors Lognormal GOF Test				
446	10% Lilliefors Critical Value				0.0512				Data Not Lognormal at 10% Significance Level				
447	Data appear Approximate Lognormal at 10% Significance Level												
448													
449	Background Statistics assuming Lognormal Distribution												
450	95% UTL with		95% Coverage		31.74				90% Percentile (z)		24.32		
451			95% UPL (t)		29.31				95% Percentile (z)		29.18		
452			95% USL		74.12				99% Percentile (z)		41.06		
453													
454	Nonparametric Distribution Free Background Statistics												
455	Data appear Approximate Lognormal at 10% Significance Level												
456													
457	Nonparametric Upper Limits for Background Threshold Values												
458	Order of Statistic, order				249				95% UTL with 95% Coverage		33.6		
459	Approx, f used to compute achieved CC				1.632				Approximate Actual Confidence Coefficient achieved by UTL		0.943		
460									Approximate Sample Size needed to achieve specified CC		234		
461	95% Percentile Bootstrap UTL with		95% Coverage		31.8				95% BCA Bootstrap UTL with 95% Coverage		32.22		
462			95% UPL		29.68				90% Percentile		23.86		
463			90% Chebyshev UPL		38.4				95% Percentile		29.25		
464			95% Chebyshev UPL		49.22				99% Percentile		39.35		
465			95% USL		62.9								
466													
467	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
468	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
469	and consists of observations collected from clean unimpacted locations.												
470	The use of USL tends to provide a balance between false positives and false negatives provided the data												
471	represents a background data set and when many onsite observations need to be compared with the BTV.												
472													
473	AL_Pb <58												
474													
475	General Statistics												
476	Total Number of Observations				254				Number of Distinct Observations				152
477	Minimum				2.9				First Quartile				9.825
478	Second Largest				39.4				Median				12.9
479	Maximum				57.6				Third Quartile				17.18
480	Mean				14.31				SD				7.359
481	Coefficient of Variation				0.514				Skewness				1.732
482	Mean of logged Data				2.543				SD of logged Data				0.492
483													
484	Critical Values for Background Threshold Values (BTVs)												
485	Tolerance Factor K (For UTL)				1.813				d2max (for USL)				3.504
486													
487	Normal GOF Test												
488	Shapiro Wilk Test Statistic				0.889				Normal GOF Test				
489	1% Shapiro Wilk P Value				0				Data Not Normal at 1% Significance Level				
490	Lilliefors Test Statistic				0.125				Lilliefors GOF Test				
491	1% Lilliefors Critical Value				0.0648				Data Not Normal at 1% Significance Level				
492	Data Not Normal at 1% Significance Level												
493													
494	Background Statistics Assuming Normal Distribution												
495	95% UTL with		95% Coverage		27.65				90% Percentile (z)		23.74		
496			95% UPL (t)		26.48				95% Percentile (z)		26.42		
497			95% USL		40.1				99% Percentile (z)		31.43		

	A	B	C	D	E	F	G	H	I	J	K	L
498												
499	Gamma GOF Test											
500	A-D Test Statistic					0.962	Anderson-Darling Gamma GOF Test					
501	5% A-D Critical Value					0.757	Data Not Gamma Distributed at 5% Significance Level					
502	K-S Test Statistic					0.0603	Kolmogorov-Smirnov Gamma GOF Test					
503	5% K-S Critical Value					0.0576	Data Not Gamma Distributed at 5% Significance Level					
504	Data Not Gamma Distributed at 5% Significance Level											
505												
506	Gamma Statistics											
507	k hat (MLE)					4.388	k star (bias corrected MLE)					4.339
508	Theta hat (MLE)					3.261	Theta star (bias corrected MLE)					3.298
509	nu hat (MLE)					2229	nu star (bias corrected)					2204
510	MLE Mean (bias corrected)					14.31	MLE Sd (bias corrected)					6.87
511												
512	Background Statistics Assuming Gamma Distribution											
513	95% Wilson Hilferty (WH) Approx. Gamma UPL					27.12	90% Percentile					23.52
514	95% Hawkins Wixley (HW) Approx. Gamma UPL					27.39	95% Percentile					27.16
515	95% WH Approx. Gamma UTL with 95% Coverage					28.81	99% Percentile					34.9
516	95% HW Approx. Gamma UTL with 95% Coverage					29.21						
517	95% WH USL					51.44	95% HW USL					54.63
518												
519	Lognormal GOF Test											
520	Shapiro Wilk Test Statistic					0.985	Shapiro Wilk Lognormal GOF Test					
521	10% Shapiro Wilk P Value					0.612	Data appear Lognormal at 10% Significance Level					
522	Lilliefors Test Statistic					0.0596	Lilliefors Lognormal GOF Test					
523	10% Lilliefors Critical Value					0.0513	Data Not Lognormal at 10% Significance Level					
524	Data appear Approximate Lognormal at 10% Significance Level											
525												
526	Background Statistics assuming Lognormal Distribution											
527	95% UTL with		95% Coverage		31.02	90% Percentile (z)					23.89	
528			95% UPL (t)		28.69	95% Percentile (z)					28.56	
529			95% USL		71.3	99% Percentile (z)					39.94	
530												
531	Nonparametric Distribution Free Background Statistics											
532	Data appear Approximate Lognormal at 10% Significance Level											
533												
534	Nonparametric Upper Limits for Background Threshold Values											
535	Order of Statistic, order				248	95% UTL with 95% Coverage				33.2		
536	Approx, f used to compute achieved CC				1.625	Approximate Actual Confidence Coefficient achieved by UTL				0.942		
537						Approximate Sample Size needed to achieve specified CC				234		
538	95% Percentile Bootstrap UTL with		95% Coverage		31.02	95% BCA Bootstrap UTL with		95% Coverage		31.02		
539			95% UPL		29.23			90% Percentile		23.74		
540			90% Chebyshev UPL		36.43			95% Percentile		28.78		
541			95% Chebyshev UPL		46.45			99% Percentile		39.25		
542			95% USL		57.6							
543												
544	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
545	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
546	and consists of observations collected from clean unimpacted locations.											
547	The use of USL tends to provide a balance between false positives and false negatives provided the data											
548	represents a background data set and when many onsite observations need to be compared with the BTV.											
549												
550	AL_Pb <40											
551												
552	General Statistics											
553	Total Number of Observations				253	Number of Distinct Observations				151		
554	Minimum				2.9	First Quartile				9.8		
555	Second Largest				39.3	Median				12.9		
556	Maximum				39.4	Third Quartile				17.1		
557	Mean				14.14	SD				6.848		
558	Coefficient of Variation				0.484	Skewness				1.223		
559	Mean of logged Data				2.537	SD of logged Data				0.484		
560												
561	Critical Values for Background Threshold Values (BTVs)											
562	Tolerance Factor K (For UTL)				1.813	d2max (for USL)				3.503		
563												
564	Normal GOF Test											
565	Shapiro Wilk Test Statistic					0.907	Normal GOF Test					
566	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
567	Lilliefors Test Statistic					0.113	Lilliefors GOF Test					
568	1% Lilliefors Critical Value					0.0649	Data Not Normal at 1% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L
569	Data Not Normal at 1% Significance Level											
570												
571	Background Statistics Assuming Normal Distribution											
572	95% UTL with	95% Coverage	26.56							90% Percentile (z)	22.92	
573		95% UPL (t)	25.47							95% Percentile (z)	25.4	
574		95% USL	38.13							99% Percentile (z)	30.07	
575												
576	Gamma GOF Test											
577		A-D Test Statistic	0.736		Anderson-Darling Gamma GOF Test							
578		5% A-D Critical Value	0.757		Detected data appear Gamma Distributed at 5% Significance Level							
579		K-S Test Statistic	0.053		Kolmogorov-Smirnov Gamma GOF Test							
580		5% K-S Critical Value	0.0577		Detected data appear Gamma Distributed at 5% Significance Level							
581	Detected data appear Gamma Distributed at 5% Significance Level											
582												
583	Gamma Statistics											
584		k hat (MLE)	4.617							k star (bias corrected MLE)	4.565	
585		Theta hat (MLE)	3.063							Theta star (bias corrected MLE)	3.098	
586		nu hat (MLE)	2336							nu star (bias corrected)	2310	
587		MLE Mean (bias corrected)	14.14							MLE Sd (bias corrected)	6.618	
588												
589	Background Statistics Assuming Gamma Distribution											
590	95% Wilson Hilferty (WH) Approx.	Gamma UPL	26.47							90% Percentile	23.01	
591	95% Hawkins Wixley (HW) Approx.	Gamma UPL	26.78							95% Percentile	26.48	
592	95% WH Approx.	Gamma UTL with	95% Coverage	28.1						99% Percentile	33.87	
593	95% HW Approx.	Gamma UTL with	95% Coverage	28.52								
594		95% WH USL	49.61							95% HW USL	52.72	
595												
596	Lognormal GOF Test											
597		Shapiro Wilk Test Statistic	0.977		Shapiro Wilk Lognormal GOF Test							
598		10% Shapiro Wilk P Value	0.103		Data appear Lognormal at 10% Significance Level							
599		Lilliefors Test Statistic	0.0595		Lilliefors Lognormal GOF Test							
600		10% Lilliefors Critical Value	0.0514		Data Not Lognormal at 10% Significance Level							
601	Data appear Approximate Lognormal at 10% Significance Level											
602												
603	Background Statistics assuming Lognormal Distribution											
604	95% UTL with	95% Coverage	30.38							90% Percentile (z)	23.49	
605		95% UPL (t)	28.13							95% Percentile (z)	28.01	
606		95% USL	68.8							99% Percentile (z)	38.94	
607												
608	Nonparametric Distribution Free Background Statistics											
609	Data appear Gamma Distributed at 5% Significance Level											
610												
611	Nonparametric Upper Limits for Background Threshold Values											
612		Order of Statistic, order	247							95% UTL with	95% Coverage	31.8
613		Approx, f used to compute achieved CC	1.618		Approximate Actual Confidence Coefficient achieved by UTL							0.94
614					Approximate Sample Size needed to achieve specified CC							234
615	95% Percentile Bootstrap UTL with	95% Coverage	30.54							95% BCA Bootstrap UTL with	95% Coverage	30.54
616		95% UPL	28.75							90% Percentile	23.56	
617		90% Chebyshev UPL	34.73							95% Percentile	28.24	
618		95% Chebyshev UPL	44.05							99% Percentile	37.64	
619		95% USL	39.4									
620												
621	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
622	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
623	and consists of observations collected from clean unimpacted locations.											
624	The use of USL tends to provide a balance between false positives and false negatives provided the data											
625	represents a background data set and when many onsite observations need to be compared with the BTV.											
626												
627	AL_Pb <34											
628												
629	General Statistics											
630		Total Number of Observations	249							Number of Distinct Observations	147	
631		Minimum	2.9							First Quartile	9.8	
632		Second Largest	33.2							Median	12.9	
633		Maximum	33.6							Third Quartile	17	
634		Mean	13.75							SD	6.155	
635		Coefficient of Variation	0.448							Skewness	0.885	
636		Mean of logged Data	2.519							SD of logged Data	0.466	
637												
638	Critical Values for Background Threshold Values (BTVs)											
639		Tolerance Factor K (For UTL)	1.815							d2max (for USL)	3.498	

	A	B	C	D	E	F	G	H	I	J	K	L
640												
641	Normal GOF Test											
642	Shapiro Wilk Test Statistic					0.933	Normal GOF Test					
643	1% Shapiro Wilk P Value					3.220E-15	Data Not Normal at 1% Significance Level					
644	Lilliefors Test Statistic					0.0964	Lilliefors GOF Test					
645	1% Lilliefors Critical Value					0.0654	Data Not Normal at 1% Significance Level					
646	Data Not Normal at 1% Significance Level											
647												
648	Background Statistics Assuming Normal Distribution											
649	95% UTL with	95% Coverage		24.92	90% Percentile (z)							21.64
650		95% UPL (t)		23.93	95% Percentile (z)							23.87
651		95% USL		35.28	99% Percentile (z)							28.07
652												
653	Gamma GOF Test											
654	A-D Test Statistic					0.454	Anderson-Darling Gamma GOF Test					
655	5% A-D Critical Value					0.756	Detected data appear Gamma Distributed at 5% Significance Level					
656	K-S Test Statistic					0.0421	Kolmogorov-Smirnov Gamma GOF Test					
657	5% K-S Critical Value					0.0581	Detected data appear Gamma Distributed at 5% Significance Level					
658	Detected data appear Gamma Distributed at 5% Significance Level											
659												
660	Gamma Statistics											
661	k hat (MLE)					5.063	k star (bias corrected MLE)					5.005
662	Theta hat (MLE)					2.715	Theta star (bias corrected MLE)					2.747
663	nu hat (MLE)					2521	nu star (bias corrected)					2492
664	MLE Mean (bias corrected)					13.75	MLE Sd (bias corrected)					6.145
665												
666	Background Statistics Assuming Gamma Distribution											
667	95% Wilson Hilferty (WH) Approx. Gamma UPL		25.17	90% Percentile							21.98	
668	95% Hawkins Wixley (HW) Approx. Gamma UPL		25.49	95% Percentile							25.16	
669	95% WH Approx. Gamma UTL with	95% Coverage	26.67	99% Percentile							31.9	
670	95% HW Approx. Gamma UTL with	95% Coverage	27.1									
671		95% WH USL	46.11	95% HW USL							48.96	
672												
673	Lognormal GOF Test											
674	Shapiro Wilk Test Statistic					0.971	Shapiro Wilk Lognormal GOF Test					
675	10% Shapiro Wilk P Value					0.0117	Data Not Lognormal at 10% Significance Level					
676	Lilliefors Test Statistic					0.0617	Lilliefors Lognormal GOF Test					
677	10% Lilliefors Critical Value					0.0518	Data Not Lognormal at 10% Significance Level					
678	Data Not Lognormal at 10% Significance Level											
679												
680	Background Statistics assuming Lognormal Distribution											
681	95% UTL with	95% Coverage		28.93	90% Percentile (z)							22.57
682		95% UPL (t)		26.85	95% Percentile (z)							26.73
683		95% USL		63.43	99% Percentile (z)							36.73
684												
685	Nonparametric Distribution Free Background Statistics											
686	Data appear Gamma Distributed at 5% Significance Level											
687												
688	Nonparametric Upper Limits for Background Threshold Values											
689	Order of Statistic, order					243	95% UTL with 95% Coverage					29.6
690	Approx, f used to compute achieved CC					1.592	Approximate Actual Confidence Coefficient achieved by UTL					0.933
691							Approximate Sample Size needed to achieve specified CC					234
692	95% Percentile Bootstrap UTL with	95% Coverage		28.9	95% BCA Bootstrap UTL with 95% Coverage					28.6		
693		95% UPL		26.15	90% Percentile					21.3		
694		90% Chebyshev UPL		32.25	95% Percentile					25.58		
695		95% Chebyshev UPL		40.63	99% Percentile					31.22		
696		95% USL		33.6								
697												
698	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
699	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
700	and consists of observations collected from clean unimpacted locations.											
701	The use of USL tends to provide a balance between false positives and false negatives provided the data											
702	represents a background data set and when many onsite observations need to be compared with the BTV.											
703												
704	AR_As											
705												
706	General Statistics											
707	Total Number of Observations					261	Number of Distinct Observations					118
708	Minimum					1.2	First Quartile					3.6
709	Second Largest					40.2	Median					5.7
710	Maximum					288	Third Quartile					8.5

	A	B	C	D	E	F	G	H	I	J	K	L	
711					Mean	7.722					SD	18	
712					Coefficient of Variation	2.33					Skewness	14.67	
713					Mean of logged Data	1.722					SD of logged Data	0.658	
714													
715					Critical Values for Background Threshold Values (BTVs)								
716					Tolerance Factor K (For UTL)	1.81					d2max (for USL)	3.512	
717													
718					Normal GOF Test								
719					Shapiro Wilk Test Statistic	0.206					Normal GOF Test		
720					1% Shapiro Wilk P Value	0					Data Not Normal at 1% Significance Level		
721					Lilliefors Test Statistic	0.359					Lilliefors GOF Test		
722					1% Lilliefors Critical Value	0.0639					Data Not Normal at 1% Significance Level		
723					Data Not Normal at 1% Significance Level								
724													
725					Background Statistics Assuming Normal Distribution								
726					95% UTL with	95% Coverage	40.3				90% Percentile (z)	30.78	
727						95% UPL (t)	37.48				95% Percentile (z)	37.32	
728						95% USL	70.92				99% Percentile (z)	49.59	
729													
730					Gamma GOF Test								
731					A-D Test Statistic	3.831E+28					Anderson-Darling Gamma GOF Test		
732					5% A-D Critical Value	0.769					Data Not Gamma Distributed at 5% Significance Level		
733					K-S Test Statistic	0.125					Kolmogorov-Smirnov Gamma GOF Test		
734					5% K-S Critical Value	0.0575					Data Not Gamma Distributed at 5% Significance Level		
735					Data Not Gamma Distributed at 5% Significance Level								
736													
737					Gamma Statistics								
738					k hat (MLE)	1.7					k star (bias corrected MLE)	1.683	
739					Theta hat (MLE)	4.542					Theta star (bias corrected MLE)	4.587	
740					nu hat (MLE)	887.5					nu star (bias corrected)	878.7	
741					MLE Mean (bias corrected)	7.722					MLE Sd (bias corrected)	5.952	
742													
743					Background Statistics Assuming Gamma Distribution								
744					95% Wilson Hilferty (WH) Approx. Gamma UPL	17.74					90% Percentile	15.65	
745					95% Hawkins Wixley (HW) Approx. Gamma UPL	17.1					95% Percentile	19.36	
746					95% WH Approx. Gamma UTL with	95% Coverage	19.31				99% Percentile	27.69	
747					95% HW Approx. Gamma UTL with	95% Coverage	18.66						
748						95% WH USL	42.57				95% HW USL	43.34	
749													
750					Lognormal GOF Test								
751					Shapiro Wilk Test Statistic	0.969					Shapiro Wilk Lognormal GOF Test		
752					10% Shapiro Wilk P Value	0.00308					Data Not Lognormal at 10% Significance Level		
753					Lilliefors Test Statistic	0.0371					Lilliefors Lognormal GOF Test		
754					10% Lilliefors Critical Value	0.0506					Data appear Lognormal at 10% Significance Level		
755					Data appear Approximate Lognormal at 10% Significance Level								
756													
757					Background Statistics assuming Lognormal Distribution								
758					95% UTL with	95% Coverage	18.4				90% Percentile (z)	13	
759						95% UPL (t)	16.6				95% Percentile (z)	16.51	
760						95% USL	56.34				99% Percentile (z)	25.84	
761													
762					Nonparametric Distribution Free Background Statistics								
763					Data appear Approximate Lognormal at 10% Significance Level								
764													
765					Nonparametric Upper Limits for Background Threshold Values								
766					Order of Statistic, order	254					95% UTL with	95% Coverage	16.8
767					Approx, f used to compute achieved CC	1.48					Approximate Actual Confidence Coefficient achieved by UTL		0.908
768											Approximate Sample Size needed to achieve specified CC		260
769					95% Percentile Bootstrap UTL with	95% Coverage	16.6				95% BCA Bootstrap UTL with	95% Coverage	16.6
770						95% UPL	15.28				90% Percentile	11.7	
771						90% Chebyshev UPL	61.81				95% Percentile	15.1	
772						95% Chebyshev UPL	86.31				99% Percentile	25.4	
773						95% USL	288						
774													
775					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.								
776					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers								
777					and consists of observations collected from clean unimpacted locations.								
778					The use of USL tends to provide a balance between false positives and false negatives provided the data								
779					represents a background data set and when many onsite observations need to be compared with the BTV.								
780													
781					AR As <41								

	A	B	C	D	E	F	G	H	I	J	K	L	
782													
783	General Statistics												
784	Total Number of Observations					260	Number of Distinct Observations					117	
785	Minimum					1.2	First Quartile					3.6	
786	Second Largest					28.7	Median					5.7	
787	Maximum					40.2	Third Quartile					8.35	
788	Mean					6.644	SD					4.54	
789	Coefficient of Variation					0.683	Skewness					2.659	
790	Mean of logged Data					1.707	SD of logged Data					0.611	
791													
792	Critical Values for Background Threshold Values (BTVs)												
793	Tolerance Factor K (For UTL)					1.811	d2max (for USL)					3.511	
794													
795	Normal GOF Test												
796	Shapiro Wilk Test Statistic					0.82	Normal GOF Test						
797	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
798	Lilliefors Test Statistic					0.129	Lilliefors GOF Test						
799	1% Lilliefors Critical Value					0.064	Data Not Normal at 1% Significance Level						
800	Data Not Normal at 1% Significance Level												
801													
802	Background Statistics Assuming Normal Distribution												
803	95% UTL with	95% Coverage		14.87				90% Percentile (z)		12.46			
804		95% UPL (t)		14.15				95% Percentile (z)		14.11			
805		95% USL		22.58				99% Percentile (z)		17.21			
806													
807	Gamma GOF Test												
808	A-D Test Statistic					0.796	Anderson-Darling Gamma GOF Test						
809	5% A-D Critical Value					0.761	Data Not Gamma Distributed at 5% Significance Level						
810	K-S Test Statistic					0.0481	Kolmogorov-Smirnov Gamma GOF Test						
811	5% K-S Critical Value					0.0571	Detected data appear Gamma Distributed at 5% Significance Level						
812	Detected data follow Appr. Gamma Distribution at 5% Significance Level												
813													
814	Gamma Statistics												
815	k hat (MLE)					2.832	k star (bias corrected MLE)					2.802	
816	Theta hat (MLE)					2.346	Theta star (bias corrected MLE)					2.371	
817	nu hat (MLE)					1473	nu star (bias corrected)					1457	
818	MLE Mean (bias corrected)					6.644	MLE Sd (bias corrected)					3.969	
819													
820	Background Statistics Assuming Gamma Distribution												
821	95% Wilson Hilferty (WH) Approx.	Gamma UPL		14.15				90% Percentile		11.96			
822	95% Hawkins Wixley (HW) Approx.	Gamma UPL		14.31				95% Percentile		14.22			
823	95% WH Approx.	Gamma UTL with	95% Coverage	15.2				99% Percentile		19.13			
824	95% HW Approx.	Gamma UTL with	95% Coverage	15.44									
825		95% WH USL		30.06				95% HW USL		32.52			
826													
827	Lognormal GOF Test												
828	Shapiro Wilk Test Statistic					0.985	Shapiro Wilk Lognormal GOF Test						
829	10% Shapiro Wilk P Value					0.614	Data appear Lognormal at 10% Significance Level						
830	Lilliefors Test Statistic					0.036	Lilliefors Lognormal GOF Test						
831	10% Lilliefors Critical Value					0.0507	Data appear Lognormal at 10% Significance Level						
832	Data appear Lognormal at 10% Significance Level												
833													
834	Background Statistics assuming Lognormal Distribution												
835	95% UTL with	95% Coverage		16.68				90% Percentile (z)		12.07			
836		95% UPL (t)		15.15				95% Percentile (z)		15.07			
837		95% USL		47.17				99% Percentile (z)		22.86			
838													
839	Nonparametric Distribution Free Background Statistics												
840	Data appear Approximate Gamma Distribution at 5% Significance Level												
841													
842	Nonparametric Upper Limits for Background Threshold Values												
843	Order of Statistic, order					253	95% UTL with					95% Coverage	16.6
844	Approx, f used to compute achieved CC					1.474	Approximate Actual Confidence Coefficient achieved by UTL					0.906	
845							Approximate Sample Size needed to achieve specified CC					260	
846	95% Percentile Bootstrap UTL with	95% Coverage		16				95% BCA Bootstrap UTL with	95% Coverage	16.03			
847		95% UPL		15.07					90% Percentile	11.61			
848		90% Chebyshev UPL		20.29					95% Percentile	14.44			
849		95% Chebyshev UPL		26.47					99% Percentile	21.08			
850		95% USL		40.2									
851													
852	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												

	A	B	C	D	E	F	G	H	I	J	K	L
853	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
854	and consists of observations collected from clean unimpacted locations.											
855	The use of USL tends to provide a balance between false positives and false negatives provided the data											
856	represents a background data set and when many onsite observations need to be compared with the BTV.											
857												
858	AR _{As} <24											
859												
860	General Statistics											
861	Total Number of Observations					258	Number of Distinct Observations					115
862	Minimum					1.2	First Quartile					3.6
863	Second Largest					19.6	Median					5.7
864	Maximum					23.2	Third Quartile					8.2
865	Mean					6.428	SD					3.802
866	Coefficient of Variation					0.591	Skewness					1.274
867	Mean of logged Data					1.693	SD of logged Data					0.592
868												
869	Critical Values for Background Threshold Values (BTVs)											
870	Tolerance Factor K (For UTL)					1.811	d2max (for USL)					3.509
871												
872	Normal GOF Test											
873	Shapiro Wilk Test Statistic					0.9	Normal GOF Test					
874	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
875	Lilliefors Test Statistic					0.108	Lilliefors GOF Test					
876	1% Lilliefors Critical Value					0.0643	Data Not Normal at 1% Significance Level					
877	Data Not Normal at 1% Significance Level											
878												
879	Background Statistics Assuming Normal Distribution											
880	95% UTL with		95% Coverage		13.32	90% Percentile (z)					11.3	
881			95% UPL (t)		12.72	95% Percentile (z)					12.68	
882			95% USL		19.77	99% Percentile (z)					15.27	
883												
884	Gamma GOF Test											
885	A-D Test Statistic					0.503	Anderson-Darling Gamma GOF Test					
886	5% A-D Critical Value					0.76	Detected data appear Gamma Distributed at 5% Significance Level					
887	K-S Test Statistic					0.0375	Kolmogorov-Smirnov Gamma GOF Test					
888	5% K-S Critical Value					0.0573	Detected data appear Gamma Distributed at 5% Significance Level					
889	Detected data appear Gamma Distributed at 5% Significance Level											
890												
891	Gamma Statistics											
892	k hat (MLE)					3.134	k star (bias corrected MLE)					3.1
893	Theta hat (MLE)					2.051	Theta star (bias corrected MLE)					2.073
894	nu hat (MLE)					1617	nu star (bias corrected)					1600
895	MLE Mean (bias corrected)					6.428	MLE Sd (bias corrected)					3.651
896												
897	Background Statistics Assuming Gamma Distribution											
898	95% Wilson Hilferty (WH) Approx. Gamma UPL					13.35	90% Percentile					11.32
899	95% Hawkins Wixley (HW) Approx. Gamma UPL					13.55	95% Percentile					13.36
900	95% WH Approx. Gamma UTL with		95% Coverage		14.3	99% Percentile					17.78	
901	95% HW Approx. Gamma UTL with		95% Coverage		14.58							
902			95% WH USL		27.6	95% HW USL					29.93	
903												
904	Lognormal GOF Test											
905	Shapiro Wilk Test Statistic					0.976	Shapiro Wilk Lognormal GOF Test					
906	10% Shapiro Wilk P Value					0.0769	Data Not Lognormal at 10% Significance Level					
907	Lilliefors Test Statistic					0.0431	Lilliefors Lognormal GOF Test					
908	10% Lilliefors Critical Value					0.0509	Data appear Lognormal at 10% Significance Level					
909	Data appear Approximate Lognormal at 10% Significance Level											
910												
911	Background Statistics assuming Lognormal Distribution											
912	95% UTL with		95% Coverage		15.89	90% Percentile (z)					11.61	
913			95% UPL (t)		14.47	95% Percentile (z)					14.39	
914			95% USL		43.4	99% Percentile (z)					21.55	
915												
916	Nonparametric Distribution Free Background Statistics											
917	Data appear Gamma Distributed at 5% Significance Level											
918												
919	Nonparametric Upper Limits for Background Threshold Values											
920	Order of Statistic, order					252	95% UTL with 95% Coverage					16
921	Approx, f used to compute achieved CC					1.651	Approximate Actual Confidence Coefficient achieved by UTL					0.947
922							Approximate Sample Size needed to achieve specified CC					234
923	95% Percentile Bootstrap UTL with		95% Coverage		15.5	95% BCA Bootstrap UTL with 95% Coverage					15.5	

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	A	B	C	D	E	F	G	H	I	J	K	L
924					95% UPL	13.83					90% Percentile	11.26
925					90% Chebyshev UPL	17.86					95% Percentile	13.72
926					95% Chebyshev UPL	23.03					99% Percentile	18.49
927					95% USL	23.2						
928												
929					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
930					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
931					and consists of observations collected from clean unimpacted locations.							
932					The use of USL tends to provide a balance between false positives and false negatives provided the data							
933					represents a background data set and when many onsite observations need to be compared with the BTV.							
934												
935					AR_As <16							
936												
937					General Statistics							
938					Total Number of Observations	251				Number of Distinct Observations	108	
939					Minimum	1.2				First Quartile	3.55	
940					Second Largest	15.5				Median	5.5	
941					Maximum	15.8				Third Quartile	8.05	
942					Mean	6.092				SD	3.244	
943					Coefficient of Variation	0.533				Skewness	0.806	
944					Mean of logged Data	1.659				SD of logged Data	0.563	
945												
946					Critical Values for Background Threshold Values (BTVs)							
947					Tolerance Factor K (For UTL)	1.814				d2max (for USL)	3.5	
948												
949					Normal GOF Test							
950					Shapiro Wilk Test Statistic	0.924				Normal GOF Test		
951					1% Shapiro Wilk P Value	0				Data Not Normal at 1% Significance Level		
952					Lilliefors Test Statistic	0.0825				Lilliefors GOF Test		
953					1% Lilliefors Critical Value	0.0652				Data Not Normal at 1% Significance Level		
954					Data Not Normal at 1% Significance Level							
955												
956					Background Statistics Assuming Normal Distribution							
957					95% UTL with 95% Coverage	11.98				90% Percentile (z)	10.25	
958					95% UPL (t)	11.46				95% Percentile (z)	11.43	
959					95% USL	17.45				99% Percentile (z)	13.64	
960												
961					Gamma GOF Test							
962					A-D Test Statistic	0.488				Anderson-Darling Gamma GOF Test		
963					5% A-D Critical Value	0.759				Detected data appear Gamma Distributed at 5% Significance Level		
964					K-S Test Statistic	0.0404				Kolmogorov-Smirnov Gamma GOF Test		
965					5% K-S Critical Value	0.0581				Detected data appear Gamma Distributed at 5% Significance Level		
966					Detected data appear Gamma Distributed at 5% Significance Level							
967												
968					Gamma Statistics							
969					k hat (MLE)	3.533				k star (bias corrected MLE)	3.493	
970					Theta hat (MLE)	1.724				Theta star (bias corrected MLE)	1.744	
971					nu hat (MLE)	1774				nu star (bias corrected)	1754	
972					MLE Mean (bias corrected)	6.092				MLE Sd (bias corrected)	3.259	
973												
974					Background Statistics Assuming Gamma Distribution							
975					95% Wilson Hiferty (WH) Approx. Gamma UPL	12.25				90% Percentile	10.46	
976					95% Hawkins Wixley (HW) Approx. Gamma UPL	12.46				95% Percentile	12.25	
977					95% WH Approx. Gamma UTL with 95% Coverage	13.1				99% Percentile	16.09	
978					95% HW Approx. Gamma UTL with 95% Coverage	13.38						
979					95% WH USL	24.51				95% HW USL	26.52	
980												
981					Lognormal GOF Test							
982					Shapiro Wilk Test Statistic	0.965				Shapiro Wilk Lognormal GOF Test		
983					10% Shapiro Wilk P Value	3.6410E-4				Data Not Lognormal at 10% Significance Level		
984					Lilliefors Test Statistic	0.0554				Lilliefors Lognormal GOF Test		
985					10% Lilliefors Critical Value	0.0516				Data Not Lognormal at 10% Significance Level		
986					Data Not Lognormal at 10% Significance Level							
987												
988					Background Statistics assuming Lognormal Distribution							
989					95% UTL with 95% Coverage	14.6				90% Percentile (z)	10.81	
990					95% UPL (t)	13.34				95% Percentile (z)	13.27	
991					95% USL	37.76				99% Percentile (z)	19.48	
992												
993					Nonparametric Distribution Free Background Statistics							
994					Data appear Gamma Distributed at 5% Significance Level							

	A	B	C	D	E	F	G	H	I	J	K	L
995												
996	Nonparametric Upper Limits for Background Threshold Values											
997	Order of Statistic, order				245	95% UTL with 95% Coverage				13.7		
998	Approx, f used to compute achieved CC				1.605	Approximate Actual Confidence Coefficient achieved by UTL				0.937		
999						Approximate Sample Size needed to achieve specified CC				234		
1000	95% Percentile Bootstrap UTL with 95% Coverage				13.4	95% BCA Bootstrap UTL with 95% Coverage				13.3		
1001	95% UPL				12.74	90% Percentile				10.9		
1002	90% Chebyshev UPL				15.84	95% Percentile				12.65		
1003	95% Chebyshev UPL				20.26	99% Percentile				15.2		
1004	95% USL				15.8							
1005												
1006	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1007	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1008	and consists of observations collected from clean unimpacted locations.											
1009	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1010	represents a background data set and when many onsite observations need to be compared with the BTV.											
1011												
1012	AR_Pb											
1013												
1014	General Statistics											
1015	Total Number of Observations				261	Number of Distinct Observations				156		
1016	Minimum				4.1	First Quartile				12.9		
1017	Second Largest				105	Median				17.4		
1018	Maximum				106	Third Quartile				22.5		
1019	Mean				19.32	SD				11.57		
1020	Coefficient of Variation				0.599	Skewness				4.145		
1021	Mean of logged Data				2.852	SD of logged Data				0.443		
1022												
1023	Critical Values for Background Threshold Values (BTVs)											
1024	Tolerance Factor K (For UTL)				1.81	d2max (for USL)				3.512		
1025												
1026	Normal GOF Test											
1027	Shapiro Wilk Test Statistic				0.676	Normal GOF Test						
1028	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level						
1029	Lilliefors Test Statistic				0.175	Lilliefors GOF Test						
1030	1% Lilliefors Critical Value				0.0639	Data Not Normal at 1% Significance Level						
1031	Data Not Normal at 1% Significance Level											
1032												
1033	Background Statistics Assuming Normal Distribution											
1034	95% UTL with 95% Coverage				40.27	90% Percentile (z)				34.15		
1035	95% UPL (t)				38.46	95% Percentile (z)				38.35		
1036	95% USL				59.95	99% Percentile (z)				46.24		
1037												
1038	Gamma GOF Test											
1039	A-D Test Statistic				3.818	Anderson-Darling Gamma GOF Test						
1040	5% A-D Critical Value				0.757	Data Not Gamma Distributed at 5% Significance Level						
1041	K-S Test Statistic				0.094	Kolmogorov-Smirnov Gamma GOF Test						
1042	5% K-S Critical Value				0.0568	Data Not Gamma Distributed at 5% Significance Level						
1043	Data Not Gamma Distributed at 5% Significance Level											
1044												
1045	Gamma Statistics											
1046	k hat (MLE)				4.728	k star (bias corrected MLE)				4.676		
1047	Theta hat (MLE)				4.087	Theta star (bias corrected MLE)				4.132		
1048	nu hat (MLE)				2468	nu star (bias corrected)				2441		
1049	MLE Mean (bias corrected)				19.32	MLE Sd (bias corrected)				8.936		
1050												
1051	Background Statistics Assuming Gamma Distribution											
1052	95% Wilson Hilferty (WH) Approx. Gamma UPL				35.72	90% Percentile				31.29		
1053	95% Hawkins Wixley (HW) Approx. Gamma UPL				35.67	95% Percentile				35.97		
1054	95% WH Approx. Gamma UTL with 95% Coverage				37.85	99% Percentile				45.89		
1055	95% HW Approx. Gamma UTL with 95% Coverage				37.88							
1056	95% WH USL				66.62	95% HW USL				69.11		
1057												
1058	Lognormal GOF Test											
1059	Shapiro Wilk Test Statistic				0.969	Shapiro Wilk Lognormal GOF Test						
1060	10% Shapiro Wilk P Value				0.00271	Data Not Lognormal at 10% Significance Level						
1061	Lilliefors Test Statistic				0.0668	Lilliefors Lognormal GOF Test						
1062	10% Lilliefors Critical Value				0.0506	Data Not Lognormal at 10% Significance Level						
1063	Data Not Lognormal at 10% Significance Level											
1064												
1065	Background Statistics assuming Lognormal Distribution											

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	A	B	C	D	E	F	G	H	I	J	K	L
1066	95% UTL with 95% Coverage					38.6	90% Percentile (z)					30.54
1067	95% UPL (t)					36.01	95% Percentile (z)					35.87
1068	95% USL					81.97	99% Percentile (z)					48.5
1069												
1070	Nonparametric Distribution Free Background Statistics											
1071	Data do not follow a Discernible Distribution											
1072												
1073	Nonparametric Upper Limits for Background Threshold Values											
1074	Order of Statistic, order					254	95% UTL with 95% Coverage					46.6
1075	Approx, f used to compute achieved CC					1.48	Approximate Actual Confidence Coefficient achieved by UTL					0.908
1076							Approximate Sample Size needed to achieve specified CC					260
1077	95% Percentile Bootstrap UTL with 95% Coverage					45.5	95% BCA Bootstrap UTL with 95% Coverage					45.5
1078	95% UPL					32.99	90% Percentile					27.4
1079	90% Chebyshev UPL					54.09	95% Percentile					32
1080	95% Chebyshev UPL					69.85	99% Percentile					69.3
1081	95% USL					106						
1082												
1083	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1084	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1085	and consists of observations collected from clean unimpacted locations.											
1086	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1087	represents a background data set and when many onsite observations need to be compared with the BTV.											
1088												
1089	AR_Pb <70											
1090												
1091	General Statistics											
1092	Total Number of Observations					259	Number of Distinct Observations					154
1093	Minimum					4.1	First Quartile					12.9
1094	Second Largest					69.3	Median					17.4
1095	Maximum					69.3	Third Quartile					22.25
1096	Mean					18.66	SD					8.766
1097	Coefficient of Variation					0.47	Skewness					2.407
1098	Mean of logged Data					2.838	SD of logged Data					0.415
1099												
1100	Critical Values for Background Threshold Values (BTVs)											
1101	Tolerance Factor K (For UTL)					1.811	d2max (for USL)					3.51
1102												
1103	Normal GOF Test											
1104	Shapiro Wilk Test Statistic					0.827	Normal GOF Test					
1105	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1106	Lilliefors Test Statistic					0.105	Lilliefors GOF Test					
1107	1% Lilliefors Critical Value					0.0641	Data Not Normal at 1% Significance Level					
1108	Data Not Normal at 1% Significance Level											
1109												
1110	Background Statistics Assuming Normal Distribution											
1111	95% UTL with 95% Coverage					34.53	90% Percentile (z)					29.89
1112	95% UPL (t)					33.16	95% Percentile (z)					33.08
1113	95% USL					49.42	99% Percentile (z)					39.05
1114												
1115	Gamma GOF Test											
1116	A-D Test Statistic					1.436	Anderson-Darling Gamma GOF Test					
1117	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level					
1118	K-S Test Statistic					0.0599	Kolmogorov-Smirnov Gamma GOF Test					
1119	5% K-S Critical Value					0.0569	Data Not Gamma Distributed at 5% Significance Level					
1120	Data Not Gamma Distributed at 5% Significance Level											
1121												
1122	Gamma Statistics											
1123	k hat (MLE)					5.819	k star (bias corrected MLE)					5.755
1124	Theta hat (MLE)					3.206	Theta star (bias corrected MLE)					3.242
1125	nu hat (MLE)					3014	nu star (bias corrected)					2981
1126	MLE Mean (bias corrected)					18.66	MLE Sd (bias corrected)					7.778
1127												
1128	Background Statistics Assuming Gamma Distribution											
1129	95% Wilson Hilferty (WH) Approx. Gamma UPL					32.95	90% Percentile					29.06
1130	95% Hawkins Wixley (HW) Approx. Gamma UPL					33.1	95% Percentile					33.01
1131	95% WH Approx. Gamma UTL with 95% Coverage					34.75	99% Percentile					41.32
1132	95% HW Approx. Gamma UTL with 95% Coverage					35						
1133	95% WH USL					58.65	95% HW USL					61.16
1134												
1135	Lognormal GOF Test											
1136	Shapiro Wilk Test Statistic					0.984	Shapiro Wilk Lognormal GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L
1137				10% Shapiro Wilk P Value		0.583						Data appear Lognormal at 10% Significance Level
1138				Lilliefors Test Statistic		0.0492						Lilliefors Lognormal GOF Test
1139				10% Lilliefors Critical Value		0.0508						Data appear Lognormal at 10% Significance Level
1140				Data appear Lognormal at 10% Significance Level								
1141												
1142				Background Statistics assuming Lognormal Distribution								
1143				95% UTL with 95% Coverage		36.19				90% Percentile (z)		29.06
1144				95% UPL (t)		33.91				95% Percentile (z)		33.78
1145				95% USL		73.2				99% Percentile (z)		44.81
1146												
1147				Nonparametric Distribution Free Background Statistics								
1148				Data appear Lognormal at 10% Significance Level								
1149												
1150				Nonparametric Upper Limits for Background Threshold Values								
1151				Order of Statistic, order		253				95% UTL with 95% Coverage		45.5
1152				Approx, f used to compute achieved CC		1.658				Approximate Actual Confidence Coefficient achieved by UTL		0.949
1153										Approximate Sample Size needed to achieve specified CC		234
1154				95% Percentile Bootstrap UTL with 95% Coverage		34.3				95% BCA Bootstrap UTL with 95% Coverage		34.3
1155				95% UPL		31.9				90% Percentile		26.9
1156				90% Chebyshev UPL		45.01				95% Percentile		31.81
1157				95% Chebyshev UPL		56.94				99% Percentile		53.47
1158				95% USL		69.3						
1159												
1160				Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.								
1161				Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers								
1162				and consists of observations collected from clean unimpacted locations.								
1163				The use of USL tends to provide a balance between false positives and false negatives provided the data								
1164				represents a background data set and when many onsite observations need to be compared with the BTV.								
1165												
1166				AR_Pb <48								
1167												
1168				General Statistics								
1169				Total Number of Observations		255				Number of Distinct Observations		151
1170				Minimum		4.1				First Quartile		12.85
1171				Second Largest		46.6				Median		17.2
1172				Maximum		47.5				Third Quartile		22.15
1173				Mean		17.98				SD		6.888
1174				Coefficient of Variation		0.383				Skewness		1.072
1175				Mean of logged Data		2.818				SD of logged Data		0.385
1176												
1177				Critical Values for Background Threshold Values (BTVs)								
1178				Tolerance Factor K (For UTL)		1.813				d2max (for USL)		3.505
1179												
1180				Normal GOF Test								
1181				Shapiro Wilk Test Statistic		0.939				Normal GOF Test		
1182				1% Shapiro Wilk P Value		3.092E-13				Data Not Normal at 1% Significance Level		
1183				Lilliefors Test Statistic		0.0736				Lilliefors GOF Test		
1184				1% Lilliefors Critical Value		0.0646				Data Not Normal at 1% Significance Level		
1185				Data Not Normal at 1% Significance Level								
1186												
1187				Background Statistics Assuming Normal Distribution								
1188				95% UTL with 95% Coverage		30.47				90% Percentile (z)		26.81
1189				95% UPL (t)		29.38				95% Percentile (z)		29.31
1190				95% USL		42.13				99% Percentile (z)		34.01
1191												
1192				Gamma GOF Test								
1193				A-D Test Statistic		0.292				Anderson-Darling Gamma GOF Test		
1194				5% A-D Critical Value		0.755				Detected data appear Gamma Distributed at 5% Significance Level		
1195				K-S Test Statistic		0.0322				Kolmogorov-Smirnov Gamma GOF Test		
1196				5% K-S Critical Value		0.0574				Detected data appear Gamma Distributed at 5% Significance Level		
1197				Detected data appear Gamma Distributed at 5% Significance Level								
1198												
1199				Gamma Statistics								
1200				k hat (MLE)		7.152				k star (bias corrected MLE)		7.07
1201				Theta hat (MLE)		2.514				Theta star (bias corrected MLE)		2.543
1202				nu hat (MLE)		3647				nu star (bias corrected)		3606
1203				MLE Mean (bias corrected)		17.98				MLE Sd (bias corrected)		6.763
1204												
1205				Background Statistics Assuming Gamma Distribution								
1206				95% Wilson Hilferty (WH) Approx. Gamma UPL		30.37				90% Percentile		27.01
1207				95% Hawkins Wixley (HW) Approx. Gamma UPL		30.62				95% Percentile		30.36

	A	B	C	D	E	F	G	H	I	J	K	L
1208	95% WH Approx. Gamma UTL with 95% Coverage					31.9	99% Percentile					37.32
1209	95% HW Approx. Gamma UTL with 95% Coverage					32.25						
1210	95% WH USL					51.68	95% HW USL					53.99
1211												
1212	Lognormal GOF Test											
1213	Shapiro Wilk Test Statistic					0.986	Shapiro Wilk Lognormal GOF Test					
1214	10% Shapiro Wilk P Value					0.713	Data appear Lognormal at 10% Significance Level					
1215	Lilliefors Test Statistic					0.039	Lilliefors Lognormal GOF Test					
1216	10% Lilliefors Critical Value					0.0512	Data appear Lognormal at 10% Significance Level					
1217	Data appear Lognormal at 10% Significance Level											
1218												
1219	Background Statistics assuming Lognormal Distribution											
1220	95% UTL with 95% Coverage					33.65	90% Percentile (z)					27.43
1221	95% UPL (t)					31.66	95% Percentile (z)					31.55
1222	95% USL					64.58	99% Percentile (z)					41.01
1223												
1224	Nonparametric Distribution Free Background Statistics											
1225	Data appear Gamma Distributed at 5% Significance Level											
1226												
1227	Nonparametric Upper Limits for Background Threshold Values											
1228	Order of Statistic, order					249	95% UTL with 95% Coverage					33.1
1229	Approx, f used to compute achieved CC					1.632	Approximate Actual Confidence Coefficient achieved by UTL					0.943
1230							Approximate Sample Size needed to achieve specified CC					234
1231	95% Percentile Bootstrap UTL with 95% Coverage					31.9	95% BCA Bootstrap UTL with 95% Coverage					31.9
1232	95% UPL					30.8	90% Percentile					26.48
1233	90% Chebyshev UPL					38.69	95% Percentile					29.37
1234	95% Chebyshev UPL					48.06	99% Percentile					41.29
1235	95% USL					47.5						
1236												
1237	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1238	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1239	and consists of observations collected from clean unimpacted locations.											
1240	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1241	represents a background data set and when many onsite observations need to be compared with the BTV.											
1242												
1243	AR_Pb <38											
1244												
1245	General Statistics											
1246	Total Number of Observations					252	Number of Distinct Observations					148
1247	Minimum					4.1	First Quartile					12.8
1248	Second Largest					34.3	Median					17.1
1249	Maximum					37.7	Third Quartile					22.1
1250	Mean					17.64	SD					6.176
1251	Coefficient of Variation					0.35	Skewness					0.479
1252	Mean of logged Data					2.806	SD of logged Data					0.371
1253												
1254	Critical Values for Background Threshold Values (BTVs)											
1255	Tolerance Factor K (For UTL)					1.814	d2max (for USL)					3.502
1256												
1257	Normal GOF Test											
1258	Shapiro Wilk Test Statistic					0.969	Normal GOF Test					
1259	1% Shapiro Wilk P Value					0.00346	Data Not Normal at 1% Significance Level					
1260	Lilliefors Test Statistic					0.0685	Lilliefors GOF Test					
1261	1% Lilliefors Critical Value					0.065	Data Not Normal at 1% Significance Level					
1262	Data Not Normal at 1% Significance Level											
1263												
1264	Background Statistics Assuming Normal Distribution											
1265	95% UTL with 95% Coverage					28.84	90% Percentile (z)					25.56
1266	95% UPL (t)					27.86	95% Percentile (z)					27.8
1267	95% USL					39.27	99% Percentile (z)					32.01
1268												
1269	Gamma GOF Test											
1270	A-D Test Statistic					0.314	Anderson-Darling Gamma GOF Test					
1271	5% A-D Critical Value					0.755	Detected data appear Gamma Distributed at 5% Significance Level					
1272	K-S Test Statistic					0.0465	Kolmogorov-Smirnov Gamma GOF Test					
1273	5% K-S Critical Value					0.0577	Detected data appear Gamma Distributed at 5% Significance Level					
1274	Detected data appear Gamma Distributed at 5% Significance Level											
1275												
1276	Gamma Statistics											
1277	k hat (MLE)					7.9	k star (bias corrected MLE)					7.809
1278	Theta hat (MLE)					2.233	Theta star (bias corrected MLE)					2.259

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	A	B	C	D	E	F	G	H	I	J	K	L
1279	nu hat (MLE)					3982	nu star (bias corrected)					3935
1280	MLE Mean (bias corrected)					17.64	MLE Sd (bias corrected)					6.314
1281												
1282	Background Statistics Assuming Gamma Distribution											
1283	95% Wilson Hilferty (WH) Approx. Gamma UPL					29.17	90% Percentile					26.06
1284	95% Hawkins Wixley (HW) Approx. Gamma UPL					29.45	95% Percentile					29.15
1285	95% WH Approx. Gamma UTL with 95% Coverage					30.6	99% Percentile					35.54
1286	95% HW Approx. Gamma UTL with 95% Coverage					30.96						
1287	95% WH USL					48.62	95% HW USL					50.79
1288												
1289	Lognormal GOF Test											
1290	Shapiro Wilk Test Statistic					0.976	Shapiro Wilk Lognormal GOF Test					
1291	10% Shapiro Wilk P Value					0.0803	Data Not Lognormal at 10% Significance Level					
1292	Lilliefors Test Statistic					0.0487	Lilliefors Lognormal GOF Test					
1293	10% Lilliefors Critical Value					0.0515	Data appear Lognormal at 10% Significance Level					
1294	Data appear Approximate Lognormal at 10% Significance Level											
1295												
1296	Background Statistics assuming Lognormal Distribution											
1297	95% UTL with 95% Coverage					32.4	90% Percentile (z)					26.6
1298	95% UPL (t)					30.54	95% Percentile (z)					30.44
1299	95% USL					60.59	99% Percentile (z)					39.19
1300												
1301	Nonparametric Distribution Free Background Statistics											
1302	Data appear Gamma Distributed at 5% Significance Level											
1303												
1304	Nonparametric Upper Limits for Background Threshold Values											
1305	Order of Statistic, order					246	95% UTL with 95% Coverage					31.8
1306	Approx, f used to compute achieved CC					1.612	Approximate Actual Confidence Coefficient achieved by UTL					0.938
1307							Approximate Sample Size needed to achieve specified CC					234
1308	95% Percentile Bootstrap UTL with 95% Coverage					31.29	95% BCA Bootstrap UTL with 95% Coverage					31.29
1309	95% UPL					28.57	90% Percentile					25.82
1310	90% Chebyshev UPL					36.21	95% Percentile					28.45
1311	95% Chebyshev UPL					44.62	99% Percentile					33.1
1312	95% USL					37.7						
1313												
1314	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1315	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1316	and consists of observations collected from clean unimpacted locations.											
1317	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1318	represents a background data set and when many onsite observations need to be compared with the BTV.											
1319												
1320	AZ_As											
1321												
1322	General Statistics											
1323	Total Number of Observations					530	Number of Distinct Observations					125
1324	Minimum					1.1	First Quartile					3.6
1325	Second Largest					32	Median					5.3
1326	Maximum					46.8	Third Quartile					7.1
1327	Mean					6.136	SD					4.55
1328	Coefficient of Variation					0.742	Skewness					3.528
1329	Mean of logged Data					1.634	SD of logged Data					0.579
1330												
1331	Critical Values for Background Threshold Values (BTVs)											
1332	Tolerance Factor K (For UTL)					1.759	d2max (for USL)					3.711
1333												
1334	Normal GOF Test											
1335	Shapiro Wilk Test Statistic					0.716	Normal GOF Test					
1336	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1337	Lilliefors Test Statistic					0.186	Lilliefors GOF Test					
1338	1% Lilliefors Critical Value					0.0449	Data Not Normal at 1% Significance Level					
1339	Data Not Normal at 1% Significance Level											
1340												
1341	Background Statistics Assuming Normal Distribution											
1342	95% UTL with 95% Coverage					14.14	90% Percentile (z)					11.97
1343	95% UPL (t)					13.64	95% Percentile (z)					13.62
1344	95% USL					23.02	99% Percentile (z)					16.72
1345												
1346	Gamma GOF Test											
1347	A-D Test Statistic					6.033	Anderson-Darling Gamma GOF Test					
1348	5% A-D Critical Value					0.762	Data Not Gamma Distributed at 5% Significance Level					
1349	K-S Test Statistic					0.0976	Kolmogorov-Smirnov Gamma GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L	
1350	5% K-S Critical Value					0.0401	Data Not Gamma Distributed at 5% Significance Level						
1351	Data Not Gamma Distributed at 5% Significance Level												
1352													
1353	Gamma Statistics												
1354	k hat (MLE)					2.935	k star (bias corrected MLE)					2.919	
1355	Theta hat (MLE)					2.091	Theta star (bias corrected MLE)					2.102	
1356	nu hat (MLE)					3111	nu star (bias corrected)					3095	
1357	MLE Mean (bias corrected)					6.136	MLE Sd (bias corrected)					3.591	
1358													
1359	Background Statistics Assuming Gamma Distribution												
1360	95% Wilson Hilferty (WH) Approx. Gamma UPL					12.84	90% Percentile					10.95	
1361	95% Hawkins Wixley (HW) Approx. Gamma UPL					12.88	95% Percentile					12.98	
1362	95% WH Approx. Gamma UTL with 95% Coverage					13.49	99% Percentile					17.38	
1363	95% HW Approx. Gamma UTL with 95% Coverage					13.57							
1364	95% WH USL					28.99	95% HW USL					31.12	
1365													
1366	Lognormal GOF Test												
1367	Shapiro Wilk Test Statistic					0.977	Shapiro Wilk Lognormal GOF Test						
1368	10% Shapiro Wilk P Value					0.00532	Data Not Lognormal at 10% Significance Level						
1369	Lilliefors Test Statistic					0.0661	Lilliefors Lognormal GOF Test						
1370	10% Lilliefors Critical Value					0.0355	Data Not Lognormal at 10% Significance Level						
1371	Data Not Lognormal at 10% Significance Level												
1372													
1373	Background Statistics assuming Lognormal Distribution												
1374	95% UTL with		95% Coverage		14.18	90% Percentile (z)					10.76		
1375			95% UPL (t)		13.31	95% Percentile (z)					13.28		
1376			95% USL		43.88	99% Percentile (z)					19.69		
1377													
1378	Nonparametric Distribution Free Background Statistics												
1379	Data do not follow a Discernible Distribution												
1380													
1381	Nonparametric Upper Limits for Background Threshold Values												
1382	Order of Statistic, order				512	95% UTL with 95% Coverage					15		
1383	Approx, f used to compute achieved CC				1.345	Approximate Actual Confidence Coefficient achieved by UTL					0.924		
1384						Approximate Sample Size needed to achieve specified CC					529		
1385	95% Percentile Bootstrap UTL with		95% Coverage		14.6	95% BCA Bootstrap UTL with 95% Coverage					14.64		
1386			95% UPL		13.53	90% Percentile					10.4		
1387			90% Chebyshev UPL		19.8	95% Percentile					13.12		
1388			95% Chebyshev UPL		25.99	99% Percentile					26.04		
1389			95% USL		46.8								
1390													
1391	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1392	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1393	and consists of observations collected from clean unimpacted locations.												
1394	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1395	represents a background data set and when many onsite observations need to be compared with the BTV.												
1396													
1397	AZ_As <33												
1398													
1399	General Statistics												
1400	Total Number of Observations				529	Number of Distinct Observations					124		
1401	Minimum				1.1	First Quartile					3.6		
1402	Second Largest				31.1	Median					5.3		
1403	Maximum				32	Third Quartile					7.1		
1404	Mean				6.059	SD					4.196		
1405	Coefficient of Variation				0.693	Skewness					2.832		
1406	Mean of logged Data				1.63	SD of logged Data					0.571		
1407													
1408	Critical Values for Background Threshold Values (BTVs)												
1409	Tolerance Factor K (For UTL)				1.759	d2max (for USL)					3.71		
1410													
1411	Normal GOF Test												
1412	Shapiro Wilk Test Statistic				0.749	Normal GOF Test							
1413	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level							
1414	Lilliefors Test Statistic				0.169	Lilliefors GOF Test							
1415	1% Lilliefors Critical Value				0.0449	Data Not Normal at 1% Significance Level							
1416	Data Not Normal at 1% Significance Level												
1417													
1418	Background Statistics Assuming Normal Distribution												
1419	95% UTL with		95% Coverage		13.44	90% Percentile (z)					11.44		
1420			95% UPL (t)		12.98	95% Percentile (z)					12.96		

	A	B	C	D	E	F	G	H	I	J	K	L
1421	95% USL					21.63	99% Percentile (z)					15.82
1422												
1423	Gamma GOF Test											
1424	A-D Test Statistic					5.009	Anderson-Darling Gamma GOF Test					
1425	5% A-D Critical Value					0.761	Data Not Gamma Distributed at 5% Significance Level					
1426	K-S Test Statistic					0.0896	Kolmogorov-Smirnov Gamma GOF Test					
1427	5% K-S Critical Value					0.0401	Data Not Gamma Distributed at 5% Significance Level					
1428	Data Not Gamma Distributed at 5% Significance Level											
1429												
1430	Gamma Statistics											
1431	k hat (MLE)					3.072	k star (bias corrected MLE)					3.056
1432	Theta hat (MLE)					1.972	Theta star (bias corrected MLE)					1.983
1433	nu hat (MLE)					3250	nu star (bias corrected)					3233
1434	MLE Mean (bias corrected)					6.059	MLE Sd (bias corrected)					3.466
1435												
1436	Background Statistics Assuming Gamma Distribution											
1437	95% Wilson Hilferty (WH) Approx. Gamma UPL					12.54	90% Percentile					10.71
1438	95% Hawkins Wixley (HW) Approx. Gamma UPL					12.61	95% Percentile					12.65
1439	95% WH Approx. Gamma UTL with 95% Coverage					13.17	99% Percentile					16.85
1440	95% HW Approx. Gamma UTL with 95% Coverage					13.27						
1441	95% WH USL					27.96	95% HW USL					30.07
1442												
1443	Lognormal GOF Test											
1444	Shapiro Wilk Test Statistic					0.975	Shapiro Wilk Lognormal GOF Test					
1445	10% Shapiro Wilk P Value					0.00143	Data Not Lognormal at 10% Significance Level					
1446	Lilliefors Test Statistic					0.0625	Lilliefors Lognormal GOF Test					
1447	10% Lilliefors Critical Value					0.0356	Data Not Lognormal at 10% Significance Level					
1448	Data Not Lognormal at 10% Significance Level											
1449												
1450	Background Statistics assuming Lognormal Distribution											
1451	95% UTL with 95% Coverage					13.94	90% Percentile (z)					10.61
1452	95% UPL (t)					13.09	95% Percentile (z)					13.06
1453	95% USL					42.48	99% Percentile (z)					19.27
1454												
1455	Nonparametric Distribution Free Background Statistics											
1456	Data do not follow a Discernible Distribution											
1457												
1458	Nonparametric Upper Limits for Background Threshold Values											
1459	Order of Statistic, order					512	95% UTL with 95% Coverage					15
1460	Approx. f used to compute achieved CC					1.416	Approximate Actual Confidence Coefficient achieved by UTL					0.95
1461							Approximate Sample Size needed to achieve specified CC					506
1462	95% Percentile Bootstrap UTL with 95% Coverage					14.32	95% BCA Bootstrap UTL with 95% Coverage					14.26
1463	95% UPL					13.1	90% Percentile					10.4
1464	90% Chebyshev UPL					18.66	95% Percentile					12.86
1465	95% Chebyshev UPL					24.37	99% Percentile					24.45
1466	95% USL					32						
1467												
1468	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1469	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1470	and consists of observations collected from clean unimpacted locations.											
1471	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1472	represents a background data set and when many onsite observations need to be compared with the BTV.											
1473												
1474	AZ_As <27											
1475												
1476	General Statistics											
1477	Total Number of Observations					525	Number of Distinct Observations					120
1478	Minimum					1.1	First Quartile					3.5
1479	Second Largest					24.9	Median					5.2
1480	Maximum					26.5	Third Quartile					7
1481	Mean					5.873	SD					3.626
1482	Coefficient of Variation					0.617	Skewness					2.223
1483	Mean of logged Data					1.616	SD of logged Data					0.551
1484												
1485	Critical Values for Background Threshold Values (BTVs)											
1486	Tolerance Factor K (For UTL)					1.76	d2max (for USL)					3.708
1487												
1488	Normal GOF Test											
1489	Shapiro Wilk Test Statistic					0.815	Normal GOF Test					
1490	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1491	Lilliefors Test Statistic					0.14	Lilliefors GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L	
1492	1% Lilliefors Critical Value					0.0451	Data Not Normal at 1% Significance Level						
1493	Data Not Normal at 1% Significance Level												
1494													
1495	Background Statistics Assuming Normal Distribution												
1496	95% UTL with		95% Coverage	12.25	90% Percentile (z)							10.52	
1497			95% UPL (t)	11.85	95% Percentile (z)							11.84	
1498			95% USL	19.32	99% Percentile (z)							14.31	
1499													
1500	Gamma GOF Test												
1501	A-D Test Statistic			2.922	Anderson-Darling Gamma GOF Test								
1502	5% A-D Critical Value			0.76	Data Not Gamma Distributed at 5% Significance Level								
1503	K-S Test Statistic			0.0715	Kolmogorov-Smirnov Gamma GOF Test								
1504	5% K-S Critical Value			0.0401	Data Not Gamma Distributed at 5% Significance Level								
1505	Data Not Gamma Distributed at 5% Significance Level												
1506													
1507	Gamma Statistics												
1508	k hat (MLE)			3.406	k star (bias corrected MLE)							3.388	
1509	Theta hat (MLE)			1.724	Theta star (bias corrected MLE)							1.734	
1510	nu hat (MLE)			3576	nu star (bias corrected)							3557	
1511	MLE Mean (bias corrected)			5.873	MLE Sd (bias corrected)							3.191	
1512													
1513	Background Statistics Assuming Gamma Distribution												
1514	95% Wilson Hilferty (WH) Approx. Gamma UPL			11.85	90% Percentile							10.15	
1515	95% Hawkins Wixley (HW) Approx. Gamma UPL			11.95	95% Percentile							11.91	
1516	95% WH Approx. Gamma UTL with		95% Coverage	12.41	99% Percentile							15.69	
1517	95% HW Approx. Gamma UTL with		95% Coverage	12.56									
1518			95% WH USL	25.66	95% HW USL							27.62	
1519													
1520	Lognormal GOF Test												
1521	Shapiro Wilk Test Statistic			0.978	Shapiro Wilk Lognormal GOF Test								
1522	10% Shapiro Wilk P Value			0.022	Data Not Lognormal at 10% Significance Level								
1523	Lilliefors Test Statistic			0.0539	Lilliefors Lognormal GOF Test								
1524	10% Lilliefors Critical Value			0.0357	Data Not Lognormal at 10% Significance Level								
1525	Data Not Lognormal at 10% Significance Level												
1526													
1527	Background Statistics assuming Lognormal Distribution												
1528	95% UTL with		95% Coverage	13.29	90% Percentile (z)							10.21	
1529			95% UPL (t)	12.5	95% Percentile (z)							12.47	
1530			95% USL	38.91	99% Percentile (z)							18.16	
1531													
1532	Nonparametric Distribution Free Background Statistics												
1533	Data do not follow a Discernible Distribution												
1534													
1535	Nonparametric Upper Limits for Background Threshold Values												
1536	Order of Statistic, order			508	95% UTL with 95% Coverage							13.9	
1537	Approx, f used to compute achieved CC			1.404	Approximate Actual Confidence Coefficient achieved by UTL							0.946	
1538					Approximate Sample Size needed to achieve specified CC							506	
1539	95% Percentile Bootstrap UTL with		95% Coverage	13.8	95% BCA Bootstrap UTL with 95% Coverage							13.8	
1540			95% UPL	12.6	90% Percentile							10.16	
1541			90% Chebyshev UPL	16.76	95% Percentile							12.58	
1542			95% Chebyshev UPL	21.69	99% Percentile							21.41	
1543			95% USL	26.5									
1544													
1545	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1546	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1547	and consists of observations collected from clean unpacted locations.												
1548	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1549	represents a background data set and when many onsite observations need to be compared with the BTV.												
1550													
1551	AZ_As <20												
1552													
1553	General Statistics												
1554	Total Number of Observations			518	Number of Distinct Observations							113	
1555	Minimum			1.1	First Quartile							3.5	
1556	Second Largest			19.4	Median							5.2	
1557	Maximum			19.5	Third Quartile							6.8	
1558	Mean			5.638	SD							3.021	
1559	Coefficient of Variation			0.536	Skewness							1.45	
1560	Mean of logged Data			1.596	SD of logged Data							0.525	
1561													
1562	Critical Values for Background Threshold Values (BTVs)												

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	A	B	C	D	E	F	G	H	I	J	K	L
1563	Tolerance Factor K (For UTL)					1.76	d2max (for USL)					3.705
1564												
1565	Normal GOF Test											
1566	Shapiro Wilk Test Statistic					0.889	Normal GOF Test					
1567	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1568	Lilliefors Test Statistic					0.101	Lilliefors GOF Test					
1569	1% Lilliefors Critical Value					0.0454	Data Not Normal at 1% Significance Level					
1570	Data Not Normal at 1% Significance Level											
1571												
1572	Background Statistics Assuming Normal Distribution											
1573	95% UTL with	95% Coverage			10.96	90% Percentile (z)					9.509	
1574		95% UPL (t)			10.62	95% Percentile (z)					10.61	
1575		95% USL			16.83	99% Percentile (z)					12.67	
1576												
1577	Gamma GOF Test											
1578	A-D Test Statistic					1.217	Anderson-Darling Gamma GOF Test					
1579	5% A-D Critical Value					0.759	Data Not Gamma Distributed at 5% Significance Level					
1580	K-S Test Statistic					0.0494	Kolmogorov-Smirnov Gamma GOF Test					
1581	5% K-S Critical Value					0.0402	Data Not Gamma Distributed at 5% Significance Level					
1582	Data Not Gamma Distributed at 5% Significance Level											
1583												
1584	Gamma Statistics											
1585	k hat (MLE)					3.898	k star (bias corrected MLE)					3.877
1586	Theta hat (MLE)					1.446	Theta star (bias corrected MLE)					1.454
1587	nu hat (MLE)					4038	nu star (bias corrected)					4016
1588	MLE Mean (bias corrected)					5.638	MLE Sd (bias corrected)					2.863
1589												
1590	Background Statistics Assuming Gamma Distribution											
1591	95% Wilson Hilferty (WH) Approx.	Gamma UPL			11	90% Percentile					9.476	
1592	95% Hawkins Wixley (HW) Approx.	Gamma UPL			11.13	95% Percentile					11.02	
1593	95% WH Approx.	Gamma UTL with	95% Coverage		11.5	99% Percentile					14.32	
1594	95% HW Approx.	Gamma UTL with	95% Coverage		11.67							
1595		95% WH USL			22.93	95% HW USL					24.7	
1596												
1597	Lognormal GOF Test											
1598	Shapiro Wilk Test Statistic					0.977	Shapiro Wilk Lognormal GOF Test					
1599	10% Shapiro Wilk P Value					0.007	Data Not Lognormal at 10% Significance Level					
1600	Lilliefors Test Statistic					0.0467	Lilliefors Lognormal GOF Test					
1601	10% Lilliefors Critical Value					0.0359	Data Not Lognormal at 10% Significance Level					
1602	Data Not Lognormal at 10% Significance Level											
1603												
1604	Background Statistics assuming Lognormal Distribution											
1605	95% UTL with	95% Coverage			12.44	90% Percentile (z)					9.671	
1606		95% UPL (t)			11.73	95% Percentile (z)					11.71	
1607		95% USL			34.55	99% Percentile (z)					16.75	
1608												
1609	Nonparametric Distribution Free Background Statistics											
1610	Data do not follow a Discernible Distribution											
1611												
1612	Nonparametric Upper Limits for Background Threshold Values											
1613	Order of Statistic, order					501	95% UTL with 95% Coverage					12.8
1614	Approx, f used to compute achieved CC					1.385	Approximate Actual Confidence Coefficient achieved by UTL					0.938
1615							Approximate Sample Size needed to achieve specified CC					506
1616	95% Percentile Bootstrap UTL with	95% Coverage			12.6	95% BCA Bootstrap UTL with 95% Coverage					12.6	
1617		95% UPL			11.92	90% Percentile					9.43	
1618		90% Chebyshev UPL			14.71	95% Percentile					11.82	
1619		95% Chebyshev UPL			18.82	99% Percentile					15.75	
1620		95% USL			19.5							
1621												
1622	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1623	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1624	and consists of observations collected from clean unimpacted locations.											
1625	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1626	represents a background data set and when many onsite observations need to be compared with the BTV.											
1627												
1628	AZ_Pb											
1629												
1630	General Statistics											
1631	Total Number of Observations					530	Number of Distinct Observations					256
1632	Minimum					3.6	First Quartile					13.8
1633	Second Largest					123	Median					18.7

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L
1634					Maximum	161					Third Quartile	24.8
1635					Mean	21.14					SD	13.54
1636					Coefficient of Variation	0.641					Skewness	4.596
1637					Mean of logged Data	2.925					SD of logged Data	0.481
1638												
1639					Critical Values for Background Threshold Values (BTVs)							
1640					Tolerance Factor K (For UTL)	1.759					d2max (for USL)	3.711
1641												
1642					Normal GOF Test							
1643					Shapiro Wilk Test Statistic	0.682					Normal GOF Test	
1644					1% Shapiro Wilk P Value	0					Data Not Normal at 1% Significance Level	
1645					Lilliefors Test Statistic	0.148					Lilliefors GOF Test	
1646					1% Lilliefors Critical Value	0.0449					Data Not Normal at 1% Significance Level	
1647					Data Not Normal at 1% Significance Level							
1648												
1649					Background Statistics Assuming Normal Distribution							
1650					95% UTL with 95% Coverage	44.96					90% Percentile (z)	38.5
1651					95% UPL (t)	43.48					95% Percentile (z)	43.42
1652					95% USL	71.4					99% Percentile (z)	52.65
1653												
1654					Gamma GOF Test							
1655					A-D Test Statistic	5.2					Anderson-Darling Gamma GOF Test	
1656					5% A-D Critical Value	0.759					Data Not Gamma Distributed at 5% Significance Level	
1657					K-S Test Statistic	0.0675					Kolmogorov-Smirnov Gamma GOF Test	
1658					5% K-S Critical Value	0.0399					Data Not Gamma Distributed at 5% Significance Level	
1659					Data Not Gamma Distributed at 5% Significance Level							
1660												
1661					Gamma Statistics							
1662					k hat (MLE)	4.133					k star (bias corrected MLE)	4.111
1663					Theta hat (MLE)	5.115					Theta star (bias corrected MLE)	5.143
1664					nu hat (MLE)	4381					nu star (bias corrected)	4357
1665					MLE Mean (bias corrected)	21.14					MLE Sd (bias corrected)	10.43
1666												
1667					Background Statistics Assuming Gamma Distribution							
1668					95% Wilson Hilferty (WH) Approx. Gamma UPL	40.33					90% Percentile	35.11
1669					95% Hawkins Wixley (HW) Approx. Gamma UPL	40.36					95% Percentile	40.68
1670					95% WH Approx. Gamma UTL with 95% Coverage	42.1					99% Percentile	52.56
1671					95% HW Approx. Gamma UTL with 95% Coverage	42.22						
1672					95% WH USL	82.77					95% HW USL	87.1
1673												
1674					Lognormal GOF Test							
1675					Shapiro Wilk Test Statistic	0.978					Shapiro Wilk Lognormal GOF Test	
1676					10% Shapiro Wilk P Value	0.0144					Data Not Lognormal at 10% Significance Level	
1677					Lilliefors Test Statistic	0.046					Lilliefors Lognormal GOF Test	
1678					10% Lilliefors Critical Value	0.0355					Data Not Lognormal at 10% Significance Level	
1679					Data Not Lognormal at 10% Significance Level							
1680												
1681					Background Statistics assuming Lognormal Distribution							
1682					95% UTL with 95% Coverage	43.42					90% Percentile (z)	34.52
1683					95% UPL (t)	41.19					95% Percentile (z)	41.1
1684					95% USL	111					99% Percentile (z)	57.04
1685												
1686					Nonparametric Distribution Free Background Statistics							
1687					Data do not follow a Discernible Distribution							
1688												
1689					Nonparametric Upper Limits for Background Threshold Values							
1690					Order of Statistic, order	512					95% UTL with 95% Coverage	42.5
1691					Approx, f used to compute achieved CC	1.345					Approximate Actual Confidence Coefficient achieved by UTL	0.924
1692											Approximate Sample Size needed to achieve specified CC	529
1693					95% Percentile Bootstrap UTL with 95% Coverage	40.6					95% BCA Bootstrap UTL with 95% Coverage	40.6
1694					95% UPL	37.89					90% Percentile	31.7
1695					90% Chebyshev UPL	61.81					95% Percentile	37.76
1696					95% Chebyshev UPL	80.23					99% Percentile	77.92
1697					95% USL	161						
1698												
1699					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
1700					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
1701					and consists of observations collected from clean unimpacted locations.							
1702					The use of USL tends to provide a balance between false positives and false negatives provided the data							
1703					represents a background data set and when many onsite observations need to be compared with the BTV.							
1704												

	A	B	C	D	E	F	G	H	I	J	K	L
1705	AZ_Pb <93											
1706												
1707	General Statistics											
1708	Total Number of Observations					526	Number of Distinct Observations					252
1709	Minimum					3.6	First Quartile					13.8
1710	Second Largest					78.7	Median					18.6
1711	Maximum					92.1	Third Quartile					24.65
1712	Mean					20.36	SD					10.02
1713	Coefficient of Variation					0.492	Skewness					2.221
1714	Mean of logged Data					2.911	SD of logged Data					0.453
1715												
1716	Critical Values for Background Threshold Values (BTVs)											
1717	Tolerance Factor K (For UTL)					1.759	d2max (for USL)					3.709
1718												
1719	Normal GOF Test											
1720	Shapiro Wilk Test Statistic					0.859	Normal GOF Test					
1721	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1722	Lilliefors Test Statistic					0.0975	Lilliefors GOF Test					
1723	1% Lilliefors Critical Value					0.0451	Data Not Normal at 1% Significance Level					
1724	Data Not Normal at 1% Significance Level											
1725												
1726	Background Statistics Assuming Normal Distribution											
1727	95% UTL with	95% Coverage				37.99	90% Percentile (z)					33.2
1728		95% UPL (t)				36.89	95% Percentile (z)					36.84
1729		95% USL				57.53	99% Percentile (z)					43.67
1730												
1731	Gamma GOF Test											
1732	A-D Test Statistic					1.377	Anderson-Darling Gamma GOF Test					
1733	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level					
1734	K-S Test Statistic					0.0365	Kolmogorov-Smirnov Gamma GOF Test					
1735	5% K-S Critical Value					0.04	Detected data appear Gamma Distributed at 5% Significance Level					
1736	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
1737												
1738	Gamma Statistics											
1739	k hat (MLE)					5.035	k star (bias corrected MLE)					5.008
1740	Theta hat (MLE)					4.044	Theta star (bias corrected MLE)					4.066
1741	nu hat (MLE)					5297	nu star (bias corrected)					5268
1742	MLE Mean (bias corrected)					20.36	MLE Sd (bias corrected)					9.099
1743												
1744	Background Statistics Assuming Gamma Distribution											
1745	95% Wilson Hiferty (WH) Approx. Gamma UPL					37.16	90% Percentile					32.54
1746	95% Hawkins Wixley (HW) Approx. Gamma UPL					37.44	95% Percentile					37.26
1747	95% WH Approx. Gamma UTL with	95% Coverage				38.67	99% Percentile					47.23
1748	95% HW Approx. Gamma UTL with	95% Coverage				39.05						
1749		95% WH USL				72.58	95% HW USL					76.83
1750												
1751	Lognormal GOF Test											
1752	Shapiro Wilk Test Statistic					0.987	Shapiro Wilk Lognormal GOF Test					
1753	10% Shapiro Wilk P Value					0.756	Data appear Lognormal at 10% Significance Level					
1754	Lilliefors Test Statistic					0.0355	Lilliefors Lognormal GOF Test					
1755	10% Lilliefors Critical Value					0.0357	Data appear Lognormal at 10% Significance Level					
1756	Data appear Lognormal at 10% Significance Level											
1757												
1758	Background Statistics assuming Lognormal Distribution											
1759	95% UTL with	95% Coverage				40.81	90% Percentile (z)					32.86
1760		95% UPL (t)				38.82	95% Percentile (z)					38.74
1761		95% USL				98.79	99% Percentile (z)					52.77
1762												
1763	Nonparametric Distribution Free Background Statistics											
1764	Data appear Approximate Gamma Distribution at 5% Significance Level											
1765												
1766	Nonparametric Upper Limits for Background Threshold Values											
1767	Order of Statistic, order					509	95% UTL with 95% Coverage					39.9
1768	Approx, f used to compute achieved CC					1.407	Approximate Actual Confidence Coefficient achieved by UTL					0.947
1769							Approximate Sample Size needed to achieve specified CC					506
1770	95% Percentile Bootstrap UTL with	95% Coverage				38.98	95% BCA Bootstrap UTL with	95% Coverage			39.13	
1771		95% UPL				36.83		90% Percentile			30.7	
1772		90% Chebyshev UPL				50.45		95% Percentile			36.43	
1773		95% Chebyshev UPL				64.08		99% Percentile			57.5	
1774		95% USL				92.1						
1775												

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L
1776	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1777	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1778	and consists of observations collected from clean unimpacted locations.											
1779	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1780	represents a background data set and when many onsite observations need to be compared with the BTV.											
1781												
1782	AZ_Pb <50											
1783												
1784	General Statistics											
1785	Total Number of Observations					517	Number of Distinct Observations					243
1786	Minimum					3.6	First Quartile					13.7
1787	Second Largest					48	Median					18.4
1788	Maximum					49.1	Third Quartile					24.4
1789	Mean					19.57	SD					7.932
1790	Coefficient of Variation					0.405	Skewness					0.747
1791	Mean of logged Data					2.889	SD of logged Data					0.425
1792												
1793	Critical Values for Background Threshold Values (BTVs)											
1794	Tolerance Factor K (For UTL)					1.76	d2max (for USL)					3.704
1795												
1796	Normal GOF Test											
1797	Shapiro Wilk Test Statistic					0.953	Normal GOF Test					
1798	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1799	Lilliefors Test Statistic					0.0689	Lilliefors GOF Test					
1800	1% Lilliefors Critical Value					0.0455	Data Not Normal at 1% Significance Level					
1801	Data Not Normal at 1% Significance Level											
1802												
1803	Background Statistics Assuming Normal Distribution											
1804	95% UTL with		95% Coverage		33.54	90% Percentile (z)					29.74	
1805			95% UPL (t)		32.66	95% Percentile (z)					32.62	
1806			95% USL		48.96	99% Percentile (z)					38.03	
1807												
1808	Gamma GOF Test											
1809	A-D Test Statistic					0.166	Anderson-Darling Gamma GOF Test					
1810	5% A-D Critical Value					0.756	Detected data appear Gamma Distributed at 5% Significance Level					
1811	K-S Test Statistic					0.0165	Kolmogorov-Smirnov Gamma GOF Test					
1812	5% K-S Critical Value					0.0402	Detected data appear Gamma Distributed at 5% Significance Level					
1813	Detected data appear Gamma Distributed at 5% Significance Level											
1814												
1815	Gamma Statistics											
1816	k hat (MLE)					6.046	k star (bias corrected MLE)					6.013
1817	Theta hat (MLE)					3.237	Theta star (bias corrected MLE)					3.256
1818	nu hat (MLE)					6252	nu star (bias corrected)					6217
1819	MLE Mean (bias corrected)					19.57	MLE Sd (bias corrected)					7.983
1820												
1821	Background Statistics Assuming Gamma Distribution											
1822	95% Wilson Hilferty (WH) Approx.		Gamma UPL		34.28	90% Percentile					30.25	
1823	95% Hawkins Wixley (HW) Approx.		Gamma UPL		34.66	95% Percentile					34.28	
1824	95% WH Approx.		Gamma UTL with 95% Coverage		35.58	99% Percentile					42.74	
1825	95% HW Approx.		Gamma UTL with 95% Coverage		36.05							
1826			95% WH USL		63.96	95% HW USL					67.8	
1827												
1828	Lognormal GOF Test											
1829	Shapiro Wilk Test Statistic					0.977	Shapiro Wilk Lognormal GOF Test					
1830	10% Shapiro Wilk P Value					0.00718	Data Not Lognormal at 10% Significance Level					
1831	Lilliefors Test Statistic					0.0436	Lilliefors Lognormal GOF Test					
1832	10% Lilliefors Critical Value					0.036	Data Not Lognormal at 10% Significance Level					
1833	Data Not Lognormal at 10% Significance Level											
1834												
1835	Background Statistics assuming Lognormal Distribution											
1836	95% UTL with		95% Coverage		38	90% Percentile (z)					31	
1837			95% UPL (t)		36.25	95% Percentile (z)					36.18	
1838			95% USL		86.82	99% Percentile (z)					48.33	
1839												
1840	Nonparametric Distribution Free Background Statistics											
1841	Data appear Gamma Distributed at 5% Significance Level											
1842												
1843	Nonparametric Upper Limits for Background Threshold Values											
1844	Order of Statistic, order					500	95% UTL with 95% Coverage					36.5
1845	Approx, f used to compute achieved CC					1.382	Approximate Actual Confidence Coefficient achieved by UTL					0.937
1846							Approximate Sample Size needed to achieve specified CC					506

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	A	B	C	D	E	F	G	H	I	J	K	L	
1847	95% Percentile Bootstrap UTL with 95% Coverage				36.1	95% BCA Bootstrap UTL with 95% Coverage				36			
1848	95% UPL				34.55	90% Percentile				29.94			
1849	90% Chebyshev UPL				43.39	95% Percentile				34.42			
1850	95% Chebyshev UPL				54.18	99% Percentile				42.2			
1851	95% USL				49.1								
1852													
1853	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1854	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1855	and consists of observations collected from clean unimpacted locations.												
1856	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1857	represents a background data set and when many onsite observations need to be compared with the BTV.												
1858													
1859	AZ_Pb <40												
1860													
1861	General Statistics												
1862	Total Number of Observations				509	Number of Distinct Observations				236			
1863	Minimum				3.6	First Quartile				13.7			
1864	Second Largest				39.2	Median				18.2			
1865	Maximum				39.9	Third Quartile				24.1			
1866	Mean				19.18	SD				7.336			
1867	Coefficient of Variation				0.382	Skewness				0.471			
1868	Mean of logged Data				2.875	SD of logged Data				0.413			
1869													
1870	Critical Values for Background Threshold Values (BTVs)												
1871	Tolerance Factor K (For UTL)				1.761	d2max (for USL)				3.7			
1872													
1873	Normal GOF Test												
1874	Shapiro Wilk Test Statistic				0.961	Normal GOF Test							
1875	1% Shapiro Wilk P Value				8.843E-12	Data Not Normal at 1% Significance Level							
1876	Lilliefors Test Statistic				0.06	Lilliefors GOF Test							
1877	1% Lilliefors Critical Value				0.0458	Data Not Normal at 1% Significance Level							
1878	Data Not Normal at 1% Significance Level												
1879													
1880	Background Statistics Assuming Normal Distribution												
1881	95% UTL with		95% Coverage	32.1			90% Percentile (z)		28.58				
1882			95% UPL (t)	31.28			95% Percentile (z)		31.25				
1883			95% USL	46.32			99% Percentile (z)		36.25				
1884													
1885	Gamma GOF Test												
1886	A-D Test Statistic				0.385	Anderson-Darling Gamma GOF Test							
1887	5% A-D Critical Value				0.755	Detected data appear Gamma Distributed at 5% Significance Level							
1888	K-S Test Statistic				0.0242	Kolmogorov-Smirnov Gamma GOF Test							
1889	5% K-S Critical Value				0.0403	Detected data appear Gamma Distributed at 5% Significance Level							
1890	Detected data appear Gamma Distributed at 5% Significance Level												
1891													
1892	Gamma Statistics												
1893	k hat (MLE)			6.496				k star (bias corrected MLE)			6.459		
1894	Theta hat (MLE)			2.953				Theta star (bias corrected MLE)			2.97		
1895	nu hat (MLE)			6612				nu star (bias corrected)			6575		
1896	MLE Mean (bias corrected)			19.18				MLE Sd (bias corrected)			7.548		
1897													
1898	Background Statistics Assuming Gamma Distribution												
1899	95% Wilson Hilferty (WH) Approx. Gamma UPL				33.05					90% Percentile		29.27	
1900	95% Hawkins Wixley (HW) Approx. Gamma UPL				33.44					95% Percentile		33.04	
1901	95% WH Approx. Gamma UTL with		95% Coverage	34.28					99% Percentile		40.94		
1902	95% HW Approx. Gamma UTL with		95% Coverage	34.75									
1903			95% WH USL	60.58					95% HW USL		64.16		
1904													
1905	Lognormal GOF Test												
1906	Shapiro Wilk Test Statistic				0.967	Shapiro Wilk Lognormal GOF Test							
1907	10% Shapiro Wilk P Value				1.2374E-7	Data Not Lognormal at 10% Significance Level							
1908	Lilliefors Test Statistic				0.0493	Lilliefors Lognormal GOF Test							
1909	10% Lilliefors Critical Value				0.0363	Data Not Lognormal at 10% Significance Level							
1910	Data Not Lognormal at 10% Significance Level												
1911													
1912	Background Statistics assuming Lognormal Distribution												
1913	95% UTL with		95% Coverage	36.67					90% Percentile (z)		30.08		
1914			95% UPL (t)	35.02					95% Percentile (z)		34.95		
1915			95% USL	81.64					99% Percentile (z)		46.31		
1916													
1917	Nonparametric Distribution Free Background Statistics												

2013 USGS BTV Evaluation

[illegible]

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.2 2/17/2024 11:24:00 AM								
4	From File			D:\Tramm\BACKGROUND EVAL\2013 USGS National Review\USGS_2013_Compiled_State_Data_Sorted.xls								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	CA_As											
12												
13	General Statistics											
14	Total Number of Observations			773		Number of Distinct Observations			165			
15	Minimum			0.3		First Quartile			2.9			
16	Second Largest			166		Median			5			
17	Maximum			217		Third Quartile			7.9			
18	Mean			6.601		SD			10.7			
19	Coefficient of Variation			1.621		Skewness			14.49			
20	Mean of logged Data			1.572		SD of logged Data			0.744			
21												
22	Critical Values for Background Threshold Values (BTVs)											
23	Tolerance Factor K (For UTL)			1.739		d2max (for USL)			3.811			
24												
25	Normal GOF Test											
26	Shapiro Wilk Test Statistic			0.323		Normal GOF Test						
27	1% Shapiro Wilk P Value			0		Data Not Normal at 1% Significance Level						
28	Lilliefors Test Statistic			0.29		Lilliefors GOF Test						
29	1% Lilliefors Critical Value			0.0372		Data Not Normal at 1% Significance Level						
30	Data Not Normal at 1% Significance Level											
31												
32	Background Statistics Assuming Normal Distribution											
33	95% UTL with		95% Coverage		25.2		90% Percentile (z)			20.31		
34			95% UPL (t)		24.23		95% Percentile (z)			24.2		
35			95% USL		47.37		99% Percentile (z)			31.49		
36												
37	Gamma GOF Test											
38	A-D Test Statistic			1.294E+28		Anderson-Darling Gamma GOF Test						
39	5% A-D Critical Value			0.77		Data Not Gamma Distributed at 5% Significance Level						
40	K-S Test Statistic			0.0658		Kolmogorov-Smirnov Gamma GOF Test						
41	5% K-S Critical Value			0.0346		Data Not Gamma Distributed at 5% Significance Level						
42	Data Not Gamma Distributed at 5% Significance Level											
43												
44	Gamma Statistics											
45	k hat (MLE)			1.735		k star (bias corrected MLE)			1.729			
46	Theta hat (MLE)			3.805		Theta star (bias corrected MLE)			3.818			
47	nu hat (MLE)			2682		nu star (bias corrected)			2673			
48	MLE Mean (bias corrected)			6.601		MLE Sd (bias corrected)			5.02			
49												
50	Background Statistics Assuming Gamma Distribution											
51	95% Wilson Hilferty (WH) Approx. Gamma UPL			15.64		90% Percentile			13.29			
52	95% Hawkins Wixley (HW) Approx. Gamma UPL			15.56		95% Percentile			16.41			
53	95% WH Approx. Gamma UTL with		95% Coverage		16.44		99% Percentile			23.38		
54	95% HW Approx. Gamma UTL with		95% Coverage		16.4							
55			95% WH USL		42.74		95% HW USL			46.7		
56												
57	Lognormal GOF Test											
58	Shapiro Wilk Test Statistic			0.986		Shapiro Wilk Lognormal GOF Test						
59	10% Shapiro Wilk P Value			0.455		Data appear Lognormal at 10% Significance Level						
60	Lilliefors Test Statistic			0.0329		Lilliefors Lognormal GOF Test						
61	10% Lilliefors Critical Value			0.0294		Data Not Lognormal at 10% Significance Level						
62	Data appear Approximate Lognormal at 10% Significance Level											
63												
64	Background Statistics assuming Lognormal Distribution											
65	95% UTL with		95% Coverage		17.56		90% Percentile (z)			12.5		
66			95% UPL (t)		16.41		95% Percentile (z)			16.38		
67			95% USL		82.06		99% Percentile (z)			27.19		
68												

	A	B	C	D	E	F	G	H	I	J	K	L
69	Nonparametric Distribution Free Background Statistics											
70	Data appear Approximate Lognormal at 10% Significance Level											
71												
72	Nonparametric Upper Limits for Background Threshold Values											
73	Order of Statistic, order					745	95% UTL with 95% Coverage					16
74	Approx, f used to compute achieved CC					1.305	Approximate Actual Confidence Coefficient achieved by UTL					0.939
75							Approximate Sample Size needed to achieve specified CC					763
76	95% Percentile Bootstrap UTL with 95% Coverage					15.34	95% BCA Bootstrap UTL with 95% Coverage					15.34
77	95% UPL					14.53	90% Percentile					11.28
78	90% Chebyshev UPL					38.72	95% Percentile					14.44
79	95% Chebyshev UPL					53.27	99% Percentile					23.53
80	95% USL					217						
81												
82	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
83	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
84	and consists of observations collected from clean unimpacted locations.											
85	The use of USL tends to provide a balance between false positives and false negatives provided the data											
86	represents a background data set and when many onsite observations need to be compared with the BTV.											
87												
88	CA_As <60											
89												
90	General Statistics											
91	Total Number of Observations					771	Number of Distinct Observations					163
92	Minimum					0.3	First Quartile					2.9
93	Second Largest					48.8	Median					4.9
94	Maximum					59.6	Third Quartile					7.9
95	Mean					6.121	SD					4.905
96	Coefficient of Variation					0.801	Skewness					3.582
97	Mean of logged Data					1.562	SD of logged Data					0.721
98												
99	Critical Values for Background Threshold Values (BTVs)											
100	Tolerance Factor K (For UTL)					1.739	d2max (for USL)					3.81
101												
102	Normal GOF Test											
103	Shapiro Wilk Test Statistic					0.774	Normal GOF Test					
104	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
105	Lilliefors Test Statistic					0.138	Lilliefors GOF Test					
106	1% Lilliefors Critical Value					0.0372	Data Not Normal at 1% Significance Level					
107	Data Not Normal at 1% Significance Level											
108												
109	Background Statistics Assuming Normal Distribution											
110	95% UTL with 95% Coverage					14.65	90% Percentile (z)					12.41
111	95% UPL (t)					14.2	95% Percentile (z)					14.19
112	95% USL					24.81	99% Percentile (z)					17.53
113												
114	Gamma GOF Test											
115	A-D Test Statistic					1.959	Anderson-Darling Gamma GOF Test					
116	5% A-D Critical Value					0.766	Data Not Gamma Distributed at 5% Significance Level					
117	K-S Test Statistic					0.0424	Kolmogorov-Smirnov Gamma GOF Test					
118	5% K-S Critical Value					0.0345	Data Not Gamma Distributed at 5% Significance Level					
119	Data Not Gamma Distributed at 5% Significance Level											
120												
121	Gamma Statistics											
122	k hat (MLE)					2.158	k star (bias corrected MLE)					2.15
123	Theta hat (MLE)					2.836	Theta star (bias corrected MLE)					2.846
124	nu hat (MLE)					3328	nu star (bias corrected)					3316
125	MLE Mean (bias corrected)					6.121	MLE Sd (bias corrected)					4.174
126												
127	Background Statistics Assuming Gamma Distribution											
128	95% Wilson Hilferty (WH) Approx. Gamma UPL					14.03	90% Percentile					11.7
129	95% Hawkins Wixley (HW) Approx. Gamma UPL					14.26	95% Percentile					14.19
130	95% WH Approx. Gamma UTL with 95% Coverage					14.7	99% Percentile					19.69
131	95% HW Approx. Gamma UTL with 95% Coverage					14.99						
132	95% WH USL					36.08	95% HW USL					40.52
133												
134	Lognormal GOF Test											
135	Shapiro Wilk Test Statistic					0.987	Shapiro Wilk Lognormal GOF Test					
136	10% Shapiro Wilk P Value					0.636	Data appear Lognormal at 10% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L	
137	Lilliefors Test Statistic					0.0363	Lilliefors Lognormal GOF Test						
138	10% Lilliefors Critical Value					0.0295	Data Not Lognormal at 10% Significance Level						
139	Data appear Approximate Lognormal at 10% Significance Level												
140													
141	Background Statistics assuming Lognormal Distribution												
142	95% UTL with		95% Coverage	16.71	90% Percentile (z)							12.02	
143			95% UPL (t)	15.65	95% Percentile (z)							15.62	
144			95% USL	74.41	99% Percentile (z)							25.53	
145													
146	Nonparametric Distribution Free Background Statistics												
147	Data appear Approximate Lognormal at 10% Significance Level												
148													
149	Nonparametric Upper Limits for Background Threshold Values												
150	Order of Statistic, order				743	95% UTL with 95% Coverage					15.3		
151	Approx, f used to compute achieved CC				1.302	Approximate Actual Confidence Coefficient achieved by UTL					0.937		
152						Approximate Sample Size needed to achieve specified CC					763		
153	95% Percentile Bootstrap UTL with		95% Coverage	15.1	95% BCA Bootstrap UTL with 95% Coverage					15.1			
154			95% UPL	14.4	90% Percentile					11.2			
155			90% Chebyshev UPL	20.85	95% Percentile					14.3			
156			95% Chebyshev UPL	27.51	99% Percentile					22.51			
157			95% USL	59.6									
158													
159	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
160	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
161	and consists of observations collected from clean unimpacted locations.												
162	The use of USL tends to provide a balance between false positives and false negatives provided the data												
163	represents a background data set and when many onsite observations need to be compared with the BTV.												
164													
165	CA_As <30												
166													
167	General Statistics												
168	Total Number of Observations				769	Number of Distinct Observations					161		
169	Minimum				0.3	First Quartile					2.9		
170	Second Largest				27.4	Median					4.9		
171	Maximum				28.5	Third Quartile					7.9		
172	Mean				5.996	SD					4.244		
173	Coefficient of Variation				0.708	Skewness					1.693		
174	Mean of logged Data				1.556	SD of logged Data					0.711		
175													
176	Critical Values for Background Threshold Values (BTVs)												
177	Tolerance Factor K (For UTL)				1.739	d2max (for USL)					3.809		
178													
179	Normal GOF Test												
180	Shapiro Wilk Test Statistic				0.858	Normal GOF Test							
181	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level							
182	Lilliefors Test Statistic				0.123	Lilliefors GOF Test							
183	1% Lilliefors Critical Value				0.0373	Data Not Normal at 1% Significance Level							
184	Data Not Normal at 1% Significance Level												
185													
186	Background Statistics Assuming Normal Distribution												
187	95% UTL with		95% Coverage	13.38	90% Percentile (z)					11.43			
188			95% UPL (t)	12.99	95% Percentile (z)					12.98			
189			95% USL	22.16	99% Percentile (z)					15.87			
190													
191	Gamma GOF Test												
192	A-D Test Statistic				1.39	Anderson-Darling Gamma GOF Test							
193	5% A-D Critical Value				0.766	Data Not Gamma Distributed at 5% Significance Level							
194	K-S Test Statistic				0.0359	Kolmogorov-Smirnov Gamma GOF Test							
195	5% K-S Critical Value				0.0345	Data Not Gamma Distributed at 5% Significance Level							
196	Data Not Gamma Distributed at 5% Significance Level												
197													
198	Gamma Statistics												
199	k hat (MLE)			2.281	k star (bias corrected MLE)					2.273			
200	Theta hat (MLE)			2.628	Theta star (bias corrected MLE)					2.638			
201	nu hat (MLE)			3509	nu star (bias corrected)					3496			
202	MLE Mean (bias corrected)			5.996	MLE Sd (bias corrected)					3.977			
203													
204	Background Statistics Assuming Gamma Distribution												

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	A	B	C	D	E	F	G	H	I	J	K	L
205	95% Wilson Hilferty (WH) Approx. Gamma UPL					13.57	90% Percentile					11.32
206	95% Hawkins Wixley (HW) Approx. Gamma UPL					13.84	95% Percentile					13.67
207	95% WH Approx. Gamma UTL with 95% Coverage					14.2	99% Percentile					18.83
208	95% HW Approx. Gamma UTL with 95% Coverage					14.54						
209	95% WH USL					34.31	95% HW USL					38.65
210												
211	Lognormal GOF Test											
212	Shapiro Wilk Test Statistic					0.98	Shapiro Wilk Lognormal GOF Test					
213	10% Shapiro Wilk P Value					0.0144	Data Not Lognormal at 10% Significance Level					
214	Lilliefors Test Statistic					0.0384	Lilliefors Lognormal GOF Test					
215	10% Lilliefors Critical Value					0.0295	Data Not Lognormal at 10% Significance Level					
216	Data Not Lognormal at 10% Significance Level											
217												
218	Background Statistics assuming Lognormal Distribution											
219	95% UTL with 95% Coverage					16.33	90% Percentile (z)					11.79
220	95% UPL (t)					15.31	95% Percentile (z)					15.27
221	95% USL					71.2	99% Percentile (z)					24.8
222												
223	Nonparametric Distribution Free Background Statistics											
224	Data do not follow a Discernible Distribution											
225												
226	Nonparametric Upper Limits for Background Threshold Values											
227	Order of Statistic, order					741	95% UTL with 95% Coverage					15.1
228	Approx, f used to compute achieved CC					1.298	Approximate Actual Confidence Coefficient achieved by UTL					0.935
229							Approximate Sample Size needed to achieve specified CC					763
230	95% Percentile Bootstrap UTL with 95% Coverage					15.06	95% BCA Bootstrap UTL with 95% Coverage					14.66
231	95% UPL					14.2	90% Percentile					11.12
232	90% Chebyshev UPL					18.74	95% Percentile					14.2
233	95% Chebyshev UPL					24.51	99% Percentile					21.26
234	95% USL					28.5						
235												
236	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
237	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
238	and consists of observations collected from clean unimpacted locations.											
239	The use of USL tends to provide a balance between false positives and false negatives provided the data											
240	represents a background data set and when many onsite observations need to be compared with the BTV.											
241												
242	CA_As <24											
243												
244	General Statistics											
245	Total Number of Observations					766	Number of Distinct Observations					158
246	Minimum					0.3	First Quartile					2.9
247	Second Largest					23.5	Median					4.9
248	Maximum					23.6	Third Quartile					7.875
249	Mean					5.911	SD					4.027
250	Coefficient of Variation					0.681	Skewness					1.433
251	Mean of logged Data					1.549	SD of logged Data					0.704
252												
253	Critical Values for Background Threshold Values (BTVs)											
254	Tolerance Factor K (For UTL)					1.739	d2max (for USL)					3.808
255												
256	Normal GOF Test											
257	Shapiro Wilk Test Statistic					0.875	Normal GOF Test					
258	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
259	Lilliefors Test Statistic					0.117	Lilliefors GOF Test					
260	1% Lilliefors Critical Value					0.0374	Data Not Normal at 1% Significance Level					
261	Data Not Normal at 1% Significance Level											
262												
263	Background Statistics Assuming Normal Distribution											
264	95% UTL with 95% Coverage					12.91	90% Percentile (z)					11.07
265	95% UPL (t)					12.55	95% Percentile (z)					12.54
266	95% USL					21.25	99% Percentile (z)					15.28
267												
268	Gamma GOF Test											
269	A-D Test Statistic					1.158	Anderson-Darling Gamma GOF Test					
270	5% A-D Critical Value					0.765	Data Not Gamma Distributed at 5% Significance Level					
271	K-S Test Statistic					0.0355	Kolmogorov-Smirnov Gamma GOF Test					
272	5% K-S Critical Value					0.0346	Data Not Gamma Distributed at 5% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L
273	Data Not Gamma Distributed at 5% Significance Level											
274												
275	Gamma Statistics											
276					k hat (MLE)	2.351					k star (bias corrected MLE)	2.342
277					Theta hat (MLE)	2.514					Theta star (bias corrected MLE)	2.523
278					nu hat (MLE)	3601					nu star (bias corrected)	3589
279					MLE Mean (bias corrected)	5.911					MLE Sd (bias corrected)	3.862
280												
281	Background Statistics Assuming Gamma Distribution											
282	95% Wilson Hilferty (WH) Approx. Gamma UPL				13.27					90% Percentile	11.08	
283	95% Hawkins Wixley (HW) Approx. Gamma UPL				13.55					95% Percentile	13.35	
284	95% WH Approx. Gamma UTL with 95% Coverage				13.88					99% Percentile	18.33	
285	95% HW Approx. Gamma UTL with 95% Coverage				14.23							
286					95% WH USL	33.23					95% HW USL	37.44
287												
288	Lognormal GOF Test											
289	Shapiro Wilk Test Statistic				0.977					Shapiro Wilk Lognormal GOF Test		
290	10% Shapiro Wilk P Value				3.2961E-4					Data Not Lognormal at 10% Significance Level		
291	Lilliefors Test Statistic				0.0404					Lilliefors Lognormal GOF Test		
292	10% Lilliefors Critical Value				0.0296					Data Not Lognormal at 10% Significance Level		
293	Data Not Lognormal at 10% Significance Level											
294												
295	Background Statistics assuming Lognormal Distribution											
296	95% UTL with 95% Coverage				16.01					90% Percentile (z)	11.6	
297					95% UPL (t)	15.02					95% Percentile (z)	14.99
298					95% USL	68.73					99% Percentile (z)	24.21
299												
300	Nonparametric Distribution Free Background Statistics											
301	Data do not follow a Discernible Distribution											
302												
303	Nonparametric Upper Limits for Background Threshold Values											
304	Order of Statistic, order				738					95% UTL with 95% Coverage	14.7	
305	Approx, f used to compute achieved CC				1.293					Approximate Actual Confidence Coefficient achieved by UTL	0.932	
306										Approximate Sample Size needed to achieve specified CC	763	
307	95% Percentile Bootstrap UTL with 95% Coverage				14.68					95% BCA Bootstrap UTL with 95% Coverage	14.65	
308					95% UPL	14.17					90% Percentile	11.1
309					90% Chebyshev UPL	18					95% Percentile	14.05
310					95% Chebyshev UPL	23.48					99% Percentile	20.37
311					95% USL	23.6						
312												
313	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
314	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
315	and consists of observations collected from clean unimpacted locations.											
316	The use of USL tends to provide a balance between false positives and false negatives provided the data											
317	represents a background data set and when many onsite observations need to be compared with the BTV.											
318												
319	CA_As <22											
320												
321	General Statistics											
322	Total Number of Observations				762					Number of Distinct Observations	154	
323	Minimum				0.3					First Quartile	2.9	
324	Second Largest				21.2					Median	4.9	
325	Maximum				21.4					Third Quartile	7.8	
326	Mean				5.821					SD	3.839	
327	Coefficient of Variation				0.66					Skewness	1.259	
328	Mean of logged Data				1.541					SD of logged Data	0.696	
329												
330	Critical Values for Background Threshold Values (BTVs)											
331	Tolerance Factor K (For UTL)				1.739					d2max (for USL)	3.807	
332												
333	Normal GOF Test											
334	Shapiro Wilk Test Statistic				0.889					Normal GOF Test		
335	1% Shapiro Wilk P Value				0					Data Not Normal at 1% Significance Level		
336	Lilliefors Test Statistic				0.111					Lilliefors GOF Test		
337	1% Lilliefors Critical Value				0.0375					Data Not Normal at 1% Significance Level		
338	Data Not Normal at 1% Significance Level											
339												
340	Background Statistics Assuming Normal Distribution											

	A	B	C	D	E	F	G	H	I	J	K	L
341	95% UTL with 95% Coverage					12.5	90% Percentile (z)					10.74
342	95% UPL (t)					12.15	95% Percentile (z)					12.14
343	95% USL					20.44	99% Percentile (z)					14.75
344												
345	Gamma GOF Test											
346	A-D Test Statistic					1.013	Anderson-Darling Gamma GOF Test					
347	5% A-D Critical Value					0.765	Data Not Gamma Distributed at 5% Significance Level					
348	K-S Test Statistic					0.0348	Kolmogorov-Smirnov Gamma GOF Test					
349	5% K-S Critical Value					0.0347	Data Not Gamma Distributed at 5% Significance Level					
350	Data Not Gamma Distributed at 5% Significance Level											
351												
352	Gamma Statistics											
353	k hat (MLE)					2.421	k star (bias corrected MLE)					2.413
354	Theta hat (MLE)					2.404	Theta star (bias corrected MLE)					2.413
355	nu hat (MLE)					3690	nu star (bias corrected)					3677
356	MLE Mean (bias corrected)					5.821	MLE Sd (bias corrected)					3.747
357												
358	Background Statistics Assuming Gamma Distribution											
359	95% Wilson Hilferty (WH) Approx. Gamma UPL					12.96	90% Percentile					10.84
360	95% Hawkins Wixley (HW) Approx. Gamma UPL					13.25	95% Percentile					13.03
361	95% WH Approx. Gamma UTL with 95% Coverage					13.56	99% Percentile					17.83
362	95% HW Approx. Gamma UTL with 95% Coverage					13.9						
363	95% WH USL					32.14	95% HW USL					36.21
364												
365	Lognormal GOF Test											
366	Shapiro Wilk Test Statistic					0.974	Shapiro Wilk Lognormal GOF Test					
367	10% Shapiro Wilk P Value					5.4240E-6	Data Not Lognormal at 10% Significance Level					
368	Lilliefors Test Statistic					0.0427	Lilliefors Lognormal GOF Test					
369	10% Lilliefors Critical Value					0.0296	Data Not Lognormal at 10% Significance Level					
370	Data Not Lognormal at 10% Significance Level											
371												
372	Background Statistics assuming Lognormal Distribution											
373	95% UTL with 95% Coverage					15.67	90% Percentile (z)					11.4
374	95% UPL (t)					14.71	95% Percentile (z)					14.67
375	95% USL					66.13	99% Percentile (z)					23.59
376												
377	Nonparametric Distribution Free Background Statistics											
378	Data do not follow a Discernible Distribution											
379												
380	Nonparametric Upper Limits for Background Threshold Values											
381	Order of Statistic, order					735	95% UTL with 95% Coverage					14.5
382	Approx, f used to compute achieved CC					1.332	Approximate Actual Confidence Coefficient achieved by UTL					0.95
383							Approximate Sample Size needed to achieve specified CC					740
384	95% Percentile Bootstrap UTL with 95% Coverage					14.39	95% BCA Bootstrap UTL with 95% Coverage					14.2
385	95% UPL					13.77	90% Percentile					10.9
386	90% Chebyshev UPL					17.35	95% Percentile					13.59
387	95% Chebyshev UPL					22.57	99% Percentile					18.86
388	95% USL					21.4						
389												
390	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
391	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
392	and consists of observations collected from clean unimpacted locations.											
393	The use of USL tends to provide a balance between false positives and false negatives provided the data											
394	represents a background data set and when many onsite observations need to be compared with the BTV.											
395												
396	CA_As <20											
397												
398	General Statistics											
399	Total Number of Observations					755	Number of Distinct Observations					147
400	Minimum					0.3	First Quartile					2.9
401	Second Largest					18.7	Median					4.8
402	Maximum					19.1	Third Quartile					7.7
403	Mean					5.684	SD					3.582
404	Coefficient of Variation					0.63	Skewness					1.024
405	Mean of logged Data					1.527	SD of logged Data					0.685
406												
407	Critical Values for Background Threshold Values (BTVs)											
408	Tolerance Factor K (For UTL)					1.74	d2max (for USL)					3.805

	A	B	C	D	E	F	G	H	I	J	K	L
409												
410	Normal GOF Test											
411	Shapiro Wilk Test Statistic					0.907	Normal GOF Test					
412	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
413	Lilliefors Test Statistic					0.101	Lilliefors GOF Test					
414	1% Lilliefors Critical Value					0.0376	Data Not Normal at 1% Significance Level					
415	Data Not Normal at 1% Significance Level											
416												
417	Background Statistics Assuming Normal Distribution											
418	95% UTL with		95% Coverage		11.92						90% Percentile (z)	10.27
419			95% UPL (t)		11.59						95% Percentile (z)	11.58
420			95% USL		19.31						99% Percentile (z)	14.02
421												
422	Gamma GOF Test											
423	A-D Test Statistic					0.994	Anderson-Darling Gamma GOF Test					
424	5% A-D Critical Value					0.764	Data Not Gamma Distributed at 5% Significance Level					
425	K-S Test Statistic					0.0335	Kolmogorov-Smirnov Gamma GOF Test					
426	5% K-S Critical Value					0.0348	Detected data appear Gamma Distributed at 5% Significance Level					
427	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
428												
429	Gamma Statistics											
430	k hat (MLE)					2.53	k star (bias corrected MLE)					2.521
431	Theta hat (MLE)					2.246	Theta star (bias corrected MLE)					2.254
432	nu hat (MLE)					3821	nu star (bias corrected)					3807
433	MLE Mean (bias corrected)					5.684	MLE Sd (bias corrected)					3.579
434												
435	Background Statistics Assuming Gamma Distribution											
436	95% Wilson Hilferty (WH) Approx. Gamma UPL					12.51	90% Percentile					10.48
437	95% Hawkins Wixley (HW) Approx. Gamma UPL					12.8	95% Percentile					12.55
438	95% WH Approx. Gamma UTL with		95% Coverage		13.07	99% Percentile					17.09	
439	95% HW Approx. Gamma UTL with		95% Coverage		13.42							
440			95% WH USL		30.56	95% HW USL					34.4	
441												
442	Lognormal GOF Test											
443	Shapiro Wilk Test Statistic					0.97	Shapiro Wilk Lognormal GOF Test					
444	10% Shapiro Wilk P Value					6.220E-10	Data Not Lognormal at 10% Significance Level					
445	Lilliefors Test Statistic					0.0464	Lilliefors Lognormal GOF Test					
446	10% Lilliefors Critical Value					0.0298	Data Not Lognormal at 10% Significance Level					
447	Data Not Lognormal at 10% Significance Level											
448												
449	Background Statistics assuming Lognormal Distribution											
450	95% UTL with		95% Coverage		15.15	90% Percentile (z)					11.07	
451			95% UPL (t)		14.23	95% Percentile (z)					14.2	
452			95% USL		62.28	99% Percentile (z)					22.64	
453												
454	Nonparametric Distribution Free Background Statistics											
455	Data appear Approximate Gamma Distribution at 5% Significance Level											
456												
457	Nonparametric Upper Limits for Background Threshold Values											
458	Order of Statistic, order					728	95% UTL with 95% Coverage					14.1
459	Approx, f used to compute achieved CC					1.319	Approximate Actual Confidence Coefficient achieved by UTL					0.944
460							Approximate Sample Size needed to achieve specified CC					740
461	95% Percentile Bootstrap UTL with		95% Coverage		13.9	95% BCA Bootstrap UTL with 95% Coverage					13.83	
462			95% UPL		12.92	90% Percentile					10.7	
463			90% Chebyshev UPL		16.44	95% Percentile					12.9	
464			95% Chebyshev UPL		21.31	99% Percentile					16.4	
465			95% USL		19.1							
466												
467	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
468	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
469	and consists of observations collected from clean unimpacted locations.											
470	The use of USL tends to provide a balance between false positives and false negatives provided the data											
471	represents a background data set and when many onsite observations need to be compared with the BTV.											
472												
473	CA_Pb											
474												
475	General Statistics											
476	Total Number of Observations					773	Number of Distinct Observations					263

	A	B	C	D	E	F	G	H	I	J	K	L
477					Minimum	1.6					First Quartile	12.5
478					Second Largest	212					Median	16.1
479					Maximum	263					Third Quartile	20.7
480					Mean	18.3					SD	15.22
481					Coefficient of Variation	0.832					Skewness	9.894
482					Mean of logged Data	2.769					SD of logged Data	0.504
483												
484					Critical Values for Background Threshold Values (BTVs)							
485					Tolerance Factor K (For UTL)	1.739					d2max (for USL)	3.811
486												
487					Normal GOF Test							
488					Shapiro Wilk Test Statistic	0.461					Normal GOF Test	
489					1% Shapiro Wilk P Value	0					Data Not Normal at 1% Significance Level	
490					Lilliefors Test Statistic	0.21					Lilliefors GOF Test	
491					1% Lilliefors Critical Value	0.0372					Data Not Normal at 1% Significance Level	
492					Data Not Normal at 1% Significance Level							
493												
494					Background Statistics Assuming Normal Distribution							
495					95% UTL with 95% Coverage	44.77					90% Percentile (z)	37.81
496					95% UPL (t)	43.39					95% Percentile (z)	43.34
497					95% USL	76.32					99% Percentile (z)	53.72
498												
499					Gamma GOF Test							
500					A-D Test Statistic	1.294E+28					Anderson-Darling Gamma GOF Test	
501					5% A-D Critical Value	0.76					Data Not Gamma Distributed at 5% Significance Level	
502					K-S Test Statistic	0.0957					Kolmogorov-Smirnov Gamma GOF Test	
503					5% K-S Critical Value	0.0342					Data Not Gamma Distributed at 5% Significance Level	
504					Data Not Gamma Distributed at 5% Significance Level							
505												
506					Gamma Statistics							
507					k hat (MLE)	3.774					k star (bias corrected MLE)	3.761
508					Theta hat (MLE)	4.848					Theta star (bias corrected MLE)	4.866
509					nu hat (MLE)	5835					nu star (bias corrected)	5814
510					MLE Mean (bias corrected)	18.3					MLE Sd (bias corrected)	9.437
511												
512					Background Statistics Assuming Gamma Distribution							
513					95% Wilson Hilferty (WH) Approx. Gamma UPL	35.39					90% Percentile	30.95
514					95% Hawkins Wixley (HW) Approx. Gamma UPL	35.34					95% Percentile	36.06
515					95% WH Approx. Gamma UTL with 95% Coverage	36.71					99% Percentile	47.01
516					95% HW Approx. Gamma UTL with 95% Coverage	36.71						
517					95% WH USL	76.38					95% HW USL	80.46
518												
519					Lognormal GOF Test							
520					Shapiro Wilk Test Statistic	0.935					Shapiro Wilk Lognormal GOF Test	
521					10% Shapiro Wilk P Value	0					Data Not Lognormal at 10% Significance Level	
522					Lilliefors Test Statistic	0.0727					Lilliefors Lognormal GOF Test	
523					10% Lilliefors Critical Value	0.0294					Data Not Lognormal at 10% Significance Level	
524					Data Not Lognormal at 10% Significance Level							
525												
526					Background Statistics assuming Lognormal Distribution							
527					95% UTL with 95% Coverage	38.25					90% Percentile (z)	30.39
528					95% UPL (t)	36.55					95% Percentile (z)	36.49
529					95% USL	108.6					99% Percentile (z)	51.43
530												
531					Nonparametric Distribution Free Background Statistics							
532					Data do not follow a Discernible Distribution							
533												
534					Nonparametric Upper Limits for Background Threshold Values							
535					Order of Statistic, order	745					95% UTL with 95% Coverage	33.4
536					Approx, f used to compute achieved CC	1.305					Approximate Actual Confidence Coefficient achieved by UTL	0.939
537											Approximate Sample Size needed to achieve specified CC	763
538					95% Percentile Bootstrap UTL with 95% Coverage	33.2					95% BCA Bootstrap UTL with 95% Coverage	33.2
539					95% UPL	32.36					90% Percentile	27.8
540					90% Chebyshev UPL	64					95% Percentile	32.3
541					95% Chebyshev UPL	84.7					99% Percentile	51.48
542					95% USL	263						
543												
544					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							

	A	B	C	D	E	F	G	H	I	J	K	L
545	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
546	and consists of observations collected from clean unimpacted locations.											
547	The use of USL tends to provide a balance between false positives and false negatives provided the data											
548	represents a background data set and when many onsite observations need to be compared with the BTV.											
549												
550	CA_Pb <100											
551												
552	General Statistics											
553	Total Number of Observations				770		Number of Distinct Observations				260	
554	Minimum				1.6		First Quartile				12.5	
555	Second Largest				92.7		Median				16.1	
556	Maximum				93.2		Third Quartile				20.7	
557	Mean				17.53		SD				8.621	
558	Coefficient of Variation				0.492		Skewness				2.836	
559	Mean of logged Data				2.759		SD of logged Data				0.478	
560												
561	Critical Values for Background Threshold Values (BTVs)											
562	Tolerance Factor K (For UTL)				1.739		d2max (for USL)				3.81	
563												
564	Normal GOF Test											
565	Shapiro Wilk Test Statistic				0.834		Normal GOF Test					
566	1% Shapiro Wilk P Value				0		Data Not Normal at 1% Significance Level					
567	Lilliefors Test Statistic				0.118		Lilliefors GOF Test					
568	1% Lilliefors Critical Value				0.0373		Data Not Normal at 1% Significance Level					
569	Data Not Normal at 1% Significance Level											
570												
571	Background Statistics Assuming Normal Distribution											
572	95% UTL with		95% Coverage		32.52		90% Percentile (z)				28.58	
573			95% UPL (t)		31.74		95% Percentile (z)				31.71	
574			95% USL		50.37		99% Percentile (z)				37.58	
575												
576	Gamma GOF Test											
577	A-D Test Statistic				5.067		Anderson-Darling Gamma GOF Test					
578	5% A-D Critical Value				0.757		Data Not Gamma Distributed at 5% Significance Level					
579	K-S Test Statistic				0.0572		Kolmogorov-Smirnov Gamma GOF Test					
580	5% K-S Critical Value				0.0342		Data Not Gamma Distributed at 5% Significance Level					
581	Data Not Gamma Distributed at 5% Significance Level											
582												
583	Gamma Statistics											
584	k hat (MLE)				4.905		k star (bias corrected MLE)				4.887	
585	Theta hat (MLE)				3.573		Theta star (bias corrected MLE)				3.587	
586	nu hat (MLE)				7554		nu star (bias corrected)				7526	
587	MLE Mean (bias corrected)				17.53		MLE Sd (bias corrected)				7.929	
588												
589	Background Statistics Assuming Gamma Distribution											
590	95% Wilson Hilferty (WH) Approx. Gamma UPL				32.14		90% Percentile				28.15	
591	95% Hawkins Wixley (HW) Approx. Gamma UPL				32.54		95% Percentile				32.27	
592	95% WH Approx. Gamma UTL with		95% Coverage		33.22		99% Percentile				41	
593	95% HW Approx. Gamma UTL with		95% Coverage		33.7							
594			95% WH USL		64.95		95% HW USL				69.66	
595												
596	Lognormal GOF Test											
597	Shapiro Wilk Test Statistic				0.943		Shapiro Wilk Lognormal GOF Test					
598	10% Shapiro Wilk P Value				0		Data Not Lognormal at 10% Significance Level					
599	Lilliefors Test Statistic				0.068		Lilliefors Lognormal GOF Test					
600	10% Lilliefors Critical Value				0.0295		Data Not Lognormal at 10% Significance Level					
601	Data Not Lognormal at 10% Significance Level											
602												
603	Background Statistics assuming Lognormal Distribution											
604	95% UTL with		95% Coverage		36.2		90% Percentile (z)				29.1	
605			95% UPL (t)		34.67		95% Percentile (z)				34.62	
606			95% USL		97.37		99% Percentile (z)				47.94	
607												
608	Nonparametric Distribution Free Background Statistics											
609	Data do not follow a Discernible Distribution											
610												
611	Nonparametric Upper Limits for Background Threshold Values											
612	Order of Statistic, order				742		95% UTL with 95% Coverage				33.1	

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L	
613	Approx. f used to compute achieved CC					1.3	Approximate Actual Confidence Coefficient achieved by UTL					0.936	
614							Approximate Sample Size needed to achieve specified CC					763	
615	95% Percentile Bootstrap UTL with 95% Coverage					33.1	95% BCA Bootstrap UTL with 95% Coverage					33.1	
616						32.15						90% Percentile	27.32
617	90% Chebyshev UPL					43.41						95% Percentile	31.92
618	95% Chebyshev UPL					55.13						99% Percentile	44.83
619	95% USL					93.2							
620													
621	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
622	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
623	and consists of observations collected from clean unimpacted locations.												
624	The use of USL tends to provide a balance between false positives and false negatives provided the data												
625	represents a background data set and when many onsite observations need to be compared with the BTV.												
626													
627	CA_Pb <65												
628													
629	General Statistics												
630	Total Number of Observations					767	Number of Distinct Observations					257	
631	Minimum					1.6	First Quartile					12.45	
632	Second Largest					58.9	Median					16.1	
633	Maximum					64.3	Third Quartile					20.6	
634	Mean					17.26	SD					7.489	
635	Coefficient of Variation					0.434	Skewness					1.323	
636	Mean of logged Data					2.752	SD of logged Data					0.467	
637													
638	Critical Values for Background Threshold Values (BTVs)												
639	Tolerance Factor K (For UTL)					1.739	d2max (for USL)					3.809	
640													
641	Normal GOF Test												
642	Shapiro Wilk Test Statistic					0.928	Normal GOF Test						
643	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
644	Lilliefors Test Statistic					0.0944	Lilliefors GOF Test						
645	1% Lilliefors Critical Value					0.0373	Data Not Normal at 1% Significance Level						
646	Data Not Normal at 1% Significance Level												
647													
648	Background Statistics Assuming Normal Distribution												
649	95% UTL with	95% Coverage		30.29				90% Percentile (z)		26.86			
650		95% UPL (t)		29.6				95% Percentile (z)		29.58			
651		95% USL		45.79				99% Percentile (z)		34.69			
652													
653	Gamma GOF Test												
654	A-D Test Statistic					3.364	Anderson-Darling Gamma GOF Test						
655	5% A-D Critical Value					0.757	Data Not Gamma Distributed at 5% Significance Level						
656	K-S Test Statistic					0.0453	Kolmogorov-Smirnov Gamma GOF Test						
657	5% K-S Critical Value					0.0343	Data Not Gamma Distributed at 5% Significance Level						
658	Data Not Gamma Distributed at 5% Significance Level												
659													
660	Gamma Statistics												
661	k hat (MLE)					5.332	k star (bias corrected MLE)					5.312	
662	Theta hat (MLE)					3.238	Theta star (bias corrected MLE)					3.25	
663	nu hat (MLE)					8179	nu star (bias corrected)					8148	
664	MLE Mean (bias corrected)					17.26	MLE Sd (bias corrected)					7.491	
665													
666	Background Statistics Assuming Gamma Distribution												
667	95% Wilson Hilferty (WH) Approx. Gamma UPL					31.07	90% Percentile					27.29	
668	95% Hawkins Wixley (HW) Approx. Gamma UPL					31.55	95% Percentile					31.14	
669	95% WH Approx. Gamma UTL with 95% Coverage					32.08	99% Percentile					39.26	
670	95% HW Approx. Gamma UTL with 95% Coverage					32.64							
671	95% WH USL					61.47	95% HW USL					66.1	
672													
673	Lognormal GOF Test												
674	Shapiro Wilk Test Statistic					0.938	Shapiro Wilk Lognormal GOF Test						
675	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level						
676	Lilliefors Test Statistic					0.0676	Lilliefors Lognormal GOF Test						
677	10% Lilliefors Critical Value					0.0296	Data Not Lognormal at 10% Significance Level						
678	Data Not Lognormal at 10% Significance Level												
679													
680	Background Statistics assuming Lognormal Distribution												

	A	B	C	D	E	F	G	H	I	J	K	L
681	95% UTL with 95% Coverage					35.3	90% Percentile (z)					28.51
682	95% UPL (t)					33.83	95% Percentile (z)					33.78
683	95% USL					92.77	99% Percentile (z)					46.43
684												
685	Nonparametric Distribution Free Background Statistics											
686	Data do not follow a Discernible Distribution											
687												
688	Nonparametric Upper Limits for Background Threshold Values											
689	Order of Statistic, order					739	95% UTL with 95% Coverage					32.8
690	Approx, f used to compute achieved CC					1.295	Approximate Actual Confidence Coefficient achieved by UTL					0.933
691							Approximate Sample Size needed to achieve specified CC					763
692	95% Percentile Bootstrap UTL with 95% Coverage					32.71	95% BCA Bootstrap UTL with 95% Coverage					32.8
693	95% UPL					31.5	90% Percentile					27.3
694	90% Chebyshev UPL					39.74	95% Percentile					31.47
695	95% Chebyshev UPL					49.93	99% Percentile					40.05
696	95% USL					64.3						
697												
698	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
699	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
700	and consists of observations collected from clean unimpacted locations.											
701	The use of USL tends to provide a balance between false positives and false negatives provided the data											
702	represents a background data set and when many onsite observations need to be compared with the BTV.											
703												
704	CA_Pb <40											
705												
706	General Statistics											
707	Total Number of Observations					759	Number of Distinct Observations					250
708	Minimum					1.6	First Quartile					12.4
709	Second Largest					38.7	Median					16
710	Maximum					39	Third Quartile					20.4
711	Mean					16.93	SD					6.719
712	Coefficient of Variation					0.397	Skewness					0.652
713	Mean of logged Data					2.74	SD of logged Data					0.454
714												
715	Critical Values for Background Threshold Values (BTVs)											
716	Tolerance Factor K (For UTL)					1.74	d2max (for USL)					3.806
717												
718	Normal GOF Test											
719	Shapiro Wilk Test Statistic					0.955	Normal GOF Test					
720	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
721	Lilliefors Test Statistic					0.0705	Lilliefors GOF Test					
722	1% Lilliefors Critical Value					0.0375	Data Not Normal at 1% Significance Level					
723	Data Not Normal at 1% Significance Level											
724												
725	Background Statistics Assuming Normal Distribution											
726	95% UTL with 95% Coverage					28.61	90% Percentile (z)					25.54
727	95% UPL (t)					28	95% Percentile (z)					27.98
728	95% USL					42.5	99% Percentile (z)					32.56
729												
730	Gamma GOF Test											
731	A-D Test Statistic					2.628	Anderson-Darling Gamma GOF Test					
732	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level					
733	K-S Test Statistic					0.0433	Kolmogorov-Smirnov Gamma GOF Test					
734	5% K-S Critical Value					0.0345	Data Not Gamma Distributed at 5% Significance Level					
735	Data Not Gamma Distributed at 5% Significance Level											
736												
737	Gamma Statistics											
738	k hat (MLE)					5.784	k star (bias corrected MLE)					5.762
739	Theta hat (MLE)					2.926	Theta star (bias corrected MLE)					2.938
740	nu hat (MLE)					8780	nu star (bias corrected)					8747
741	MLE Mean (bias corrected)					16.93	MLE Sd (bias corrected)					7.052
742												
743	Background Statistics Assuming Gamma Distribution											
744	95% Wilson Hilferty (WH) Approx. Gamma UPL					29.9	90% Percentile					26.36
745	95% Hawkins Wixley (HW) Approx. Gamma UPL					30.41	95% Percentile					29.94
746	95% WH Approx. Gamma UTL with 95% Coverage					30.85	99% Percentile					37.47
747	95% HW Approx. Gamma UTL with 95% Coverage					31.43						
748	95% WH USL					57.9	95% HW USL					62.31

	A	B	C	D	E	F	G	H	I	J	K	L
749												
750	Lognormal GOF Test											
751	Shapiro Wilk Test Statistic					0.923	Shapiro Wilk Lognormal GOF Test					
752	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
753	Lilliefors Test Statistic					0.0692	Lilliefors Lognormal GOF Test					
754	10% Lilliefors Critical Value					0.0297	Data Not Lognormal at 10% Significance Level					
755	Data Not Lognormal at 10% Significance Level											
756												
757	Background Statistics assuming Lognormal Distribution											
758	95% UTL with		95% Coverage		34.13						90% Percentile (z)	27.72
759			95% UPL (t)		32.74						95% Percentile (z)	32.69
760			95% USL		87.25						99% Percentile (z)	44.55
761												
762	Nonparametric Distribution Free Background Statistics											
763	Data do not follow a Discernible Distribution											
764												
765	Nonparametric Upper Limits for Background Threshold Values											
766	Order of Statistic, order				732	95% UTL with 95% Coverage					32.1	
767	Approx, f used to compute achieved CC				1.327	Approximate Actual Confidence Coefficient achieved by UTL					0.947	
768						Approximate Sample Size needed to achieve specified CC					740	
769	95% Percentile Bootstrap UTL with		95% Coverage		31.52	95% BCA Bootstrap UTL with		95% Coverage		31.5		
770			95% UPL		30.5			90% Percentile		26.6		
771			90% Chebyshev UPL		37.1			95% Percentile		30.41		
772			95% Chebyshev UPL		46.23			99% Percentile		35.94		
773			95% USL		39							
774												
775	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
776	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
777	and consists of observations collected from clean unimpacted locations.											
778	The use of USL tends to provide a balance between false positives and false negatives provided the data											
779	represents a background data set and when many onsite observations need to be compared with the BTV.											
780												
781	CA_Pb <35											
782												
783	General Statistics											
784	Total Number of Observations				748	Number of Distinct Observations				240		
785	Minimum				1.6	First Quartile				12.38		
786	Second Largest				34.1	Median				15.9		
787	Maximum				34.6	Third Quartile				20		
788	Mean				16.63	SD				6.316		
789	Coefficient of Variation				0.38	Skewness				0.472		
790	Mean of logged Data				2.727	SD of logged Data				0.445		
791												
792	Critical Values for Background Threshold Values (BTVs)											
793	Tolerance Factor K (For UTL)				1.74	d2max (for USL)				3.802		
794												
795	Normal GOF Test											
796	Shapiro Wilk Test Statistic					0.963	Normal GOF Test					
797	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
798	Lilliefors Test Statistic					0.0554	Lilliefors GOF Test					
799	1% Lilliefors Critical Value					0.0378	Data Not Normal at 1% Significance Level					
800	Data Not Normal at 1% Significance Level											
801												
802	Background Statistics Assuming Normal Distribution											
803	95% UTL with		95% Coverage		27.63	90% Percentile (z)					24.73	
804			95% UPL (t)		27.04	95% Percentile (z)					27.02	
805			95% USL		40.65	99% Percentile (z)					31.33	
806												
807	Gamma GOF Test											
808	A-D Test Statistic				2.723	Anderson-Darling Gamma GOF Test						
809	5% A-D Critical Value				0.756	Data Not Gamma Distributed at 5% Significance Level						
810	K-S Test Statistic				0.0439	Kolmogorov-Smirnov Gamma GOF Test						
811	5% K-S Critical Value				0.0347	Data Not Gamma Distributed at 5% Significance Level						
812	Data Not Gamma Distributed at 5% Significance Level											
813												
814	Gamma Statistics											
815	k hat (MLE)				6.097	k star (bias corrected MLE)				6.074		
816	Theta hat (MLE)				2.728	Theta star (bias corrected MLE)				2.739		

	A	B	C	D	E	F	G	H	I	J	K	L
817	nu hat (MLE)					9122	nu star (bias corrected)					9087
818	MLE Mean (bias corrected)					16.63	MLE Sd (bias corrected)					6.75
819												
820	Background Statistics Assuming Gamma Distribution											
821	95% Wilson Hiferty (WH) Approx. Gamma UPL					29.03	90% Percentile					25.66
822	95% Hawkins Wixley (HW) Approx. Gamma UPL					29.54	95% Percentile					29.06
823	95% WH Approx. Gamma UTL with 95% Coverage					29.94	99% Percentile					36.2
824	95% HW Approx. Gamma UTL with 95% Coverage					30.52						
825	95% WH USL					55.42	95% HW USL					59.6
826												
827	Lognormal GOF Test											
828	Shapiro Wilk Test Statistic					0.912	Shapiro Wilk Lognormal GOF Test					
829	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
830	Lilliefors Test Statistic					0.0725	Lilliefors Lognormal GOF Test					
831	10% Lilliefors Critical Value					0.0299	Data Not Lognormal at 10% Significance Level					
832	Data Not Lognormal at 10% Significance Level											
833												
834	Background Statistics assuming Lognormal Distribution											
835	95% UTL with 95% Coverage					33.18	90% Percentile (z)					27.05
836	95% UPL (t)					31.84	95% Percentile (z)					31.8
837	95% USL					83.08	99% Percentile (z)					43.07
838												
839	Nonparametric Distribution Free Background Statistics											
840	Data do not follow a Discernible Distribution											
841												
842	Nonparametric Upper Limits for Background Threshold Values											
843	Order of Statistic, order					721	95% UTL with 95% Coverage					30.4
844	Approx, f used to compute achieved CC					1.307	Approximate Actual Confidence Coefficient achieved by UTL					0.937
845							Approximate Sample Size needed to achieve specified CC					740
846	95% Percentile Bootstrap UTL with 95% Coverage					30.23	95% BCA Bootstrap UTL with 95% Coverage					30.33
847	95% UPL					28.9	90% Percentile					25.22
848	90% Chebyshev UPL					35.6	95% Percentile					28.87
849	95% Chebyshev UPL					44.18	99% Percentile					33.1
850	95% USL					34.6						
851												
852	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
853	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
854	and consists of observations collected from clean unimpacted locations.											
855	The use of USL tends to provide a balance between false positives and false negatives provided the data											
856	represents a background data set and when many onsite observations need to be compared with the BTV.											
857												
858	CO_As											
859												
860	General Statistics											
861	Total Number of Observations					493	Number of Distinct Observations					109
862	Minimum					0.3	First Quartile					3
863	Second Largest					25.1	Median					4.4
864	Maximum					25.5	Third Quartile					6.5
865	Mean					5.169	SD					3.359
866	Coefficient of Variation					0.65	Skewness					2.243
867	Mean of logged Data					1.465	SD of logged Data					0.606
868												
869	Critical Values for Background Threshold Values (BTVs)											
870	Tolerance Factor K (For UTL)					1.763	d2max (for USL)					3.691
871												
872	Normal GOF Test											
873	Shapiro Wilk Test Statistic					0.825	Normal GOF Test					
874	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
875	Lilliefors Test Statistic					0.114	Lilliefors GOF Test					
876	1% Lilliefors Critical Value					0.0466	Data Not Normal at 1% Significance Level					
877	Data Not Normal at 1% Significance Level											
878												
879	Background Statistics Assuming Normal Distribution											
880	95% UTL with 95% Coverage					11.09	90% Percentile (z)					9.474
881	95% UPL (t)					10.71	95% Percentile (z)					10.69
882	95% USL					17.57	99% Percentile (z)					12.98
883												
884	Gamma GOF Test											

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	A	B	C	D	E	F	G	H	I	J	K	L	
885	A-D Test Statistic					1.613	Anderson-Darling Gamma GOF Test						
886	5% A-D Critical Value					0.762	Data Not Gamma Distributed at 5% Significance Level						
887	K-S Test Statistic					0.0458	Kolmogorov-Smirnov Gamma GOF Test						
888	5% K-S Critical Value					0.0411	Data Not Gamma Distributed at 5% Significance Level						
889	Data Not Gamma Distributed at 5% Significance Level												
890													
891	Gamma Statistics												
892	k hat (MLE)					2.971	k star (bias corrected MLE)					2.954	
893	Theta hat (MLE)					1.74	Theta star (bias corrected MLE)					1.75	
894	nu hat (MLE)					2929	nu star (bias corrected)					2913	
895	MLE Mean (bias corrected)					5.169	MLE Sd (bias corrected)					3.007	
896													
897	Background Statistics Assuming Gamma Distribution												
898	95% Wilson Hilferty (WH) Approx. Gamma UPL					10.83	90% Percentile					9.201	
899	95% Hawkins Wixley (HW) Approx. Gamma UPL					10.97	95% Percentile					10.9	
900	95% WH Approx. Gamma UTL with 95% Coverage					11.4	99% Percentile					14.57	
901	95% HW Approx. Gamma UTL with 95% Coverage					11.59							
902	95% WH USL					24.22	95% HW USL					26.43	
903													
904	Lognormal GOF Test												
905	Shapiro Wilk Test Statistic					0.987	Shapiro Wilk Lognormal GOF Test						
906	10% Shapiro Wilk P Value					0.709	Data appear Lognormal at 10% Significance Level						
907	Lilliefors Test Statistic					0.0413	Lilliefors Lognormal GOF Test						
908	10% Lilliefors Critical Value					0.0368	Data Not Lognormal at 10% Significance Level						
909	Data appear Approximate Lognormal at 10% Significance Level												
910													
911	Background Statistics assuming Lognormal Distribution												
912	95% UTL with		95% Coverage		12.59	90% Percentile (z)					9.403		
913			95% UPL (t)		11.75	95% Percentile (z)					11.72		
914			95% USL		40.46	99% Percentile (z)					17.7		
915													
916	Nonparametric Distribution Free Background Statistics												
917	Data appear Approximate Lognormal at 10% Significance Level												
918													
919	Nonparametric Upper Limits for Background Threshold Values												
920	Order of Statistic, order					477	95% UTL with 95% Coverage					12.9	
921	Approx, f used to compute achieved CC					1.392	Approximate Actual Confidence Coefficient achieved by UTL					0.936	
922							Approximate Sample Size needed to achieve specified CC					482	
923	95% Percentile Bootstrap UTL with		95% Coverage		12.1	95% BCA Bootstrap UTL with 95% Coverage					11.64		
924			95% UPL		11.16	90% Percentile					8.4		
925			90% Chebyshev UPL		15.26	95% Percentile					11.1		
926			95% Chebyshev UPL		19.83	99% Percentile					18.42		
927			95% USL		25.5								
928													
929	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
930	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
931	and consists of observations collected from clean unimpacted locations.												
932	The use of USL tends to provide a balance between false positives and false negatives provided the data												
933	represents a background data set and when many onsite observations need to be compared with the BTV.												
934													
935	CO_As <22												
936													
937	General Statistics												
938	Total Number of Observations					491	Number of Distinct Observations					107	
939	Minimum					0.3	First Quartile					3	
940	Second Largest					19.6	Median					4.4	
941	Maximum					21.8	Third Quartile					6.5	
942	Mean					5.087	SD					3.11	
943	Coefficient of Variation					0.611	Skewness					1.806	
944	Mean of logged Data					1.458	SD of logged Data					0.596	
945													
946	Critical Values for Background Threshold Values (BTVs)												
947	Tolerance Factor K (For UTL)					1.764	d2max (for USL)					3.69	
948													
949	Normal GOF Test												
950	Shapiro Wilk Test Statistic					0.861	Normal GOF Test						
951	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
952	Lilliefors Test Statistic					0.102	Lilliefors GOF Test						

	A	B	C	D	E	F	G	H	I	J	K	L	
953	1% Lilliefors Critical Value					0.0467	Data Not Normal at 1% Significance Level						
954	Data Not Normal at 1% Significance Level												
955													
956	Background Statistics Assuming Normal Distribution												
957	95% UTL with		95% Coverage		10.57		90% Percentile (z)				9.072		
958			95% UPL (t)		10.22		95% Percentile (z)				10.2		
959			95% USL		16.56		99% Percentile (z)				12.32		
960													
961	Gamma GOF Test												
962	A-D Test Statistic				1.05		Anderson-Darling Gamma GOF Test						
963	5% A-D Critical Value				0.761		Data Not Gamma Distributed at 5% Significance Level						
964	K-S Test Statistic				0.0373		Kolmogorov-Smirnov Gamma GOF Test						
965	5% K-S Critical Value				0.0412		Detected data appear Gamma Distributed at 5% Significance Level						
966	Detected data follow Appr. Gamma Distribution at 5% Significance Level												
967													
968	Gamma Statistics												
969	k hat (MLE)				3.118		k star (bias corrected MLE)				3.1		
970	Theta hat (MLE)				1.631		Theta star (bias corrected MLE)				1.641		
971	nu hat (MLE)				3062		nu star (bias corrected)				3045		
972	MLE Mean (bias corrected)				5.087		MLE Sd (bias corrected)				2.889		
973													
974	Background Statistics Assuming Gamma Distribution												
975	95% Wilson Hilferty (WH) Approx. Gamma UPL				10.53		90% Percentile				8.96		
976	95% Hawkins Wixley (HW) Approx. Gamma UPL				10.69		95% Percentile				10.58		
977	95% WH Approx. Gamma UTL with		95% Coverage		11.07		99% Percentile				14.07		
978	95% HW Approx. Gamma UTL with		95% Coverage		11.27								
979	95% WH USL				23.22		95% HW USL				25.36		
980													
981	Lognormal GOF Test												
982	Shapiro Wilk Test Statistic				0.985		Shapiro Wilk Lognormal GOF Test						
983	10% Shapiro Wilk P Value				0.508		Data appear Lognormal at 10% Significance Level						
984	Lilliefors Test Statistic				0.0417		Lilliefors Lognormal GOF Test						
985	10% Lilliefors Critical Value				0.0369		Data Not Lognormal at 10% Significance Level						
986	Data appear Approximate Lognormal at 10% Significance Level												
987													
988	Background Statistics assuming Lognormal Distribution												
989	95% UTL with		95% Coverage		12.3		90% Percentile (z)				9.224		
990			95% UPL (t)		11.49		95% Percentile (z)				11.46		
991			95% USL		38.78		99% Percentile (z)				17.2		
992													
993	Nonparametric Distribution Free Background Statistics												
994	Data appear Approximate Gamma Distribution at 5% Significance Level												
995													
996	Nonparametric Upper Limits for Background Threshold Values												
997	Order of Statistic, order				475		95% UTL with				95% Coverage		12.1
998	Approx, f used to compute achieved CC				1.386		Approximate Actual Confidence Coefficient achieved by UTL				0.934		
999							Approximate Sample Size needed to achieve specified CC				482		
1000	95% Percentile Bootstrap UTL with		95% Coverage		11.65		95% BCA Bootstrap UTL with		95% Coverage		11.7		
1001			95% UPL		11.1				90% Percentile		8.4		
1002			90% Chebyshev UPL		14.43				95% Percentile		10.95		
1003			95% Chebyshev UPL		18.66				99% Percentile		16.93		
1004			95% USL		21.8								
1005													
1006	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1007	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1008	and consists of observations collected from clean unimpacted locations.												
1009	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1010	represents a background data set and when many onsite observations need to be compared with the BTV.												
1011													
1012	CO_As <16												
1013													
1014	General Statistics												
1015	Total Number of Observations				485		Number of Distinct Observations				101		
1016	Minimum				0.3		First Quartile				3		
1017	Second Largest				15.7		Median				4.4		
1018	Maximum				15.9		Third Quartile				6.4		
1019	Mean				4.916		SD				2.714		
1020	Coefficient of Variation				0.552		Skewness				1.237		

	A	B	C	D	E	F	G	H	I	J	K	L
1021	Mean of logged Data					1.44	SD of logged Data					0.577
1022												
1023	Critical Values for Background Threshold Values (BTVs)											
1024	Tolerance Factor K (For UTL)					1.764	d2max (for USL)					3.687
1025												
1026	Normal GOF Test											
1027	Shapiro Wilk Test Statistic					0.908	Normal GOF Test					
1028	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1029	Lilliefors Test Statistic					0.0908	Lilliefors GOF Test					
1030	1% Lilliefors Critical Value					0.0469	Data Not Normal at 1% Significance Level					
1031	Data Not Normal at 1% Significance Level											
1032												
1033	Background Statistics Assuming Normal Distribution											
1034	95% UTL with		95% Coverage	9.704			90% Percentile (z)		8.394			
1035			95% UPL (t)	9.393			95% Percentile (z)		9.38			
1036			95% USL	14.92			99% Percentile (z)		11.23			
1037												
1038	Gamma GOF Test											
1039	A-D Test Statistic					0.408	Anderson-Darling Gamma GOF Test					
1040	5% A-D Critical Value					0.76	Detected data appear Gamma Distributed at 5% Significance Level					
1041	K-S Test Statistic					0.0233	Kolmogorov-Smirnov Gamma GOF Test					
1042	5% K-S Critical Value					0.0414	Detected data appear Gamma Distributed at 5% Significance Level					
1043	Detected data appear Gamma Distributed at 5% Significance Level											
1044												
1045	Gamma Statistics											
1046	k hat (MLE)					3.427	k star (bias corrected MLE)					3.407
1047	Theta hat (MLE)					1.435	Theta star (bias corrected MLE)					1.443
1048	nu hat (MLE)					3324	nu star (bias corrected)					3305
1049	MLE Mean (bias corrected)					4.916	MLE Sd (bias corrected)					2.663
1050												
1051	Background Statistics Assuming Gamma Distribution											
1052	95% Wilson Hilferty (WH) Approx. Gamma UPL					9.932	90% Percentile					8.487
1053	95% Hawkins Wixley (HW) Approx. Gamma UPL					10.1	95% Percentile					9.953
1054	95% WH Approx. Gamma UTL with		95% Coverage	10.43			99% Percentile		13.11			
1055	95% HW Approx. Gamma UTL with		95% Coverage	10.64								
1056			95% WH USL	21.31			95% HW USL		23.28			
1057												
1058	Lognormal GOF Test											
1059	Shapiro Wilk Test Statistic					0.978	Shapiro Wilk Lognormal GOF Test					
1060	10% Shapiro Wilk P Value					0.0283	Data Not Lognormal at 10% Significance Level					
1061	Lilliefors Test Statistic					0.0437	Lilliefors Lognormal GOF Test					
1062	10% Lilliefors Critical Value					0.0371	Data Not Lognormal at 10% Significance Level					
1063	Data Not Lognormal at 10% Significance Level											
1064												
1065	Background Statistics assuming Lognormal Distribution											
1066	95% UTL with		95% Coverage	11.67			90% Percentile (z)		8.832			
1067			95% UPL (t)	10.92			95% Percentile (z)		10.89			
1068			95% USL	35.34			99% Percentile (z)		16.13			
1069												
1070	Nonparametric Distribution Free Background Statistics											
1071	Data appear Gamma Distributed at 5% Significance Level											
1072												
1073	Nonparametric Upper Limits for Background Threshold Values											
1074	Order of Statistic, order					469	95% UTL with 95% Coverage					11.1
1075	Approx, f used to compute achieved CC					1.368	Approximate Actual Confidence Coefficient achieved by UTL					0.926
1076							Approximate Sample Size needed to achieve specified CC					482
1077	95% Percentile Bootstrap UTL with		95% Coverage	11.1			95% BCA Bootstrap UTL with 95% Coverage		11.1			
1078			95% UPL	10.27			90% Percentile		8.2			
1079			90% Chebyshev UPL	13.07			95% Percentile		10.16			
1080			95% Chebyshev UPL	16.76			99% Percentile		15.2			
1081			95% USL	15.9								
1082												
1083	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1084	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1085	and consists of observations collected from clean unimpacted locations.											
1086	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1087	represents a background data set and when many onsite observations need to be compared with the BTV.											
1088												

	A	B	C	D	E	F	G	H	I	J	K	L
1089	CO_As <14											
1090												
1091	General Statistics											
1092	Total Number of Observations					479	Number of Distinct Observations					96
1093	Minimum					0.3	First Quartile					3
1094	Second Largest					13.4	Median					4.4
1095	Maximum					13.4	Third Quartile					6.3
1096	Mean					4.784	SD					2.457
1097	Coefficient of Variation					0.514	Skewness					0.846
1098	Mean of logged Data					1.423	SD of logged Data					0.561
1099												
1100	Critical Values for Background Threshold Values (BTVs)											
1101	Tolerance Factor K (For UTL)					1.765	d2max (for USL)					3.684
1102												
1103	Normal GOF Test											
1104	Shapiro Wilk Test Statistic					0.937	Normal GOF Test					
1105	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1106	Lilliefors Test Statistic					0.0839	Lilliefors GOF Test					
1107	1% Lilliefors Critical Value					0.0472	Data Not Normal at 1% Significance Level					
1108	Data Not Normal at 1% Significance Level											
1109												
1110	Background Statistics Assuming Normal Distribution											
1111	95% UTL with	95% Coverage				9.121	90% Percentile (z)					7.933
1112		95% UPL (t)				8.838	95% Percentile (z)					8.825
1113		95% USL				13.84	99% Percentile (z)					10.5
1114												
1115	Gamma GOF Test											
1116	A-D Test Statistic					0.407	Anderson-Darling Gamma GOF Test					
1117	5% A-D Critical Value					0.76	Detected data appear Gamma Distributed at 5% Significance Level					
1118	K-S Test Statistic					0.0299	Kolmogorov-Smirnov Gamma GOF Test					
1119	5% K-S Critical Value					0.0417	Detected data appear Gamma Distributed at 5% Significance Level					
1120	Detected data appear Gamma Distributed at 5% Significance Level											
1121												
1122	Gamma Statistics											
1123	k hat (MLE)					3.681	k star (bias corrected MLE)					3.659
1124	Theta hat (MLE)					1.3	Theta star (bias corrected MLE)					1.307
1125	nu hat (MLE)					3526	nu star (bias corrected)					3505
1126	MLE Mean (bias corrected)					4.784	MLE Sd (bias corrected)					2.501
1127												
1128	Background Statistics Assuming Gamma Distribution											
1129	95% Wilson Hilferty (WH) Approx. Gamma UPL					9.488	90% Percentile					8.136
1130	95% Hawkins Wixley (HW) Approx. Gamma UPL					9.665	95% Percentile					9.497
1131	95% WH Approx. Gamma UTL with	95% Coverage				9.949	99% Percentile					12.42
1132	95% HW Approx. Gamma UTL with	95% Coverage				10.17						
1133		95% WH USL				19.95	95% HW USL					21.78
1134												
1135	Lognormal GOF Test											
1136	Shapiro Wilk Test Statistic					0.971	Shapiro Wilk Lognormal GOF Test					
1137	10% Shapiro Wilk P Value					5.4510E-5	Data Not Lognormal at 10% Significance Level					
1138	Lilliefors Test Statistic					0.0496	Lilliefors Lognormal GOF Test					
1139	10% Lilliefors Critical Value					0.0374	Data Not Lognormal at 10% Significance Level					
1140	Data Not Lognormal at 10% Significance Level											
1141												
1142	Background Statistics assuming Lognormal Distribution											
1143	95% UTL with	95% Coverage				11.18	90% Percentile (z)					8.521
1144		95% UPL (t)				10.48	95% Percentile (z)					10.45
1145		95% USL				32.81	99% Percentile (z)					15.32
1146												
1147	Nonparametric Distribution Free Background Statistics											
1148	Data appear Gamma Distributed at 5% Significance Level											
1149												
1150	Nonparametric Upper Limits for Background Threshold Values											
1151	Order of Statistic, order					464	95% UTL with 95% Coverage					10.3
1152	Approx, f used to compute achieved CC					1.433	Approximate Actual Confidence Coefficient achieved by UTL					0.947
1153							Approximate Sample Size needed to achieve specified CC					458
1154	95% Percentile Bootstrap UTL with	95% Coverage				10.3	95% BCA Bootstrap UTL with	95% Coverage			10	
1155		95% UPL				9.4		90% Percentile			8.02	
1156		90% Chebyshev UPL				12.16		95% Percentile			9.4	

	A	B	C	D	E	F	G	H	I	J	K	L
1157	95% Chebyshev UPL					15.51	99% Percentile					11.79
1158	95% USL					13.4						
1159												
1160	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1161	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1162	and consists of observations collected from clean unimpacted locations.											
1163	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1164	represents a background data set and when many onsite observations need to be compared with the BTV.											
1165												
1166	CO_Pb											
1167												
1168	General Statistics											
1169	Total Number of Observations					493	Number of Distinct Observations					236
1170	Minimum					8.9	First Quartile					19.1
1171	Second Largest					1510	Median					22.2
1172	Maximum					1610	Third Quartile					27.3
1173	Mean					36.78	SD					116
1174	Coefficient of Variation					3.153	Skewness					11.29
1175	Mean of logged Data					3.194	SD of logged Data					0.545
1176												
1177	Critical Values for Background Threshold Values (BTVs)											
1178	Tolerance Factor K (For UTL)					1.763	d2max (for USL)					3.691
1179												
1180	Normal GOF Test											
1181	Shapiro Wilk Test Statistic					0.151	Normal GOF Test					
1182	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1183	Lilliefors Test Statistic					0.42	Lilliefors GOF Test					
1184	1% Lilliefors Critical Value					0.0466	Data Not Normal at 1% Significance Level					
1185	Data Not Normal at 1% Significance Level											
1186												
1187	Background Statistics Assuming Normal Distribution											
1188	95% UTL with		95% Coverage		241.2	90% Percentile (z)					185.4	
1189			95% UPL (t)		228.1	95% Percentile (z)					227.5	
1190			95% USL		464.8	99% Percentile (z)					306.5	
1191												
1192	Gamma GOF Test											
1193	A-D Test Statistic					2.028E+28	Anderson-Darling Gamma GOF Test					
1194	5% A-D Critical Value					0.776	Data Not Gamma Distributed at 5% Significance Level					
1195	K-S Test Statistic					0.305	Kolmogorov-Smirnov Gamma GOF Test					
1196	5% K-S Critical Value					0.0417	Data Not Gamma Distributed at 5% Significance Level					
1197	Data Not Gamma Distributed at 5% Significance Level											
1198												
1199	Gamma Statistics											
1200	k hat (MLE)					1.36	k star (bias corrected MLE)					1.353
1201	Theta hat (MLE)					27.04	Theta star (bias corrected MLE)					27.17
1202	nu hat (MLE)					1341	nu star (bias corrected)					1335
1203	MLE Mean (bias corrected)					36.78	MLE Sd (bias corrected)					31.61
1204												
1205	Background Statistics Assuming Gamma Distribution											
1206	95% Wilson Hilferty (WH) Approx. Gamma UPL					83.58	90% Percentile					78.59
1207	95% Hawkins Wixley (HW) Approx. Gamma UPL					75.43	95% Percentile					99.19
1208	95% WH Approx. Gamma UTL with		95% Coverage		89.28	99% Percentile					146	
1209	95% HW Approx. Gamma UTL with		95% Coverage		80.49							
1210			95% WH USL		228.7	95% HW USL					211.3	
1211												
1212	Lognormal GOF Test											
1213	Shapiro Wilk Test Statistic					0.691	Shapiro Wilk Lognormal GOF Test					
1214	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
1215	Lilliefors Test Statistic					0.181	Lilliefors Lognormal GOF Test					
1216	10% Lilliefors Critical Value					0.0368	Data Not Lognormal at 10% Significance Level					
1217	Data Not Lognormal at 10% Significance Level											
1218												
1219	Background Statistics assuming Lognormal Distribution											
1220	95% UTL with		95% Coverage		63.73	90% Percentile (z)					49.02	
1221			95% UPL (t)		59.9	95% Percentile (z)					59.74	
1222			95% USL		182.1	99% Percentile (z)					86.59	
1223												
1224	Nonparametric Distribution Free Background Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L	
1225	Data do not follow a Discernible Distribution												
1226													
1227	Nonparametric Upper Limits for Background Threshold Values												
1228	Order of Statistic, order					477	95% UTL with 95% Coverage					69.3	
1229	Approx, f used to compute achieved CC					1.392	Approximate Actual Confidence Coefficient achieved by UTL					0.936	
1230							Approximate Sample Size needed to achieve specified CC					482	
1231	95% Percentile Bootstrap UTL with 95% Coverage					60.18	95% BCA Bootstrap UTL with 95% Coverage					60.18	
1232	95% UPL					47.07	90% Percentile					35.7	
1233	90% Chebyshev UPL					385	95% Percentile					46.44	
1234	95% Chebyshev UPL					542.7	99% Percentile					277	
1235	95% USL					1610							
1236													
1237	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1238	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1239	and consists of observations collected from clean unimpacted locations.												
1240	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1241	represents a background data set and when many onsite observations need to be compared with the BTV.												
1242													
1243	CO_Pb <275												
1244													
1245	General Statistics												
1246	Total Number of Observations					488	Number of Distinct Observations					231	
1247	Minimum					8.9	First Quartile					19.1	
1248	Second Largest					188	Median					22.2	
1249	Maximum					274	Third Quartile					27.1	
1250	Mean					26.28	SD					20.6	
1251	Coefficient of Variation					0.784	Skewness					7.046	
1252	Mean of logged Data					3.157	SD of logged Data					0.399	
1253													
1254	Critical Values for Background Threshold Values (BTVs)												
1255	Tolerance Factor K (For UTL)					1.764	d2max (for USL)					3.689	
1256													
1257	Normal GOF Test												
1258	Shapiro Wilk Test Statistic					0.441	Normal GOF Test						
1259	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
1260	Lilliefors Test Statistic					0.26	Lilliefors GOF Test						
1261	1% Lilliefors Critical Value					0.0468	Data Not Normal at 1% Significance Level						
1262	Data Not Normal at 1% Significance Level												
1263													
1264	Background Statistics Assuming Normal Distribution												
1265	95% UTL with 95% Coverage					62.62	90% Percentile (z)					52.68	
1266	95% UPL (t)					60.27	95% Percentile (z)					60.17	
1267	95% USL					102.3	99% Percentile (z)					74.21	
1268													
1269	Gamma GOF Test												
1270	A-D Test Statistic					28.41	Anderson-Darling Gamma GOF Test						
1271	5% A-D Critical Value					0.757	Data Not Gamma Distributed at 5% Significance Level						
1272	K-S Test Statistic					0.171	Kolmogorov-Smirnov Gamma GOF Test						
1273	5% K-S Critical Value					0.0412	Data Not Gamma Distributed at 5% Significance Level						
1274	Data Not Gamma Distributed at 5% Significance Level												
1275													
1276	Gamma Statistics												
1277	k hat (MLE)					4.637	k star (bias corrected MLE)					4.61	
1278	Theta hat (MLE)					5.668	Theta star (bias corrected MLE)					5.701	
1279	nu hat (MLE)					4526	nu star (bias corrected)					4499	
1280	MLE Mean (bias corrected)					26.28	MLE Sd (bias corrected)					12.24	
1281													
1282	Background Statistics Assuming Gamma Distribution												
1283	95% Wilson Hilferty (WH) Approx. Gamma UPL					48.16	90% Percentile					42.68	
1284	95% Hawkins Wixley (HW) Approx. Gamma UPL					47.29	95% Percentile					49.1	
1285	95% WH Approx. Gamma UTL with 95% Coverage					50.24	99% Percentile					62.73	
1286	95% HW Approx. Gamma UTL with 95% Coverage					49.36							
1287	95% WH USL					94.83	95% HW USL					95.66	
1288													
1289	Lognormal GOF Test												
1290	Shapiro Wilk Test Statistic					0.865	Shapiro Wilk Lognormal GOF Test						
1291	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level						
1292	Lilliefors Test Statistic					0.116	Lilliefors Lognormal GOF Test						

	A	B	C	D	E	F	G	H	I	J	K	L	
1293	10% Lilliefors Critical Value					0.037	Data Not Lognormal at 10% Significance Level						
1294	Data Not Lognormal at 10% Significance Level												
1295													
1296	Background Statistics assuming Lognormal Distribution												
1297	95% UTL with		95% Coverage		47.52		90% Percentile (z)				39.2		
1298			95% UPL (t)		45.4		95% Percentile (z)				45.31		
1299			95% USL		102.4		99% Percentile (z)				59.47		
1300													
1301	Nonparametric Distribution Free Background Statistics												
1302	Data do not follow a Discernible Distribution												
1303													
1304	Nonparametric Upper Limits for Background Threshold Values												
1305	Order of Statistic, order				472		95% UTL with 95% Coverage				51.5		
1306	Approx, f used to compute achieved CC				1.377		Approximate Actual Confidence Coefficient achieved by UTL				0.93		
1307							Approximate Sample Size needed to achieve specified CC				482		
1308	95% Percentile Bootstrap UTL with		95% Coverage		48.81		95% BCA Bootstrap UTL with		95% Coverage		48.49		
1309			95% UPL		43.3				90% Percentile		34.8		
1310			90% Chebyshev UPL		88.15				95% Percentile		42.77		
1311			95% Chebyshev UPL		116.2				99% Percentile		114.2		
1312			95% USL		274								
1313													
1314	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1315	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1316	and consists of observations collected from clean unimpacted locations.												
1317	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1318	represents a background data set and when many onsite observations need to be compared with the BTV.												
1319													
1320	CO_Pb <100												
1321													
1322	General Statistics												
1323	Total Number of Observations				481		Number of Distinct Observations				224		
1324	Minimum				8.9		First Quartile				19.1		
1325	Second Largest				85.9		Median				22.2		
1326	Maximum				99.2		Third Quartile				26.8		
1327	Mean				24.23		SD				9.71		
1328	Coefficient of Variation				0.401		Skewness				3.097		
1329	Mean of logged Data				3.129		SD of logged Data				0.325		
1330													
1331	Critical Values for Background Threshold Values (BTVs)												
1332	Tolerance Factor K (For UTL)				1.765		d2max (for USL)				3.685		
1333													
1334	Normal GOF Test												
1335	Shapiro Wilk Test Statistic				0.772		Normal GOF Test						
1336	1% Shapiro Wilk P Value				0		Data Not Normal at 1% Significance Level						
1337	Lilliefors Test Statistic				0.148		Lilliefors GOF Test						
1338	1% Lilliefors Critical Value				0.0471		Data Not Normal at 1% Significance Level						
1339	Data Not Normal at 1% Significance Level												
1340													
1341	Background Statistics Assuming Normal Distribution												
1342	95% UTL with		95% Coverage		41.36		90% Percentile (z)				36.67		
1343			95% UPL (t)		40.24		95% Percentile (z)				40.2		
1344			95% USL		60		99% Percentile (z)				46.81		
1345													
1346	Gamma GOF Test												
1347	A-D Test Statistic				8.29		Anderson-Darling Gamma GOF Test						
1348	5% A-D Critical Value				0.754		Data Not Gamma Distributed at 5% Significance Level						
1349	K-S Test Statistic				0.0968		Kolmogorov-Smirnov Gamma GOF Test						
1350	5% K-S Critical Value				0.0414		Data Not Gamma Distributed at 5% Significance Level						
1351	Data Not Gamma Distributed at 5% Significance Level												
1352													
1353	Gamma Statistics												
1354	k hat (MLE)				8.769		k star (bias corrected MLE)				8.716		
1355	Theta hat (MLE)				2.763		Theta star (bias corrected MLE)				2.779		
1356	nu hat (MLE)				8436		nu star (bias corrected)				8385		
1357	MLE Mean (bias corrected)				24.23		MLE Sd (bias corrected)				8.206		
1358													
1359	Background Statistics Assuming Gamma Distribution												
1360	95% Wilson Hiferty (WH) Approx. Gamma UPL				39		90% Percentile				35.16		

	A	B	C	D	E	F	G	H	I	J	K	L
1361	95% Hawkins Wixley (HW) Approx. Gamma UPL					38.98	95% Percentile					39.11
1362	95% WH Approx. Gamma UTL with 95% Coverage					40.31	99% Percentile					47.27
1363	95% HW Approx. Gamma UTL with 95% Coverage					40.32						
1364	95% WH USL					66.56	95% HW USL					68.27
1365												
1366	Lognormal GOF Test											
1367	Shapiro Wilk Test Statistic					0.958	Shapiro Wilk Lognormal GOF Test					
1368	10% Shapiro Wilk P Value					3.494E-13	Data Not Lognormal at 10% Significance Level					
1369	Lilliefors Test Statistic					0.0705	Lilliefors Lognormal GOF Test					
1370	10% Lilliefors Critical Value					0.0373	Data Not Lognormal at 10% Significance Level					
1371	Data Not Lognormal at 10% Significance Level											
1372												
1373	Background Statistics assuming Lognormal Distribution											
1374	95% UTL with		95% Coverage		40.59	90% Percentile (z)					34.68	
1375			95% UPL (t)		39.1	95% Percentile (z)					39.03	
1376			95% USL		75.8	99% Percentile (z)					48.72	
1377												
1378	Nonparametric Distribution Free Background Statistics											
1379	Data do not follow a Discernible Distribution											
1380												
1381	Nonparametric Upper Limits for Background Threshold Values											
1382	Order of Statistic, order					466	95% UTL with 95% Coverage					44.6
1383	Approx, f used to compute achieved CC					1.44	Approximate Actual Confidence Coefficient achieved by UTL					0.949
1384							Approximate Sample Size needed to achieve specified CC					458
1385	95% Percentile Bootstrap UTL with		95% Coverage		42.8	95% BCA Bootstrap UTL with 95% Coverage					42.7	
1386			95% UPL		39.69	90% Percentile					33.9	
1387			90% Chebyshev UPL		53.39	95% Percentile					39.6	
1388			95% Chebyshev UPL		66.59	99% Percentile					67.14	
1389			95% USL		99.2							
1390												
1391	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1392	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1393	and consists of observations collected from clean unimpacted locations.											
1394	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1395	represents a background data set and when many onsite observations need to be compared with the BTV.											
1396												
1397	CO_Pb <70											
1398												
1399	General Statistics											
1400	Total Number of Observations					477	Number of Distinct Observations					220
1401	Minimum					8.9	First Quartile					19
1402	Second Largest					66.6	Median					22.1
1403	Maximum					69.3	Third Quartile					26.7
1404	Mean					23.71	SD					7.873
1405	Coefficient of Variation					0.332	Skewness					1.729
1406	Mean of logged Data					3.118	SD of logged Data					0.303
1407												
1408	Critical Values for Background Threshold Values (BTVs)											
1409	Tolerance Factor K (For UTL)					1.765	d2max (for USL)					3.682
1410												
1411	Normal GOF Test											
1412	Shapiro Wilk Test Statistic					0.884	Normal GOF Test					
1413	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1414	Lilliefors Test Statistic					0.12	Lilliefors GOF Test					
1415	1% Lilliefors Critical Value					0.0473	Data Not Normal at 1% Significance Level					
1416	Data Not Normal at 1% Significance Level											
1417												
1418	Background Statistics Assuming Normal Distribution											
1419	95% UTL with		95% Coverage		37.6	90% Percentile (z)					33.79	
1420			95% UPL (t)		36.69	95% Percentile (z)					36.65	
1421			95% USL		52.7	99% Percentile (z)					42.02	
1422												
1423	Gamma GOF Test											
1424	A-D Test Statistic					4.501	Anderson-Darling Gamma GOF Test					
1425	5% A-D Critical Value					0.753	Data Not Gamma Distributed at 5% Significance Level					
1426	K-S Test Statistic					0.0781	Kolmogorov-Smirnov Gamma GOF Test					
1427	5% K-S Critical Value					0.0415	Data Not Gamma Distributed at 5% Significance Level					
1428	Data Not Gamma Distributed at 5% Significance Level											

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	A	B	C	D	E	F	G	H	I	J	K	L
1429												
1430	Gamma Statistics											
1431	k hat (MLE)					10.69	k star (bias corrected MLE)					10.62
1432	Theta hat (MLE)					2.218	Theta star (bias corrected MLE)					2.231
1433	nu hat (MLE)					10198	nu star (bias corrected)					10135
1434	MLE Mean (bias corrected)					23.71	MLE Sd (bias corrected)					7.273
1435												
1436	Background Statistics Assuming Gamma Distribution											
1437	95% Wilson Hilferty (WH) Approx. Gamma UPL					36.77	90% Percentile					33.37
1438	95% Hawkins Wixley (HW) Approx. Gamma UPL					36.86	95% Percentile					36.8
1439	95% WH Approx. Gamma UTL with 95% Coverage					37.9	99% Percentile					43.81
1440	95% HW Approx. Gamma UTL with 95% Coverage					38.03						
1441	95% WH USL					60.26	95% HW USL					61.94
1442												
1443	Lognormal GOF Test											
1444	Shapiro Wilk Test Statistic					0.977	Shapiro Wilk Lognormal GOF Test					
1445	10% Shapiro Wilk P Value					0.0112	Data Not Lognormal at 10% Significance Level					
1446	Lilliefors Test Statistic					0.0565	Lilliefors Lognormal GOF Test					
1447	10% Lilliefors Critical Value					0.0375	Data Not Lognormal at 10% Significance Level					
1448	Data Not Lognormal at 10% Significance Level											
1449												
1450	Background Statistics assuming Lognormal Distribution											
1451	95% UTL with 95% Coverage					38.6	90% Percentile (z)					33.33
1452	95% UPL (t)					37.27	95% Percentile (z)					37.21
1453	95% USL					69	99% Percentile (z)					45.75
1454												
1455	Nonparametric Distribution Free Background Statistics											
1456	Data do not follow a Discernible Distribution											
1457												
1458	Nonparametric Upper Limits for Background Threshold Values											
1459	Order of Statistic, order					462	95% UTL with 95% Coverage					42
1460	Approx, f used to compute achieved CC					1.427	Approximate Actual Confidence Coefficient achieved by UTL					0.945
1461							Approximate Sample Size needed to achieve specified CC					458
1462	95% Percentile Bootstrap UTL with 95% Coverage					41.4	95% BCA Bootstrap UTL with 95% Coverage					41.3
1463	95% UPL					38.81	90% Percentile					33.44
1464	90% Chebyshev UPL					47.35	95% Percentile					38.64
1465	95% Chebyshev UPL					58.06	99% Percentile					51.55
1466	95% USL					69.3						
1467												
1468	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1469	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1470	and consists of observations collected from clean unimpacted locations.											
1471	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1472	represents a background data set and when many onsite observations need to be compared with the BTV.											
1473												
1474	CO_Pb <50											
1475												
1476	General Statistics											
1477	Total Number of Observations					471	Number of Distinct Observations					214
1478	Minimum					8.9	First Quartile					19
1479	Second Largest					47.7	Median					22
1480	Maximum					49.4	Third Quartile					26.45
1481	Mean					23.27	SD					6.843
1482	Coefficient of Variation					0.294	Skewness					1.012
1483	Mean of logged Data					3.106	SD of logged Data					0.285
1484												
1485	Critical Values for Background Threshold Values (BTVs)											
1486	Tolerance Factor K (For UTL)					1.766	d2max (for USL)					3.679
1487												
1488	Normal GOF Test											
1489	Shapiro Wilk Test Statistic					0.931	Normal GOF Test					
1490	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1491	Lilliefors Test Statistic					0.101	Lilliefors GOF Test					
1492	1% Lilliefors Critical Value					0.0476	Data Not Normal at 1% Significance Level					
1493	Data Not Normal at 1% Significance Level											
1494												
1495	Background Statistics Assuming Normal Distribution											
1496	95% UTL with 95% Coverage					35.35	90% Percentile (z)					32.04

	A	B	C	D	E	F	G	H	I	J	K	L	
1497					95% UPL (t)	34.56				95% Percentile (z)		34.52	
1498					95% USL	48.44				99% Percentile (z)		39.19	
1499													
1500	Gamma GOF Test												
1501					A-D Test Statistic	2.482		Anderson-Darling Gamma GOF Test					
1502					5% A-D Critical Value	0.753		Data Not Gamma Distributed at 5% Significance Level					
1503					K-S Test Statistic	0.0629		Kolmogorov-Smirnov Gamma GOF Test					
1504					5% K-S Critical Value	0.0418		Data Not Gamma Distributed at 5% Significance Level					
1505	Data Not Gamma Distributed at 5% Significance Level												
1506													
1507	Gamma Statistics												
1508					k hat (MLE)	12.43				k star (bias corrected MLE)		12.35	
1509					Theta hat (MLE)	1.873				Theta star (bias corrected MLE)		1.884	
1510					nu hat (MLE)	11704				nu star (bias corrected)		11631	
1511					MLE Mean (bias corrected)	23.27				MLE Sd (bias corrected)		6.622	
1512													
1513	Background Statistics Assuming Gamma Distribution												
1514					95% Wilson Hilferty (WH) Approx. Gamma UPL	35.12				90% Percentile		32.05	
1515					95% Hawkins Wixley (HW) Approx. Gamma UPL	35.25				95% Percentile		35.12	
1516					95% WH Approx. Gamma UTL with 95% Coverage	36.14				99% Percentile		41.37	
1517					95% HW Approx. Gamma UTL with 95% Coverage	36.31							
1518					95% WH USL	55.87				95% HW USL		57.43	
1519													
1520	Lognormal GOF Test												
1521					Shapiro Wilk Test Statistic	0.978		Shapiro Wilk Lognormal GOF Test					
1522					10% Shapiro Wilk P Value	0.0332		Data Not Lognormal at 10% Significance Level					
1523					Lilliefors Test Statistic	0.0442		Lilliefors Lognormal GOF Test					
1524					10% Lilliefors Critical Value	0.0377		Data Not Lognormal at 10% Significance Level					
1525	Data Not Lognormal at 10% Significance Level												
1526													
1527	Background Statistics assuming Lognormal Distribution												
1528					95% UTL with 95% Coverage	36.98				90% Percentile (z)		32.2	
1529					95% UPL (t)	35.77				95% Percentile (z)		35.72	
1530					95% USL	63.84				99% Percentile (z)		43.39	
1531													
1532	Nonparametric Distribution Free Background Statistics												
1533	Data do not follow a Discernible Distribution												
1534													
1535	Nonparametric Upper Limits for Background Threshold Values												
1536					Order of Statistic, order	456				95% UTL with 95% Coverage		39.3	
1537					Approx, f used to compute achieved CC	1.409		Approximate Actual Confidence Coefficient achieved by UTL					0.938
1538								Approximate Sample Size needed to achieve specified CC					458
1539					95% Percentile Bootstrap UTL with 95% Coverage	38.85				95% BCA Bootstrap UTL with 95% Coverage		38.85	
1540					95% UPL	37.04				90% Percentile		32.8	
1541					90% Chebyshev UPL	43.82				95% Percentile		36.95	
1542					95% Chebyshev UPL	53.13				99% Percentile		45.05	
1543					95% USL	49.4							
1544													
1545	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1546	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1547	and consists of observations collected from clean unimpacted locations.												
1548	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1549	represents a background data set and when many onsite observations need to be compared with the BTV.												
1550													
1551	CO_Pb <45												
1552													
1553	General Statistics												
1554					Total Number of Observations	466		Number of Distinct Observations					209
1555					Minimum	8.9				First Quartile		18.93	
1556					Second Largest	43.7				Median		22	
1557					Maximum	44.6				Third Quartile		26.28	
1558					Mean	23.01				SD		6.408	
1559					Coefficient of Variation	0.278				Skewness		0.797	
1560					Mean of logged Data	3.098				SD of logged Data		0.276	
1561													
1562	Critical Values for Background Threshold Values (BTVs)												
1563					Tolerance Factor K (For UTL)	1.767				d2max (for USL)		3.676	
1564													

	A	B	C	D	E	F	G	H	I	J	K	L
1565	Normal GOF Test											
1566	Shapiro Wilk Test Statistic					0.945	Normal GOF Test					
1567	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1568	Lilliefors Test Statistic					0.0902	Lilliefors GOF Test					
1569	1% Lilliefors Critical Value					0.0479	Data Not Normal at 1% Significance Level					
1570	Data Not Normal at 1% Significance Level											
1571												
1572	Background Statistics Assuming Normal Distribution											
1573	95% UTL with		95% Coverage		34.33						90% Percentile (z)	31.22
1574			95% UPL (t)		33.58						95% Percentile (z)	33.55
1575			95% USL		46.57						99% Percentile (z)	37.92
1576												
1577	Gamma GOF Test											
1578	A-D Test Statistic					1.687	Anderson-Darling Gamma GOF Test					
1579	5% A-D Critical Value					0.753	Data Not Gamma Distributed at 5% Significance Level					
1580	K-S Test Statistic					0.0539	Kolmogorov-Smirnov Gamma GOF Test					
1581	5% K-S Critical Value					0.042	Data Not Gamma Distributed at 5% Significance Level					
1582	Data Not Gamma Distributed at 5% Significance Level											
1583												
1584	Gamma Statistics											
1585	k hat (MLE)					13.43	k star (bias corrected MLE)					13.34
1586	Theta hat (MLE)					1.714	Theta star (bias corrected MLE)					1.724
1587	nu hat (MLE)					12515	nu star (bias corrected)					12436
1588	MLE Mean (bias corrected)					23.01	MLE Sd (bias corrected)					6.299
1589												
1590	Background Statistics Assuming Gamma Distribution											
1591	95% Wilson Hilferty (WH) Approx. Gamma UPL					34.26	90% Percentile					31.36
1592	95% Hawkins Wixley (HW) Approx. Gamma UPL					34.4	95% Percentile					34.26
1593	95% WH Approx. Gamma UTL with		95% Coverage		35.23	99% Percentile					40.14	
1594	95% HW Approx. Gamma UTL with		95% Coverage		35.41							
1595			95% WH USL		53.68	95% HW USL					55.16	
1596												
1597	Lognormal GOF Test											
1598	Shapiro Wilk Test Statistic					0.978	Shapiro Wilk Lognormal GOF Test					
1599	10% Shapiro Wilk P Value					0.0202	Data Not Lognormal at 10% Significance Level					
1600	Lilliefors Test Statistic					0.0378	Lilliefors Lognormal GOF Test					
1601	10% Lilliefors Critical Value					0.0379	Data appear Lognormal at 10% Significance Level					
1602	Data appear Approximate Lognormal at 10% Significance Level											
1603												
1604	Background Statistics assuming Lognormal Distribution											
1605	95% UTL with		95% Coverage		36.09	90% Percentile (z)					31.57	
1606			95% UPL (t)		34.95	95% Percentile (z)					34.9	
1607			95% USL		61.15	99% Percentile (z)					42.12	
1608												
1609	Nonparametric Distribution Free Background Statistics											
1610	Data appear Approximate Lognormal at 10% Significance Level											
1611												
1612	Nonparametric Upper Limits for Background Threshold Values											
1613	Order of Statistic, order					451	95% UTL with 95% Coverage					38.6
1614	Approx, f used to compute achieved CC					1.393	Approximate Actual Confidence Coefficient achieved by UTL					0.932
1615							Approximate Sample Size needed to achieve specified CC					458
1616	95% Percentile Bootstrap UTL with		95% Coverage		37.25	95% BCA Bootstrap UTL with 95% Coverage					37.23	
1617			95% UPL		35.7	90% Percentile					32	
1618			90% Chebyshev UPL		42.26	95% Percentile					35.65	
1619			95% Chebyshev UPL		50.97	99% Percentile					41.87	
1620			95% USL		44.6							
1621												
1622	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1623	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1624	and consists of observations collected from clean unimpacted locations.											
1625	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1626	represents a background data set and when many onsite observations need to be compared with the BTV.											
1627												
1628	CT_As											
1629												
1630	General Statistics											
1631	Total Number of Observations					25	Number of Distinct Observations					19
1632	Minimum					1.3	First Quartile					2.1

	A	B	C	D	E	F	G	H	I	J	K	L
1633				Second Largest		5.3					Median	3.2
1634				Maximum		5.4					Third Quartile	4.2
1635				Mean		3.148					SD	1.292
1636				Coefficient of Variation		0.41					Skewness	0.0885
1637				Mean of logged Data		1.053					SD of logged Data	0.462
1638												
1639	Critical Values for Background Threshold Values (BTVs)											
1640				Tolerance Factor K (For UTL)		2.292					d2max (for USL)	2.663
1641												
1642	Normal GOF Test											
1643				Shapiro Wilk Test Statistic		0.944					Shapiro Wilk GOF Test	
1644				1% Shapiro Wilk Critical Value		0.886					Data appear Normal at 1% Significance Level	
1645				Lilliefors Test Statistic		0.112					Lilliefors GOF Test	
1646				1% Lilliefors Critical Value		0.201					Data appear Normal at 1% Significance Level	
1647	Data appear Normal at 1% Significance Level											
1648												
1649	Background Statistics Assuming Normal Distribution											
1650				95% UTL with 95% Coverage		6.109					90% Percentile (z)	4.804
1651				95% UPL (t)		5.402					95% Percentile (z)	5.273
1652				95% USL		6.588					99% Percentile (z)	6.154
1653												
1654	Gamma GOF Test											
1655				A-D Test Statistic		0.526					Anderson-Darling Gamma GOF Test	
1656				5% A-D Critical Value		0.747					Detected data appear Gamma Distributed at 5% Significance Level	
1657				K-S Test Statistic		0.132					Kolmogorov-Smirnov Gamma GOF Test	
1658				5% K-S Critical Value		0.175					Detected data appear Gamma Distributed at 5% Significance Level	
1659	Detected data appear Gamma Distributed at 5% Significance Level											
1660												
1661	Gamma Statistics											
1662				k hat (MLE)		5.484					k star (bias corrected MLE)	4.853
1663				Theta hat (MLE)		0.574					Theta star (bias corrected MLE)	0.649
1664				nu hat (MLE)		274.2					nu star (bias corrected)	242.6
1665				MLE Mean (bias corrected)		3.148					MLE Sd (bias corrected)	1.429
1666												
1667	Background Statistics Assuming Gamma Distribution											
1668				95% Wilson Hilferty (WH) Approx. Gamma UPL		5.911					90% Percentile	5.062
1669				95% Hawkins Wixley (HW) Approx. Gamma UPL		6.014					95% Percentile	5.806
1670				95% WH Approx. Gamma UTL with 95% Coverage		7.13					99% Percentile	7.382
1671				95% HW Approx. Gamma UTL with 95% Coverage		7.35						
1672				95% WH USL		8.045					95% HW USL	8.373
1673												
1674	Lognormal GOF Test											
1675				Shapiro Wilk Test Statistic		0.915					Shapiro Wilk Lognormal GOF Test	
1676				10% Shapiro Wilk Critical Value		0.931					Data Not Lognormal at 10% Significance Level	
1677				Lilliefors Test Statistic		0.154					Lilliefors Lognormal GOF Test	
1678				10% Lilliefors Critical Value		0.159					Data appear Lognormal at 10% Significance Level	
1679	Data appear Approximate Lognormal at 10% Significance Level											
1680												
1681	Background Statistics assuming Lognormal Distribution											
1682				95% UTL with 95% Coverage		8.267					90% Percentile (z)	5.182
1683				95% UPL (t)		6.419					95% Percentile (z)	6.13
1684				95% USL		9.813					99% Percentile (z)	8.399
1685												
1686	Nonparametric Distribution Free Background Statistics											
1687	Data appear Normal at 1% Significance Level											
1688												
1689	Nonparametric Upper Limits for Background Threshold Values											
1690				Order of Statistic, order		25					95% UTL with 95% Coverage	5.4
1691				Approx, f used to compute achieved CC		1.316					Approximate Actual Confidence Coefficient achieved by UTL	0.723
1692											Approximate Sample Size needed to achieve specified CC	59
1693				95% Percentile Bootstrap UTL with 95% Coverage		5.4					95% BCA Bootstrap UTL with 95% Coverage	5.4
1694				95% UPL		5.37					90% Percentile	4.82
1695				90% Chebyshev UPL		7.101					95% Percentile	5.26
1696				95% Chebyshev UPL		8.891					99% Percentile	5.376
1697				95% USL		5.4						
1698												
1699	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1700	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											

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	A	B	C	D	E	F	G	H	I	J	K	L
1701	and consists of observations collected from clean unimpacted locations.											
1702	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1703	represents a background data set and when many onsite observations need to be compared with the BTV.											
1704												
1705	CT_Pb											
1706												
1707	General Statistics											
1708	Total Number of Observations					25	Number of Distinct Observations					24
1709	Minimum					12.1	First Quartile					20.6
1710	Second Largest					88.8	Median					32.2
1711	Maximum					292	Third Quartile					68.1
1712	Mean					51.6	SD					56.29
1713	Coefficient of Variation					1.091	Skewness					3.466
1714	Mean of logged Data					3.613	SD of logged Data					0.774
1715												
1716	Critical Values for Background Threshold Values (BTVs)											
1717	Tolerance Factor K (For UTL)					2.292	d2max (for USL)					2.663
1718												
1719	Normal GOF Test											
1720	Shapiro Wilk Test Statistic					0.61	Shapiro Wilk GOF Test					
1721	1% Shapiro Wilk Critical Value					0.886	Data Not Normal at 1% Significance Level					
1722	Lilliefors Test Statistic					0.241	Lilliefors GOF Test					
1723	1% Lilliefors Critical Value					0.201	Data Not Normal at 1% Significance Level					
1724	Data Not Normal at 1% Significance Level											
1725												
1726	Background Statistics Assuming Normal Distribution											
1727	95% UTL with		95% Coverage		180.6	90% Percentile (z)		123.7				
1728			95% UPL (t)		149.8	95% Percentile (z)		144.2				
1729			95% USL		201.5	99% Percentile (z)		182.6				
1730												
1731	Gamma GOF Test											
1732	A-D Test Statistic					0.758	Anderson-Darling Gamma GOF Test					
1733	5% A-D Critical Value					0.76	Detected data appear Gamma Distributed at 5% Significance Level					
1734	K-S Test Statistic					0.141	Kolmogorov-Smirnov Gamma GOF Test					
1735	5% K-S Critical Value					0.177	Detected data appear Gamma Distributed at 5% Significance Level					
1736	Detected data appear Gamma Distributed at 5% Significance Level											
1737												
1738	Gamma Statistics											
1739	k hat (MLE)					1.661	k star (bias corrected MLE)					1.489
1740	Theta hat (MLE)					31.06	Theta star (bias corrected MLE)					34.67
1741	nu hat (MLE)					83.06	nu star (bias corrected)					74.43
1742	MLE Mean (bias corrected)					51.6	MLE Sd (bias corrected)					42.29
1743												
1744	Background Statistics Assuming Gamma Distribution											
1745	95% Wilson Hilferty (WH) Approx. Gamma UPL					136.2	90% Percentile					107.7
1746	95% Hawkins Wixley (HW) Approx. Gamma UPL					136.7	95% Percentile					134.8
1747	95% WH Approx. Gamma UTL with		95% Coverage		183	99% Percentile					195.8	
1748	95% HW Approx. Gamma UTL with		95% Coverage		188.1							
1749			95% WH USL		220.2	95% HW USL					230.3	
1750												
1751	Lognormal GOF Test											
1752	Shapiro Wilk Test Statistic					0.946	Shapiro Wilk Lognormal GOF Test					
1753	10% Shapiro Wilk Critical Value					0.931	Data appear Lognormal at 10% Significance Level					
1754	Lilliefors Test Statistic					0.0924	Lilliefors Lognormal GOF Test					
1755	10% Lilliefors Critical Value					0.159	Data appear Lognormal at 10% Significance Level					
1756	Data appear Lognormal at 10% Significance Level											
1757												
1758	Background Statistics assuming Lognormal Distribution											
1759	95% UTL with		95% Coverage		218.7	90% Percentile (z)		100				
1760			95% UPL (t)		143.2	95% Percentile (z)		132.5				
1761			95% USL		291.4	99% Percentile (z)		224.6				
1762												
1763	Nonparametric Distribution Free Background Statistics											
1764	Data appear Gamma Distributed at 5% Significance Level											
1765												
1766	Nonparametric Upper Limits for Background Threshold Values											
1767	Order of Statistic, order					25	95% UTL with 95% Coverage					292
1768	Approx. f used to compute achieved CC					1.316	Approximate Actual Confidence Coefficient achieved by UTL					0.723

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	A	B	C	D	E	F	G	H	I	J	K	L
1769							Approximate Sample Size needed to achieve specified CC					59
1770	95% Percentile Bootstrap UTL with 95% Coverage					292	95% BCA Bootstrap UTL with 95% Coverage					292
1771	95% UPL					231	90% Percentile					88
1772	90% Chebyshev UPL					223.8	95% Percentile					88.76
1773	95% Chebyshev UPL					301.8	99% Percentile					243.2
1774	95% USL					292						
1775												
1776	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1777	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1778	and consists of observations collected from clean unimpacted locations.											
1779	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1780	represents a background data set and when many onsite observations need to be compared with the BTV.											
1781												
1782	CT_Pb <90											
1783												
1784	General Statistics											
1785	Total Number of Observations					24	Number of Distinct Observations					23
1786	Minimum					12.1	First Quartile					20.23
1787	Second Largest					88.6	Median					31.4
1788	Maximum					88.8	Third Quartile					61.35
1789	Mean					41.58	SD					26.25
1790	Coefficient of Variation					0.631	Skewness					0.674
1791	Mean of logged Data					3.527	SD of logged Data					0.658
1792												
1793	Critical Values for Background Threshold Values (BTVs)											
1794	Tolerance Factor K (For UTL)					2.309	d2max (for USL)					2.644
1795												
1796	Normal GOF Test											
1797	Shapiro Wilk Test Statistic					0.874	Shapiro Wilk GOF Test					
1798	1% Shapiro Wilk Critical Value					0.884	Data Not Normal at 1% Significance Level					
1799	Lilliefors Test Statistic					0.181	Lilliefors GOF Test					
1800	1% Lilliefors Critical Value					0.205	Data appear Normal at 1% Significance Level					
1801	Data appear Approximate Normal at 1% Significance Level											
1802												
1803	Background Statistics Assuming Normal Distribution											
1804	95% UTL with 95% Coverage					102.2	90% Percentile (z)					75.23
1805	95% UPL (t)					87.5	95% Percentile (z)					84.76
1806	95% USL					111	99% Percentile (z)					102.7
1807												
1808	Gamma GOF Test											
1809	A-D Test Statistic					0.62	Anderson-Darling Gamma GOF Test					
1810	5% A-D Critical Value					0.752	Detected data appear Gamma Distributed at 5% Significance Level					
1811	K-S Test Statistic					0.118	Kolmogorov-Smirnov Gamma GOF Test					
1812	5% K-S Critical Value					0.18	Detected data appear Gamma Distributed at 5% Significance Level					
1813	Detected data appear Gamma Distributed at 5% Significance Level											
1814												
1815	Gamma Statistics											
1816	k hat (MLE)					2.65	k star (bias corrected MLE)					2.347
1817	Theta hat (MLE)					15.69	Theta star (bias corrected MLE)					17.72
1818	nu hat (MLE)					127.2	nu star (bias corrected)					112.6
1819	MLE Mean (bias corrected)					41.58	MLE Sd (bias corrected)					27.15
1820												
1821	Background Statistics Assuming Gamma Distribution											
1822	95% Wilson Hilferty (WH) Approx. Gamma UPL					96.46	90% Percentile					77.93
1823	95% Hawkins Wixley (HW) Approx. Gamma UPL					98.55	95% Percentile					93.85
1824	95% WH Approx. Gamma UTL with 95% Coverage					124.5	99% Percentile					128.8
1825	95% HW Approx. Gamma UTL with 95% Coverage					129.9						
1826	95% WH USL					143.5	95% HW USL					151.9
1827												
1828	Lognormal GOF Test											
1829	Shapiro Wilk Test Statistic					0.931	Shapiro Wilk Lognormal GOF Test					
1830	10% Shapiro Wilk Critical Value					0.93	Data appear Lognormal at 10% Significance Level					
1831	Lilliefors Test Statistic					0.125	Lilliefors Lognormal GOF Test					
1832	10% Lilliefors Critical Value					0.162	Data appear Lognormal at 10% Significance Level					
1833	Data appear Lognormal at 10% Significance Level											
1834												
1835	Background Statistics assuming Lognormal Distribution											
1836	95% UTL with 95% Coverage					155.4	90% Percentile (z)					79.06

	A	B	C	D	E	F	G	H	I	J	K	L		
1837					95% UPL (t)	107.5				95% Percentile (z)		100.4		
1838					95% USL	193.7				99% Percentile (z)		157.2		
1839														
1840	Nonparametric Distribution Free Background Statistics													
1841	Data appear Approximate Normal at 1% Significance Level													
1842														
1843	Nonparametric Upper Limits for Background Threshold Values													
1844	Order of Statistic, order					24	95% UTL with 95% Coverage					88.8		
1845	Approx, f used to compute achieved CC					1.263	Approximate Actual Confidence Coefficient achieved by UTL					0.708		
1846							Approximate Sample Size needed to achieve specified CC					59		
1847	95% Percentile Bootstrap UTL with 95% Coverage					88.8	95% BCA Bootstrap UTL with 95% Coverage					88.8		
1848						95% UPL	88.75						90% Percentile	84.28
1849						90% Chebyshev UPL	122						95% Percentile	88.38
1850						95% Chebyshev UPL	158.4						99% Percentile	88.75
1851						95% USL	88.8							
1852														
1853	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.													
1854	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers													
1855	and consists of observations collected from clean unpacted locations.													
1856	The use of USL tends to provide a balance between false positives and false negatives provided the data													
1857	represents a background data set and when many onsite observations need to be compared with the BTV.													
1858														
1859	CT_Pb <69													
1860														
1861	General Statistics													
1862	Total Number of Observations					20	Number of Distinct Observations					19		
1863	Minimum					12.1	First Quartile					18.38		
1864	Second Largest					68.1	Median					29		
1865	Maximum					68.8	Third Quartile					40.98		
1866	Mean					32.79	SD					18.48		
1867	Coefficient of Variation					0.564	Skewness					0.845		
1868	Mean of logged Data					3.343	SD of logged Data					0.556		
1869														
1870	Critical Values for Background Threshold Values (BTVs)													
1871	Tolerance Factor K (For UTL)					2.396	d2max (for USL)					2.557		
1872														
1873	Normal GOF Test													
1874	Shapiro Wilk Test Statistic					0.879	Shapiro Wilk GOF Test							
1875	1% Shapiro Wilk Critical Value					0.868	Data appear Normal at 1% Significance Level							
1876	Lilliefors Test Statistic					0.163	Lilliefors GOF Test							
1877	1% Lilliefors Critical Value					0.223	Data appear Normal at 1% Significance Level							
1878	Data appear Normal at 1% Significance Level													
1879														
1880	Background Statistics Assuming Normal Distribution													
1881	95% UTL with 95% Coverage					77.07	90% Percentile (z)					56.47		
1882						95% UPL (t)	65.53	95% Percentile (z)					63.19	
1883						95% USL	80.03	99% Percentile (z)					75.78	
1884														
1885	Gamma GOF Test													
1886	A-D Test Statistic					0.459	Anderson-Darling Gamma GOF Test							
1887	5% A-D Critical Value					0.746	Detected data appear Gamma Distributed at 5% Significance Level							
1888	K-S Test Statistic					0.118	Kolmogorov-Smirnov Gamma GOF Test							
1889	5% K-S Critical Value					0.195	Detected data appear Gamma Distributed at 5% Significance Level							
1890	Detected data appear Gamma Distributed at 5% Significance Level													
1891														
1892	Gamma Statistics													
1893	k hat (MLE)					3.562	k star (bias corrected MLE)					3.061		
1894	Theta hat (MLE)					9.205	Theta star (bias corrected MLE)					10.71		
1895	nu hat (MLE)					142.5	nu star (bias corrected)					122.5		
1896	MLE Mean (bias corrected)					32.79	MLE Sd (bias corrected)					18.74		
1897														
1898	Background Statistics Assuming Gamma Distribution													
1899	95% Wilson Hilferty (WH) Approx. Gamma UPL					70.32	90% Percentile					57.92		
1900	95% Hawkins Wixley (HW) Approx. Gamma UPL					71.39	95% Percentile					68.42		
1901	95% WH Approx. Gamma UTL with 95% Coverage					90.53	99% Percentile					91.14		
1902	95% HW Approx. Gamma UTL with 95% Coverage					93.63								
1903						95% WH USL	96.29	95% HW USL					100.1	
1904														

	A	B	C	D	E	F	G	H	I	J	K	L
1905	Lognormal GOF Test											
1906	Shapiro Wilk Test Statistic					0.945	Shapiro Wilk Lognormal GOF Test					
1907	10% Shapiro Wilk Critical Value					0.92	Data appear Lognormal at 10% Significance Level					
1908	Lilliefors Test Statistic					0.102	Lilliefors Lognormal GOF Test					
1909	10% Lilliefors Critical Value					0.176	Data appear Lognormal at 10% Significance Level					
1910	Data appear Lognormal at 10% Significance Level											
1911												
1912	Background Statistics assuming Lognormal Distribution											
1913	95% UTL with		95% Coverage	107.2					90% Percentile (z)		57.72	
1914			95% UPL (t)	75.81					95% Percentile (z)		70.64	
1915			95% USL	117.3					99% Percentile (z)		103.2	
1916												
1917	Nonparametric Distribution Free Background Statistics											
1918	Data appear Normal at 1% Significance Level											
1919												
1920	Nonparametric Upper Limits for Background Threshold Values											
1921	Order of Statistic, order			20	95% UTL with				95% Coverage	68.8		
1922	Approx, f used to compute achieved CC			1.053	Approximate Actual Confidence Coefficient achieved by UTL				0.642			
1923					Approximate Sample Size needed to achieve specified CC				59			
1924	95% Percentile Bootstrap UTL with		95% Coverage	68.8	95% BCA Bootstrap UTL with				95% Coverage	68.8		
1925			95% UPL	68.77					90% Percentile	60		
1926			90% Chebyshev UPL	89.6					95% Percentile	68.14		
1927			95% Chebyshev UPL	115.3					99% Percentile	68.67		
1928			95% USL	68.8								
1929												
1930	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1931	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1932	and consists of observations collected from clean unimpacted locations.											
1933	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1934	represents a background data set and when many onsite observations need to be compared with the BTV.											
1935												
1936	DE_As											
1937												
1938	General Statistics											
1939	Total Number of Observations			6	Number of Distinct Observations				6			
1940	Minimum			1.3	First Quartile				1.8			
1941	Second Largest			4.9	Median				2.2			
1942	Maximum			5	Third Quartile				4.25			
1943	Mean			2.883	SD				1.638			
1944	Coefficient of Variation			0.568	Skewness				0.777			
1945	Mean of logged Data			0.928	SD of logged Data				0.556			
1946												
1947												
1948	Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,											
1949	refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.											
1950	Critical Values for Background Threshold Values (BTVs)											
1951	Tolerance Factor K (For UTL)			3.708	d2max (for USL)				1.822			
1952												
1953	Normal GOF Test											
1954	Shapiro Wilk Test Statistic			0.81	Shapiro Wilk GOF Test							
1955	1% Shapiro Wilk Critical Value			0.713	Data appear Normal at 1% Significance Level							
1956	Lilliefors Test Statistic			0.306	Lilliefors GOF Test							
1957	1% Lilliefors Critical Value			0.373	Data appear Normal at 1% Significance Level							
1958	Data appear Normal at 1% Significance Level											
1959	Note GOF tests may be unreliable for small sample sizes											
1960												
1961	Background Statistics Assuming Normal Distribution											
1962	95% UTL with		95% Coverage	8.955	90% Percentile (z)				4.982			
1963			95% UPL (t)	6.448	95% Percentile (z)				5.577			
1964			95% USL	5.867	99% Percentile (z)				6.693			
1965												
1966	Gamma GOF Test											
1967	A-D Test Statistic			0.508	Anderson-Darling Gamma GOF Test							
1968	5% A-D Critical Value			0.7	Detected data appear Gamma Distributed at 5% Significance Level							
1969	K-S Test Statistic			0.27	Kolmogorov-Smirnov Gamma GOF Test							
1970	5% K-S Critical Value			0.334	Detected data appear Gamma Distributed at 5% Significance Level							
1971	Detected data appear Gamma Distributed at 5% Significance Level											
1972	Note GOF tests may be unreliable for small sample sizes											

	A	B	C	D	E	F	G	H	I	J	K	L
1973												
1974	Gamma Statistics											
1975	k hat (MLE)					3.97	k star (bias corrected MLE)					2.096
1976	Theta hat (MLE)					0.726	Theta star (bias corrected MLE)					1.376
1977	nu hat (MLE)					47.64	nu star (bias corrected)					25.15
1978	MLE Mean (bias corrected)					2.883	MLE Sd (bias corrected)					1.992
1979												
1980	Background Statistics Assuming Gamma Distribution											
1981	95% Wilson Hilferty (WH) Approx. Gamma UPL					7.431	90% Percentile					5.546
1982	95% Hawkins Wixley (HW) Approx. Gamma UPL					7.637	95% Percentile					6.739
1983	95% WH Approx. Gamma UTL with 95% Coverage					13.01	99% Percentile					9.376
1984	95% HW Approx. Gamma UTL with 95% Coverage					14.09						
1985	95% WH USL					6.422	95% HW USL					6.533
1986												
1987	Lognormal GOF Test											
1988	Shapiro Wilk Test Statistic					0.887	Shapiro Wilk Lognormal GOF Test					
1989	10% Shapiro Wilk Critical Value					0.826	Data appear Lognormal at 10% Significance Level					
1990	Lilliefors Test Statistic					0.234	Lilliefors Lognormal GOF Test					
1991	10% Lilliefors Critical Value					0.298	Data appear Lognormal at 10% Significance Level					
1992	Data appear Lognormal at 10% Significance Level											
1993	Note GOF tests may be unreliable for small sample sizes											
1994												
1995	Background Statistics assuming Lognormal Distribution											
1996	95% UTL with 95% Coverage					19.88	90% Percentile (z)					5.157
1997	95% UPL (t)					8.483	95% Percentile (z)					6.312
1998	95% USL					6.966	99% Percentile (z)					9.221
1999												
2000	Nonparametric Distribution Free Background Statistics											
2001	Data appear Normal at 1% Significance Level											
2002												
2003	Nonparametric Upper Limits for Background Threshold Values											
2004	Order of Statistic, order					6	95% UTL with 95% Coverage					5
2005	Approx, f used to compute achieved CC					0.316	Approximate Actual Confidence Coefficient achieved by UTL					0.265
2006							Approximate Sample Size needed to achieve specified CC					59
2007	95% Percentile Bootstrap UTL with 95% Coverage					5	95% BCA Bootstrap UTL with 95% Coverage					5
2008	95% UPL					5	90% Percentile					4.95
2009	90% Chebyshev UPL					8.19	95% Percentile					4.975
2010	95% Chebyshev UPL					10.59	99% Percentile					4.995
2011	95% USL					5						
2012												
2013	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2014	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2015	and consists of observations collected from clean unimpacted locations.											
2016	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2017	represents a background data set and when many onsite observations need to be compared with the BTV.											
2018												
2019	DE_Pb											
2020												
2021	General Statistics											
2022	Total Number of Observations					6	Number of Distinct Observations					6
2023	Minimum					9.7	First Quartile					14.08
2024	Second Largest					22.1	Median					15.3
2025	Maximum					22.6	Third Quartile					20.5
2026	Mean					16.47	SD					5.006
2027	Coefficient of Variation					0.304	Skewness					0.183
2028	Mean of logged Data					2.761	SD of logged Data					0.316
2029												
2030												
2031	Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,											
2032	refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.											
2033	Critical Values for Background Threshold Values (BTVs)											
2034	Tolerance Factor K (For UTL)					3.708	d2max (for USL)					1.822
2035												
2036	Normal GOF Test											
2037	Shapiro Wilk Test Statistic					0.913	Shapiro Wilk GOF Test					
2038	1% Shapiro Wilk Critical Value					0.713	Data appear Normal at 1% Significance Level					
2039	Lilliefors Test Statistic					0.228	Lilliefors GOF Test					
2040	1% Lilliefors Critical Value					0.373	Data appear Normal at 1% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L			
2041	Data appear Normal at 1% Significance Level														
2042	Note GOF tests may be unreliable for small sample sizes														
2043															
2044	Background Statistics Assuming Normal Distribution														
2045	95% UTL with 95% Coverage				35.03						90% Percentile (z)		22.88		
2046					95% UPL (t)		27.36						95% Percentile (z)		24.7
2047					95% USL		25.59						99% Percentile (z)		28.11
2048															
2049	Gamma GOF Test														
2050	A-D Test Statistic				0.333		Anderson-Darling Gamma GOF Test								
2051	5% A-D Critical Value				0.698		Detected data appear Gamma Distributed at 5% Significance Level								
2052	K-S Test Statistic				0.216		Kolmogorov-Smirnov Gamma GOF Test								
2053	5% K-S Critical Value				0.332		Detected data appear Gamma Distributed at 5% Significance Level								
2054	Detected data appear Gamma Distributed at 5% Significance Level														
2055	Note GOF tests may be unreliable for small sample sizes														
2056															
2057	Gamma Statistics														
2058	k hat (MLE)				12.53		k star (bias corrected MLE)				6.374				
2059	Theta hat (MLE)				1.315		Theta star (bias corrected MLE)				2.583				
2060	nu hat (MLE)				150.3		nu star (bias corrected)				76.49				
2061	MLE Mean (bias corrected)				16.47		MLE Sd (bias corrected)				6.522				
2062															
2063	Background Statistics Assuming Gamma Distribution														
2064	95% Wilson Hilferty (WH) Approx. Gamma UPL				29.6						90% Percentile		25.18		
2065	95% Hawkins Wixley (HW) Approx. Gamma UPL				30						95% Percentile		28.45		
2066	95% WH Approx. Gamma UTL with		95% Coverage		42.71						99% Percentile		35.29		
2067	95% HW Approx. Gamma UTL with		95% Coverage		44.33										
2068	95% WH USL				27						95% HW USL		27.25		
2069															
2070	Lognormal GOF Test														
2071	Shapiro Wilk Test Statistic				0.926		Shapiro Wilk Lognormal GOF Test								
2072	10% Shapiro Wilk Critical Value				0.826		Data appear Lognormal at 10% Significance Level								
2073	Lilliefors Test Statistic				0.188		Lilliefors Lognormal GOF Test								
2074	10% Lilliefors Critical Value				0.298		Data appear Lognormal at 10% Significance Level								
2075	Data appear Lognormal at 10% Significance Level														
2076	Note GOF tests may be unreliable for small sample sizes														
2077															
2078	Background Statistics assuming Lognormal Distribution														
2079	95% UTL with		95% Coverage		51.12						90% Percentile (z)		23.72		
2080			95% UPL (t)		31.49						95% Percentile (z)		26.61		
2081			95% USL		28.15						99% Percentile (z)		33.01		
2082															
2083	Nonparametric Distribution Free Background Statistics														
2084	Data appear Normal at 1% Significance Level														
2085															
2086	Nonparametric Upper Limits for Background Threshold Values														
2087	Order of Statistic, order				6		95% UTL with 95% Coverage				22.6				
2088	Approx, f used to compute achieved CC				0.316		Approximate Actual Confidence Coefficient achieved by UTL				0.265				
2089							Approximate Sample Size needed to achieve specified CC				59				
2090	95% Percentile Bootstrap UTL with		95% Coverage		22.6		95% BCA Bootstrap UTL with		95% Coverage		22.6				
2091			95% UPL		22.6				90% Percentile		22.35				
2092			90% Chebyshev UPL		32.69				95% Percentile		22.48				
2093			95% Chebyshev UPL		40.04				99% Percentile		22.58				
2094			95% USL		22.6										
2095															
2096	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.														
2097	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers														
2098	and consists of observations collected from clean unimpacted locations.														
2099	The use of USL tends to provide a balance between false positives and false negatives provided the data														
2100	represents a background data set and when many onsite observations need to be compared with the BTV.														

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.2 2/17/2024 6:39:21 PM								
4	From File			D:\Tramm\BACKGROUND EVAL\2013 USGS National Review\USGS_2013_Compiled_State_Data_Sorted.xls								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	FL_Pb											
12												
13	General Statistics											
14	Total Number of Observations				267		Number of Distinct Observations				106	
15	Minimum				0.25		First Quartile				1.8	
16	Second Largest				26.4		Median				3.3	
17	Maximum				29		Third Quartile				7.2	
18	Mean				5.044		SD				4.85	
19	Coefficient of Variation				0.962		Skewness				2.031	
20	Mean of logged Data				1.21		SD of logged Data				0.945	
21												
22	Critical Values for Background Threshold Values (BTVs)											
23	Tolerance Factor K (For UTL)				1.808		d2max (for USL)				3.519	
24												
25	Normal GOF Test											
26	Shapiro Wilk Test Statistic				0.784		Normal GOF Test					
27	1% Shapiro Wilk P Value				0		Data Not Normal at 1% Significance Level					
28	Lilliefors Test Statistic				0.174		Lilliefors GOF Test					
29	1% Lilliefors Critical Value				0.0632		Data Not Normal at 1% Significance Level					
30	Data Not Normal at 1% Significance Level											
31												
32	Background Statistics Assuming Normal Distribution											
33	95% UTL with 95% Coverage				13.81		90% Percentile (z)				11.26	
34	95% UPL (t)				13.06		95% Percentile (z)				13.02	
35	95% USL				22.11		99% Percentile (z)				16.33	
36												
37	Gamma GOF Test											
38	A-D Test Statistic				2.18		Anderson-Darling Gamma GOF Test					
39	5% A-D Critical Value				0.775		Data Not Gamma Distributed at 5% Significance Level					
40	K-S Test Statistic				0.0763		Kolmogorov-Smirnov Gamma GOF Test					
41	5% K-S Critical Value				0.0571		Data Not Gamma Distributed at 5% Significance Level					
42	Data Not Gamma Distributed at 5% Significance Level											
43												
44	Gamma Statistics											
45	k hat (MLE)				1.369		k star (bias corrected MLE)				1.356	
46	Theta hat (MLE)				3.685		Theta star (bias corrected MLE)				3.72	
47	nu hat (MLE)				730.9		nu star (bias corrected)				724	
48	MLE Mean (bias corrected)				5.044		MLE Sd (bias corrected)				4.332	
49												
50	Background Statistics Assuming Gamma Distribution											
51	95% Wilson Hilferty (WH) Approx. Gamma UPL				13.35		90% Percentile				10.77	
52	95% Hawkins Wixley (HW) Approx. Gamma UPL				13.7		95% Percentile				13.59	
53	95% WH Approx. Gamma UTL with 95% Coverage				14.66		99% Percentile				20.01	

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L	
54	95% HW Approx. Gamma UTL with 95% Coverage					15.18							
55	95% WH USL					35.18	95% HW USL 40.67						
56													
57	Lognormal GOF Test												
58	Shapiro Wilk Test Statistic					0.969	Shapiro Wilk Lognormal GOF Test						
59	10% Shapiro Wilk P Value					0.00237	Data Not Lognormal at 10% Significance Level						
60	Lilliefors Test Statistic					0.0451	Lilliefors Lognormal GOF Test						
61	10% Lilliefors Critical Value					0.05	Data appear Lognormal at 10% Significance Level						
62	Data appear Approximate Lognormal at 10% Significance Level												
63													
64	Background Statistics assuming Lognormal Distribution												
65	95% UTL with 95% Coverage					18.54	90% Percentile (z)					11.27	
66	95% UPL (t)					16.02	95% Percentile (z)					15.89	
67	95% USL					93.42	99% Percentile (z)					30.26	
68													
69	Nonparametric Distribution Free Background Statistics												
70	Data appear Approximate Lognormal at 10% Significance Level												
71													
72	Nonparametric Upper Limits for Background Threshold Values												
73	Order of Statistic, order					260	95% UTL with 95% Coverage					18.7	
74	Approx, f used to compute achieved CC					1.515	Approximate Actual Confidence Coefficient achieved by UTL					0.921	
75							Approximate Sample Size needed to achieve specified CC					260	
76	95% Percentile Bootstrap UTL with 95% Coverage					18.51	95% BCA Bootstrap UTL with 95% Coverage					18.3	
77	95% UPL					15.3	90% Percentile					11.72	
78	90% Chebyshev UPL					19.62	95% Percentile					14.97	
79	95% Chebyshev UPL					26.22	99% Percentile					22.4	
80	95% USL					29							
81													
82	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
83	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
84	and consists of observations collected from clean unimpacted locations.												
85	The use of USL tends to provide a balance between false positives and false negatives provided the data												
86	represents a background data set and when many onsite observations need to be compared with the BTV.												
87													
88	FL_Pb <23												
89													
90	General Statistics												
91	Total Number of Observations					265	Number of Distinct Observations					104	
92	Minimum					0.25	First Quartile					1.8	
93	Second Largest					22.3	Median					3.3	
94	Maximum					22.6	Third Quartile					7.1	
95	Mean					4.873	SD					4.446	
96	Coefficient of Variation					0.912	Skewness					1.752	
97	Mean of logged Data					1.194	SD of logged Data					0.931	
98													
99	Critical Values for Background Threshold Values (BTVs)												
100	Tolerance Factor K (For UTL)					1.809	d2max (for USL)					3.516	
101													
102	Normal GOF Test												
103	Shapiro Wilk Test Statistic					0.803	Normal GOF Test						
104	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
105	Lilliefors Test Statistic					0.164	Lilliefors GOF Test						
106	1% Lilliefors Critical Value					0.0634	Data Not Normal at 1% Significance Level						

	A	B	C	D	E	F	G	H	I	J	K	L
107	Data Not Normal at 1% Significance Level											
108												
109	Background Statistics Assuming Normal Distribution											
110	95% UTL with 95% Coverage				12.92		90% Percentile (z)				10.57	
111	95% UPL (t)				12.22		95% Percentile (z)				12.19	
112	95% USL				20.51		99% Percentile (z)				15.22	
113												
114	Gamma GOF Test											
115	A-D Test Statistic				1.914		Anderson-Darling Gamma GOF Test					
116	5% A-D Critical Value				0.774		Data Not Gamma Distributed at 5% Significance Level					
117	K-S Test Statistic				0.0755		Kolmogorov-Smirnov Gamma GOF Test					
118	5% K-S Critical Value				0.0573		Data Not Gamma Distributed at 5% Significance Level					
119	Data Not Gamma Distributed at 5% Significance Level											
120												
121	Gamma Statistics											
122	k hat (MLE)				1.428		k star (bias corrected MLE)				1.415	
123	Theta hat (MLE)				3.412		Theta star (bias corrected MLE)				3.445	
124	nu hat (MLE)				757		nu star (bias corrected)				749.7	
125	MLE Mean (bias corrected)				4.873		MLE Sd (bias corrected)				4.097	
126												
127	Background Statistics Assuming Gamma Distribution											
128	95% Wilson Hilferty (WH) Approx. Gamma UPL				12.76		90% Percentile				10.3	
129	95% Hawkins Wixley (HW) Approx. Gamma UPL				13.12		95% Percentile				12.95	
130	95% WH Approx. Gamma UTL with 95% Coverage				13.99		99% Percentile				18.94	
131	95% HW Approx. Gamma UTL with 95% Coverage				14.51							
132	95% WH USL				33.13		95% HW USL				38.3	
133												
134	Lognormal GOF Test											
135	Shapiro Wilk Test Statistic				0.964		Shapiro Wilk Lognormal GOF Test					
136	10% Shapiro Wilk P Value				1.8267E-4		Data Not Lognormal at 10% Significance Level					
137	Lilliefors Test Statistic				0.0479		Lilliefors Lognormal GOF Test					
138	10% Lilliefors Critical Value				0.0502		Data appear Lognormal at 10% Significance Level					
139	Data appear Approximate Lognormal at 10% Significance Level											
140												
141	Background Statistics assuming Lognormal Distribution											
142	95% UTL with 95% Coverage				17.79		90% Percentile (z)				10.89	
143	95% UPL (t)				15.39		95% Percentile (z)				15.27	
144	95% USL				87.19		99% Percentile (z)				28.79	
145												
146	Nonparametric Distribution Free Background Statistics											
147	Data appear Approximate Lognormal at 10% Significance Level											
148												
149	Nonparametric Upper Limits for Background Threshold Values											
150	Order of Statistic, order				258		95% UTL with 95% Coverage				18.3	
151	Approx, f used to compute achieved CC				1.503		Approximate Actual Confidence Coefficient achieved by UTL				0.917	
152							Approximate Sample Size needed to achieve specified CC				260	
153	95% Percentile Bootstrap UTL with 95% Coverage				16.16		95% BCA Bootstrap UTL with 95% Coverage				16.3	
154	95% UPL				14.87		90% Percentile				10.18	
155	90% Chebyshev UPL				18.24		95% Percentile				14.68	
156	95% Chebyshev UPL				24.29		99% Percentile				20.61	
157	95% USL				22.6							
158												
159	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L
160	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
161	and consists of observations collected from clean unimpacted locations.											
162	The use of USL tends to provide a balance between false positives and false negatives provided the data											
163	represents a background data set and when many onsite observations need to be compared with the BTV.											
164												
165	FL_Pb <15											
166												
167	General Statistics											
168	Total Number of Observations					253	Number of Distinct Observations					92
169	Minimum					0.25	First Quartile					1.7
170	Second Largest					14.8	Median					3.1
171	Maximum					14.9	Third Quartile					6
172	Mean					4.217	SD					3.296
173	Coefficient of Variation					0.782	Skewness					1.212
174	Mean of logged Data					1.113	SD of logged Data					0.871
175												
176	Critical Values for Background Threshold Values (BTVs)											
177	Tolerance Factor K (For UTL)					1.813	d2max (for USL)					3.503
178												
179	Normal GOF Test											
180	Shapiro Wilk Test Statistic					0.861	Normal GOF Test					
181	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
182	Lilliefors Test Statistic					0.143	Lilliefors GOF Test					
183	1% Lilliefors Critical Value					0.0649	Data Not Normal at 1% Significance Level					
184	Data Not Normal at 1% Significance Level											
185												
186	Background Statistics Assuming Normal Distribution											
187	95% UTL with 95% Coverage					10.19	90% Percentile (z)					8.441
188	95% UPL (t)					9.669	95% Percentile (z)					9.638
189	95% USL					15.76	99% Percentile (z)					11.88
190												
191	Gamma GOF Test											
192	A-D Test Statistic					1.308	Anderson-Darling Gamma GOF Test					
193	5% A-D Critical Value					0.77	Data Not Gamma Distributed at 5% Significance Level					
194	K-S Test Statistic					0.0697	Kolmogorov-Smirnov Gamma GOF Test					
195	5% K-S Critical Value					0.0585	Data Not Gamma Distributed at 5% Significance Level					
196	Data Not Gamma Distributed at 5% Significance Level											
197												
198	Gamma Statistics											
199	k hat (MLE)					1.679	k star (bias corrected MLE)					1.661
200	Theta hat (MLE)					2.512	Theta star (bias corrected MLE)					2.538
201	nu hat (MLE)					849.4	nu star (bias corrected)					840.7
202	MLE Mean (bias corrected)					4.217	MLE Sd (bias corrected)					3.271
203												
204	Background Statistics Assuming Gamma Distribution											
205	95% Wilson Hliferty (WH) Approx. Gamma UPL					10.54	90% Percentile					8.572
206	95% Hawkins Wixley (HW) Approx. Gamma UPL					10.88	95% Percentile					10.62
207	95% WH Approx. Gamma UTL with 95% Coverage					11.52	99% Percentile					15.21
208	95% HW Approx. Gamma UTL with 95% Coverage					12						
209	95% WH USL					25.89	95% HW USL					29.79
210												
211	Lognormal GOF Test											
212	Shapiro Wilk Test Statistic					0.952	Shapiro Wilk Lognormal GOF Test					

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	A	B	C	D	E	F	G	H	I	J	K	L
213	10% Shapiro Wilk P Value					4.8597E-8	Data Not Lognormal at 10% Significance Level					
214	Lilliefors Test Statistic					0.054	Lilliefors Lognormal GOF Test					
215	10% Lilliefors Critical Value					0.0514	Data Not Lognormal at 10% Significance Level					
216	Data Not Lognormal at 10% Significance Level											
217												
218	Background Statistics assuming Lognormal Distribution											
219	95% UTL with		95% Coverage		14.76	90% Percentile (z)					9.289	
220			95% UPL (t)		12.85	95% Percentile (z)					12.75	
221			95% USL		64.31	99% Percentile (z)					23.08	
222												
223	Nonparametric Distribution Free Background Statistics											
224	Data do not follow a Discernible Distribution											
225												
226	Nonparametric Upper Limits for Background Threshold Values											
227	Order of Statistic, order				247	95% UTL with 95% Coverage					13	
228	Approx, f used to compute achieved CC				1.618	Approximate Actual Confidence Coefficient achieved by UTL					0.94	
229						Approximate Sample Size needed to achieve specified CC					234	
230	95% Percentile Bootstrap UTL with		95% Coverage		12.48	95% BCA Bootstrap UTL with		95% Coverage		12.48		
231			95% UPL		11.93			90% Percentile		8.58		
232			90% Chebyshev UPL		14.12			95% Percentile		11.72		
233			95% Chebyshev UPL		18.61			99% Percentile		14.1		
234			95% USL		14.9							
235												
236	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
237	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
238	and consists of observations collected from clean unimpacted locations.											
239	The use of USL tends to provide a balance between false positives and false negatives provided the data											
240	represents a background data set and when many onsite observations need to be compared with the BTV.											
241												
242	FL_Pb <10											
243												
244	General Statistics											
245	Total Number of Observations				237	Number of Distinct Observations				77		
246	Minimum				0.25	First Quartile				1.7		
247	Second Largest				9.8	Median				2.9		
248	Maximum				9.8	Third Quartile				5		
249	Mean				3.642	SD				2.494		
250	Coefficient of Variation				0.685	Skewness				0.76		
251	Mean of logged Data				1.016	SD of logged Data				0.814		
252												
253	Critical Values for Background Threshold Values (BTVs)											
254	Tolerance Factor K (For UTL)				1.819	d2max (for USL)				3.483		
255												
256	Normal GOF Test											
257	Shapiro Wilk Test Statistic				0.888	Normal GOF Test						
258	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level						
259	Lilliefors Test Statistic				0.137	Lilliefors GOF Test						
260	1% Lilliefors Critical Value				0.067	Data Not Normal at 1% Significance Level						
261	Data Not Normal at 1% Significance Level											
262												
263	Background Statistics Assuming Normal Distribution											
264	95% UTL with		95% Coverage		8.179	90% Percentile (z)					6.838	
265			95% UPL (t)		7.769	95% Percentile (z)					7.744	

	A	B	C	D	E	F	G	H	I	J	K	L
266	95% USL					12.33	99% Percentile (z)					9.443
267												
268	Gamma GOF Test											
269	A-D Test Statistic					1.422	Anderson-Darling Gamma GOF Test					
270	5% A-D Critical Value					0.767	Data Not Gamma Distributed at 5% Significance Level					
271	K-S Test Statistic					0.0639	Kolmogorov-Smirnov Gamma GOF Test					
272	5% K-S Critical Value					0.0602	Data Not Gamma Distributed at 5% Significance Level					
273	Data Not Gamma Distributed at 5% Significance Level											
274												
275	Gamma Statistics											
276	k hat (MLE)					1.961	k star (bias corrected MLE)					1.939
277	Theta hat (MLE)					1.857	Theta star (bias corrected MLE)					1.879
278	nu hat (MLE)					929.4	nu star (bias corrected)					918.9
279	MLE Mean (bias corrected)					3.642	MLE Sd (bias corrected)					2.616
280												
281	Background Statistics Assuming Gamma Distribution											
282	95% Wilson Hilferty (WH) Approx. Gamma UPL					8.701	90% Percentile					7.135
283	95% Hawkins Wixley (HW) Approx. Gamma UPL					8.998	95% Percentile					8.724
284	95% WH Approx. Gamma UTL with 95% Coverage					9.486	99% Percentile					12.26
285	95% HW Approx. Gamma UTL with 95% Coverage					9.89						
286	95% WH USL					20.23	95% HW USL					23.12
287												
288	Lognormal GOF Test											
289	Shapiro Wilk Test Statistic					0.933	Shapiro Wilk Lognormal GOF Test					
290	10% Shapiro Wilk P Value					1.898E-14	Data Not Lognormal at 10% Significance Level					
291	Lilliefors Test Statistic					0.0636	Lilliefors Lognormal GOF Test					
292	10% Lilliefors Critical Value					0.053	Data Not Lognormal at 10% Significance Level					
293	Data Not Lognormal at 10% Significance Level											
294												
295	Background Statistics assuming Lognormal Distribution											
296	95% UTL with 95% Coverage					12.14	90% Percentile (z)					7.84
297	95% UPL (t)					10.62	95% Percentile (z)					10.54
298	95% USL					47.05	99% Percentile (z)					18.35
299												
300	Nonparametric Distribution Free Background Statistics											
301	Data do not follow a Discernible Distribution											
302												
303	Nonparametric Upper Limits for Background Threshold Values											
304	Order of Statistic, order					231	95% UTL with 95% Coverage					8.8
305	Approx, f used to compute achieved CC					1.513	Approximate Actual Confidence Coefficient achieved by UTL					0.909
306							Approximate Sample Size needed to achieve specified CC					234
307	95% Percentile Bootstrap UTL with 95% Coverage					8.7	95% BCA Bootstrap UTL with 95% Coverage					8.42
308	95% UPL					8.41	90% Percentile					7.68
309	90% Chebyshev UPL					11.14	95% Percentile					8.4
310	95% Chebyshev UPL					14.53	99% Percentile					9.528
311	95% USL					9.8						
312												
313	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
314	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
315	and consists of observations collected from clean unimpacted locations.											
316	The use of USL tends to provide a balance between false positives and false negatives provided the data											
317	represents a background data set and when many onsite observations need to be compared with the BTV.											
318												

	A	B	C	D	E	F	G	H	I	J	K	L
319	GA_As											
320												
321	General Statistics											
322	Total Number of Observations					280	Number of Distinct Observations					79
323	Minimum					0.3	First Quartile					1.1
324	Second Largest					26.7	Median					1.8
325	Maximum					71.3	Third Quartile					3.5
326	Mean					3.148	SD					5.196
327	Coefficient of Variation					1.65	Skewness					8.936
328	Mean of logged Data					0.683	SD of logged Data					0.905
329												
330	Critical Values for Background Threshold Values (BTVs)											
331	Tolerance Factor K (For UTL)					1.804	d2max (for USL)					3.532
332												
333	Normal GOF Test											
334	Shapiro Wilk Test Statistic					0.44	Normal GOF Test					
335	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
336	Lilliefors Test Statistic					0.292	Lilliefors GOF Test					
337	1% Lilliefors Critical Value					0.0617	Data Not Normal at 1% Significance Level					
338	Data Not Normal at 1% Significance Level											
339												
340	Background Statistics Assuming Normal Distribution											
341	95% UTL with 95% Coverage					12.52	90% Percentile (z)					9.807
342	95% UPL (t)					11.74	95% Percentile (z)					11.69
343	95% USL					21.5	99% Percentile (z)					15.24
344												
345	Gamma GOF Test											
346	A-D Test Statistic					6.469	Anderson-Darling Gamma GOF Test					
347	5% A-D Critical Value					0.779	Data Not Gamma Distributed at 5% Significance Level					
348	K-S Test Statistic					0.121	Kolmogorov-Smirnov Gamma GOF Test					
349	5% K-S Critical Value					0.0558	Data Not Gamma Distributed at 5% Significance Level					
350	Data Not Gamma Distributed at 5% Significance Level											
351												
352	Gamma Statistics											
353	k hat (MLE)					1.217	k star (bias corrected MLE)					1.207
354	Theta hat (MLE)					2.586	Theta star (bias corrected MLE)					2.609
355	nu hat (MLE)					681.7	nu star (bias corrected)					675.8
356	MLE Mean (bias corrected)					3.148	MLE Sd (bias corrected)					2.866
357												
358	Background Statistics Assuming Gamma Distribution											
359	95% Wilson Hilferty (WH) Approx. Gamma UPL					8.344	90% Percentile					6.92
360	95% Hawkins Wixley (HW) Approx. Gamma UPL					8.302	95% Percentile					8.831
361	95% WH Approx. Gamma UTL with 95% Coverage					9.174	99% Percentile					13.21
362	95% HW Approx. Gamma UTL with 95% Coverage					9.195						
363	95% WH USL					22.86	95% HW USL					25.31
364												
365	Lognormal GOF Test											
366	Shapiro Wilk Test Statistic					0.971	Shapiro Wilk Lognormal GOF Test					
367	10% Shapiro Wilk P Value					0.00452	Data Not Lognormal at 10% Significance Level					
368	Lilliefors Test Statistic					0.0632	Lilliefors Lognormal GOF Test					
369	10% Lilliefors Critical Value					0.0488	Data Not Lognormal at 10% Significance Level					
370	Data Not Lognormal at 10% Significance Level											
371												

	A	B	C	D	E	F	G	H	I	J	K	L
372	Background Statistics assuming Lognormal Distribution											
373	95% UTL with 95% Coverage				10.13	90% Percentile (z)						6.311
374	95% UPL (t)				8.833	95% Percentile (z)						8.766
375	95% USL				48.35	99% Percentile (z)						16.24
376												
377	Nonparametric Distribution Free Background Statistics											
378	Data do not follow a Discernible Distribution											
379												
380	Nonparametric Upper Limits for Background Threshold Values											
381	Order of Statistic, order				273	95% UTL with 95% Coverage						11.7
382	Approx, f used to compute achieved CC				1.591	Approximate Actual Confidence Coefficient achieved by UTL						0.943
383						Approximate Sample Size needed to achieve specified CC						260
384	95% Percentile Bootstrap UTL with 95% Coverage				9.7	95% BCA Bootstrap UTL with 95% Coverage						9.42
385	95% UPL				8.7	90% Percentile						6.7
386	90% Chebyshev UPL				18.76	95% Percentile						8.7
387	95% Chebyshev UPL				25.84	99% Percentile						19.4
388	95% USL				71.3							
389												
390	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
391	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
392	and consists of observations collected from clean unimpacted locations.											
393	The use of USL tends to provide a balance between false positives and false negatives provided the data											
394	represents a background data set and when many onsite observations need to be compared with the BTV.											
395												
396	GA_As <27											
397												
398	General Statistics											
399	Total Number of Observations				279	Number of Distinct Observations						78
400	Minimum				0.3	First Quartile						1.1
401	Second Largest				23.9	Median						1.8
402	Maximum				26.7	Third Quartile						3.45
403	Mean				2.904	SD						3.214
404	Coefficient of Variation				1.107	Skewness						3.584
405	Mean of logged Data				0.67	SD of logged Data						0.88
406												
407	Critical Values for Background Threshold Values (BTVs)											
408	Tolerance Factor K (For UTL)				1.805	d2max (for USL)						3.531
409												
410	Normal GOF Test											
411	Shapiro Wilk Test Statistic				0.672	Normal GOF Test						
412	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level						
413	Lilliefors Test Statistic				0.212	Lilliefors GOF Test						
414	1% Lilliefors Critical Value				0.0618	Data Not Normal at 1% Significance Level						
415	Data Not Normal at 1% Significance Level											
416												
417	Background Statistics Assuming Normal Distribution											
418	95% UTL with 95% Coverage				8.704	90% Percentile (z)						7.023
419	95% UPL (t)				8.217	95% Percentile (z)						8.19
420	95% USL				14.25	99% Percentile (z)						10.38
421												
422	Gamma GOF Test											
423	A-D Test Statistic				4.518	Anderson-Darling Gamma GOF Test						
424	5% A-D Critical Value				0.774	Data Not Gamma Distributed at 5% Significance Level						

	A	B	C	D	E	F	G	H	I	J	K	L	
425	K-S Test Statistic					0.098	Kolmogorov-Smirnov Gamma GOF Test						
426	5% K-S Critical Value					0.0557	Data Not Gamma Distributed at 5% Significance Level						
427	Data Not Gamma Distributed at 5% Significance Level												
428													
429	Gamma Statistics												
430	k hat (MLE)					1.406	k star (bias corrected MLE)					1.393	
431	Theta hat (MLE)					2.065	Theta star (bias corrected MLE)					2.084	
432	nu hat (MLE)					784.5	nu star (bias corrected)					777.4	
433	MLE Mean (bias corrected)					2.904	MLE Sd (bias corrected)					2.46	
434													
435	Background Statistics Assuming Gamma Distribution												
436	95% Wilson Hilferty (WH) Approx. Gamma UPL					7.549	90% Percentile					6.162	
437	95% Hawkins Wixley (HW) Approx. Gamma UPL					7.632	95% Percentile					7.755	
438	95% WH Approx. Gamma UTL with 95% Coverage					8.264	99% Percentile					11.37	
439	95% HW Approx. Gamma UTL with 95% Coverage					8.418							
440	95% WH USL					19.84	95% HW USL					22.34	
441													
442	Lognormal GOF Test												
443	Shapiro Wilk Test Statistic					0.967	Shapiro Wilk Lognormal GOF Test						
444	10% Shapiro Wilk P Value					5.1794E-4	Data Not Lognormal at 10% Significance Level						
445	Lilliefors Test Statistic					0.0602	Lilliefors Lognormal GOF Test						
446	10% Lilliefors Critical Value					0.0489	Data Not Lognormal at 10% Significance Level						
447	Data Not Lognormal at 10% Significance Level												
448													
449	Background Statistics assuming Lognormal Distribution												
450	95% UTL with 95% Coverage					9.571	90% Percentile (z)					6.039	
451	95% UPL (t)					8.377	95% Percentile (z)					8.315	
452	95% USL					43.76	99% Percentile (z)					15.15	
453													
454	Nonparametric Distribution Free Background Statistics												
455	Data do not follow a Discernible Distribution												
456													
457	Nonparametric Upper Limits for Background Threshold Values												
458	Order of Statistic, order					272	95% UTL with 95% Coverage					9.8	
459	Approx, f used to compute achieved CC					1.585	Approximate Actual Confidence Coefficient achieved by UTL					0.941	
460							Approximate Sample Size needed to achieve specified CC					260	
461	95% Percentile Bootstrap UTL with 95% Coverage					9.43	95% BCA Bootstrap UTL with 95% Coverage					9.43	
462	95% UPL					8.7	90% Percentile					6.62	
463	90% Chebyshev UPL					12.56	95% Percentile					8.52	
464	95% Chebyshev UPL					16.94	99% Percentile					15.16	
465	95% USL					26.7							
466													
467	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
468	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
469	and consists of observations collected from clean unimpacted locations.												
470	The use of USL tends to provide a balance between false positives and false negatives provided the data												
471	represents a background data set and when many onsite observations need to be compared with the BTV.												
472													
473	GA_As <19												
474													
475	General Statistics												
476	Total Number of Observations					277	Number of Distinct Observations					76	
477	Minimum					0.3	First Quartile					1.1	

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L	
478	Second Largest					14.3						Median	1.8
479	Maximum					18.2						Third Quartile	3.3
480	Mean					2.742						SD	2.594
481	Coefficient of Variation					0.946						Skewness	2.302
482	Mean of logged Data					0.652						SD of logged Data	0.856
483													
484	Critical Values for Background Threshold Values (BTVs)												
485	Tolerance Factor K (For UTL)					1.805						d2max (for USL)	3.529
486													
487	Normal GOF Test												
488	Shapiro Wilk Test Statistic					0.767						Normal GOF Test	
489	1% Shapiro Wilk P Value					0						Data Not Normal at 1% Significance Level	
490	Lilliefors Test Statistic					0.19						Lilliefors GOF Test	
491	1% Lilliefors Critical Value					0.062						Data Not Normal at 1% Significance Level	
492	Data Not Normal at 1% Significance Level												
493													
494	Background Statistics Assuming Normal Distribution												
495	95% UTL with		95% Coverage		7.425						90% Percentile (z)	6.066	
496			95% UPL (t)		7.031						95% Percentile (z)	7.009	
497			95% USL		11.9						99% Percentile (z)	8.777	
498													
499	Gamma GOF Test												
500	A-D Test Statistic					3.58						Anderson-Darling Gamma GOF Test	
501	5% A-D Critical Value					0.771						Data Not Gamma Distributed at 5% Significance Level	
502	K-S Test Statistic					0.0923						Kolmogorov-Smirnov Gamma GOF Test	
503	5% K-S Critical Value					0.0557						Data Not Gamma Distributed at 5% Significance Level	
504	Data Not Gamma Distributed at 5% Significance Level												
505													
506	Gamma Statistics												
507	k hat (MLE)					1.545						k star (bias corrected MLE)	1.531
508	Theta hat (MLE)					1.775						Theta star (bias corrected MLE)	1.791
509	nu hat (MLE)					856.1						nu star (bias corrected)	848.2
510	MLE Mean (bias corrected)					2.742						MLE Sd (bias corrected)	2.216
511													
512	Background Statistics Assuming Gamma Distribution												
513	95% Wilson Hilferty (WH) Approx.		Gamma UPL		6.976						90% Percentile	5.686	
514	95% Hawkins Wixley (HW) Approx.		Gamma UPL		7.097						95% Percentile	7.095	
515	95% WH Approx.		Gamma UTL with		95% Coverage	7.616						99% Percentile	10.27
516	95% HW Approx.		Gamma UTL with		95% Coverage	7.807							
517	95% WH USL					17.8						95% HW USL	20.13
518													
519	Lognormal GOF Test												
520	Shapiro Wilk Test Statistic					0.964						Shapiro Wilk Lognormal GOF Test	
521	10% Shapiro Wilk P Value					7.0173E-5						Data Not Lognormal at 10% Significance Level	
522	Lilliefors Test Statistic					0.0583						Lilliefors Lognormal GOF Test	
523	10% Lilliefors Critical Value					0.0491						Data Not Lognormal at 10% Significance Level	
524	Data Not Lognormal at 10% Significance Level												
525													
526	Background Statistics assuming Lognormal Distribution												
527	95% UTL with		95% Coverage		8.997						90% Percentile (z)	5.746	
528			95% UPL (t)		7.9						95% Percentile (z)	7.843	
529			95% USL		39.36						99% Percentile (z)	14.05	
530													

A	B	C	D	E	F	G	H	I	J	K	L
531	Nonparametric Distribution Free Background Statistics										
532	Data do not follow a Discernible Distribution										
533											
534	Nonparametric Upper Limits for Background Threshold Values										
535	Order of Statistic, order				270	95% UTL with 95% Coverage					9.4
536	Approx, f used to compute achieved CC				1.573	Approximate Actual Confidence Coefficient achieved by UTL					0.938
537						Approximate Sample Size needed to achieve specified CC					260
538	95% Percentile Bootstrap UTL with 95% Coverage				8.92	95% BCA Bootstrap UTL with 95% Coverage					8.9
539	95% UPL				8.41	90% Percentile					6.38
540	90% Chebyshev UPL				10.54	95% Percentile					8.08
541	95% Chebyshev UPL				14.07	99% Percentile					12.21
542	95% USL				18.2						
543											
544	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.										
545	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers										
546	and consists of observations collected from clean unimpacted locations.										
547	The use of USL tends to provide a balance between false positives and false negatives provided the data										
548	represents a background data set and when many onsite observations need to be compared with the BTV.										
549											
550	GA_As <10										
551											
552	General Statistics										
553	Total Number of Observations				272	Number of Distinct Observations					71
554	Minimum				0.3	First Quartile					1.1
555	Second Largest				9.7	Median					1.8
556	Maximum				9.8	Third Quartile					3.2
557	Mean				2.538	SD					2.104
558	Coefficient of Variation				0.829	Skewness					1.548
559	Mean of logged Data				0.615	SD of logged Data					0.821
560											
561	Critical Values for Background Threshold Values (BTVs)										
562	Tolerance Factor K (For UTL)				1.807	d2max (for USL)					3.524
563											
564	Normal GOF Test										
565	Shapiro Wilk Test Statistic				0.812	Normal GOF Test					
566	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level					
567	Lilliefors Test Statistic				0.164	Lilliefors GOF Test					
568	1% Lilliefors Critical Value				0.0626	Data Not Normal at 1% Significance Level					
569	Data Not Normal at 1% Significance Level										
570											
571	Background Statistics Assuming Normal Distribution										
572	95% UTL with 95% Coverage				6.34	90% Percentile (z)					5.234
573	95% UPL (t)				6.017	95% Percentile (z)					5.999
574	95% USL				9.952	99% Percentile (z)					7.433
575											
576	Gamma GOF Test										
577	A-D Test Statistic				2.725	Anderson-Darling Gamma GOF Test					
578	5% A-D Critical Value				0.769	Data Not Gamma Distributed at 5% Significance Level					
579	K-S Test Statistic				0.0841	Kolmogorov-Smirnov Gamma GOF Test					
580	5% K-S Critical Value				0.0562	Data Not Gamma Distributed at 5% Significance Level					
581	Data Not Gamma Distributed at 5% Significance Level										
582											
583	Gamma Statistics										

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	A	B	C	D	E	F	G	H	I	J	K	L
584	k hat (MLE)					1.731	k star (bias corrected MLE)					1.714
585	Theta hat (MLE)					1.466	Theta star (bias corrected MLE)					1.48
586	nu hat (MLE)					941.6	nu star (bias corrected)					932.6
587	MLE Mean (bias corrected)					2.538	MLE Sd (bias corrected)					1.938
588												
589	Background Statistics Assuming Gamma Distribution											
590	95% Wilson Hilferty (WH) Approx. Gamma UPL					6.263	90% Percentile					5.12
591	95% Hawkins Wixley (HW) Approx. Gamma UPL					6.399	95% Percentile					6.325
592	95% WH Approx. Gamma UTL with 95% Coverage					6.817	99% Percentile					9.024
593	95% HW Approx. Gamma UTL with 95% Coverage					7.017						
594	95% WH USL					15.4	95% HW USL					17.41
595												
596	Lognormal GOF Test											
597	Shapiro Wilk Test Statistic					0.954	Shapiro Wilk Lognormal GOF Test					
598	10% Shapiro Wilk P Value					3.6617E-8	Data Not Lognormal at 10% Significance Level					
599	Lilliefors Test Statistic					0.0575	Lilliefors Lognormal GOF Test					
600	10% Lilliefors Critical Value					0.0495	Data Not Lognormal at 10% Significance Level					
601	Data Not Lognormal at 10% Significance Level											
602												
603	Background Statistics assuming Lognormal Distribution											
604	95% UTL with 95% Coverage					8.15	90% Percentile (z)					5.296
605	95% UPL (t)					7.187	95% Percentile (z)					7.136
606	95% USL					33.35	99% Percentile (z)					12.48
607												
608	Nonparametric Distribution Free Background Statistics											
609	Data do not follow a Discernible Distribution											
610												
611	Nonparametric Upper Limits for Background Threshold Values											
612	Order of Statistic, order					265	95% UTL with 95% Coverage					8.5
613	Approx, f used to compute achieved CC					1.544	Approximate Actual Confidence Coefficient achieved by UTL					0.93
614							Approximate Sample Size needed to achieve specified CC					260
615	95% Percentile Bootstrap UTL with 95% Coverage					8.18	95% BCA Bootstrap UTL with 95% Coverage					8.4
616	95% UPL					7.57	90% Percentile					5.59
617	90% Chebyshev UPL					8.861	95% Percentile					7.445
618	95% Chebyshev UPL					11.73	99% Percentile					9.116
619	95% USL					9.8						
620												
621	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
622	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
623	and consists of observations collected from clean unimpacted locations.											
624	The use of USL tends to provide a balance between false positives and false negatives provided the data											
625	represents a background data set and when many onsite observations need to be compared with the BTV.											
626												
627	GA_Pb											
628												
629	General Statistics											
630	Total Number of Observations					280	Number of Distinct Observations					185
631	Minimum					0.9	First Quartile					6.775
632	Second Largest					115	Median					12.05
633	Maximum					204	Third Quartile					21
634	Mean					15.72	SD					16.35
635	Coefficient of Variation					1.04	Skewness					6.577
636	Mean of logged Data					2.47	SD of logged Data					0.739

	A	B	C	D	E	F	G	H	I	J	K	L
637												
638	Critical Values for Background Threshold Values (BTVs)											
639	Tolerance Factor K (For UTL)					1.804	d2max (for USL)					3.532
640												
641	Normal GOF Test											
642	Shapiro Wilk Test Statistic					0.598	Normal GOF Test					
643	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
644	Lilliefors Test Statistic					0.202	Lilliefors GOF Test					
645	1% Lilliefors Critical Value					0.0617	Data Not Normal at 1% Significance Level					
646	Data Not Normal at 1% Significance Level											
647												
648	Background Statistics Assuming Normal Distribution											
649	95% UTL with		95% Coverage		45.22	90% Percentile (z)					36.67	
650			95% UPL (t)		42.75	95% Percentile (z)					42.61	
651			95% USL		73.47	99% Percentile (z)					53.75	
652												
653	Gamma GOF Test											
654	A-D Test Statistic					2.55	Anderson-Darling Gamma GOF Test					
655	5% A-D Critical Value					0.767	Data Not Gamma Distributed at 5% Significance Level					
656	K-S Test Statistic					0.0803	Kolmogorov-Smirnov Gamma GOF Test					
657	5% K-S Critical Value					0.0552	Data Not Gamma Distributed at 5% Significance Level					
658	Data Not Gamma Distributed at 5% Significance Level											
659												
660	Gamma Statistics											
661	k hat (MLE)					1.901	k star (bias corrected MLE)					1.883
662	Theta hat (MLE)					8.272	Theta star (bias corrected MLE)					8.351
663	nu hat (MLE)					1064	nu star (bias corrected)					1054
664	MLE Mean (bias corrected)					15.72	MLE Sd (bias corrected)					11.46
665												
666	Background Statistics Assuming Gamma Distribution											
667	95% Wilson Hilferty (WH) Approx. Gamma UPL					37.24	90% Percentile					31.02
668	95% Hawkins Wixley (HW) Approx. Gamma UPL					37.51	95% Percentile					38.02
669	95% WH Approx. Gamma UTL with		95% Coverage		40.36	99% Percentile					53.6	
670	95% HW Approx. Gamma UTL with		95% Coverage		40.88							
671			95% WH USL		89.08	95% HW USL					97.7	
672												
673	Lognormal GOF Test											
674	Shapiro Wilk Test Statistic					0.988	Shapiro Wilk Lognormal GOF Test					
675	10% Shapiro Wilk P Value					0.856	Data appear Lognormal at 10% Significance Level					
676	Lilliefors Test Statistic					0.0654	Lilliefors Lognormal GOF Test					
677	10% Lilliefors Critical Value					0.0488	Data Not Lognormal at 10% Significance Level					
678	Data appear Approximate Lognormal at 10% Significance Level											
679												
680	Background Statistics assuming Lognormal Distribution											
681	95% UTL with		95% Coverage		44.84	90% Percentile (z)					30.47	
682			95% UPL (t)		40.1	95% Percentile (z)					39.85	
683			95% USL		160.8	99% Percentile (z)					65.94	
684												
685	Nonparametric Distribution Free Background Statistics											
686	Data appear Approximate Lognormal at 10% Significance Level											
687												
688	Nonparametric Upper Limits for Background Threshold Values											
689	Order of Statistic, order					273	95% UTL with 95% Coverage					41.6

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	A	B	C	D	E	F	G	H	I	J	K	L
690	Approx, f used to compute achieved CC					1.591	Approximate Actual Confidence Coefficient achieved by UTL					0.943
691							Approximate Sample Size needed to achieve specified CC					260
692	95% Percentile Bootstrap UTL with 95% Coverage					39.28	95% BCA Bootstrap UTL with 95% Coverage					39.28
693	95% UPL					35.95	90% Percentile					29.2
694	90% Chebyshev UPL					64.85	95% Percentile					34.96
695	95% Chebyshev UPL					87.1	99% Percentile					55.52
696	95% USL					204						
697												
698	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
699	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
700	and consists of observations collected from clean unimpacted locations.											
701	The use of USL tends to provide a balance between false positives and false negatives provided the data											
702	represents a background data set and when many onsite observations need to be compared with the BTV.											
703												
704	GA_Pb <66											
705												
706	General Statistics											
707	Total Number of Observations					278	Number of Distinct Observations					183
708	Minimum					0.9	First Quartile					6.725
709	Second Largest					53	Median					11.95
710	Maximum					65	Third Quartile					20.4
711	Mean					14.69	SD					10.22
712	Coefficient of Variation					0.696	Skewness					1.347
713	Mean of logged Data					2.451	SD of logged Data					0.708
714												
715	Critical Values for Background Threshold Values (BTVs)											
716	Tolerance Factor K (For UTL)					1.805	d2max (for USL)					3.53
717												
718	Normal GOF Test											
719	Shapiro Wilk Test Statistic					0.881	Normal GOF Test					
720	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
721	Lilliefors Test Statistic					0.116	Lilliefors GOF Test					
722	1% Lilliefors Critical Value					0.0619	Data Not Normal at 1% Significance Level					
723	Data Not Normal at 1% Significance Level											
724												
725	Background Statistics Assuming Normal Distribution											
726	95% UTL with 95% Coverage					33.14	90% Percentile (z)					27.79
727	95% UPL (t)					31.59	95% Percentile (z)					31.5
728	95% USL					50.78	99% Percentile (z)					38.47
729												
730	Gamma GOF Test											
731	A-D Test Statistic					2.083	Anderson-Darling Gamma GOF Test					
732	5% A-D Critical Value					0.764	Data Not Gamma Distributed at 5% Significance Level					
733	K-S Test Statistic					0.0899	Kolmogorov-Smirnov Gamma GOF Test					
734	5% K-S Critical Value					0.0552	Data Not Gamma Distributed at 5% Significance Level					
735	Data Not Gamma Distributed at 5% Significance Level											
736												
737	Gamma Statistics											
738	k hat (MLE)					2.272	k star (bias corrected MLE)					2.25
739	Theta hat (MLE)					6.465	Theta star (bias corrected MLE)					6.528
740	nu hat (MLE)					1263	nu star (bias corrected)					1251
741	MLE Mean (bias corrected)					14.69	MLE Sd (bias corrected)					9.793
742												

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	A	B	C	D	E	F	G	H	I	J	K	L
743	Background Statistics Assuming Gamma Distribution											
744	95% Wilson Hilferty (WH) Approx. Gamma UPL					33.46	90% Percentile					27.8
745	95% Hawkins Wixley (HW) Approx. Gamma UPL					34.12	95% Percentile					33.58
746	95% WH Approx. Gamma UTL with 95% Coverage				36.08	99% Percentile					46.33	
747	95% HW Approx. Gamma UTL with 95% Coverage				37.01							
748	95% WH USL				76.18	95% HW USL					84.59	
749												
750	Lognormal GOF Test											
751	Shapiro Wilk Test Statistic					0.977	Shapiro Wilk Lognormal GOF Test					
752	10% Shapiro Wilk P Value					0.0915	Data Not Lognormal at 10% Significance Level					
753	Lilliefors Test Statistic					0.0682	Lilliefors Lognormal GOF Test					
754	10% Lilliefors Critical Value					0.049	Data Not Lognormal at 10% Significance Level					
755	Data Not Lognormal at 10% Significance Level											
756												
757	Background Statistics assuming Lognormal Distribution											
758	95% UTL with 95% Coverage				41.67	90% Percentile (z)					28.76	
759	95% UPL (t)				37.42	95% Percentile (z)					37.2	
760	95% USL				141.4	99% Percentile (z)					60.28	
761												
762	Nonparametric Distribution Free Background Statistics											
763	Data do not follow a Discernible Distribution											
764												
765	Nonparametric Upper Limits for Background Threshold Values											
766	Order of Statistic, order					271	95% UTL with 95% Coverage					39.2
767	Approx, f used to compute achieved CC					1.579	Approximate Actual Confidence Coefficient achieved by UTL					0.94
768							Approximate Sample Size needed to achieve specified CC					260
769	95% Percentile Bootstrap UTL with 95% Coverage				38.53	95% BCA Bootstrap UTL with 95% Coverage				38.5		
770	95% UPL				33.67	90% Percentile					28.83	
771	90% Chebyshev UPL				45.41	95% Percentile					33.43	
772	95% Chebyshev UPL				59.33	99% Percentile					44.88	
773	95% USL				65							
774												
775	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
776	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
777	and consists of observations collected from clean unimpacted locations.											
778	The use of USL tends to provide a balance between false positives and false negatives provided the data											
779	represents a background data set and when many onsite observations need to be compared with the BTV.											
780												
781	GA_Pb <46											
782												
783	General Statistics											
784	Total Number of Observations					276	Number of Distinct Observations					181
785	Minimum					0.9	First Quartile					6.7
786	Second Largest					44.7	Median					11.9
787	Maximum					45.5	Third Quartile					20.33
788	Mean					14.37	SD					9.52
789	Coefficient of Variation					0.663	Skewness					1.003
790	Mean of logged Data					2.439	SD of logged Data					0.697
791												
792	Critical Values for Background Threshold Values (BTVs)											
793	Tolerance Factor K (For UTL)					1.806	d2max (for USL)					3.528
794												
795	Normal GOF Test											

	A	B	C	D	E	F	G	H	I	J	K	L	
796	Shapiro Wilk Test Statistic					0.889	Normal GOF Test						
797	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
798	Lilliefors Test Statistic					0.119	Lilliefors GOF Test						
799	1% Lilliefors Critical Value					0.0622	Data Not Normal at 1% Significance Level						
800	Data Not Normal at 1% Significance Level												
801													
802	Background Statistics Assuming Normal Distribution												
803	95% UTL with 95% Coverage				31.56	90% Percentile (z)					26.57		
804	95% UPL (t)				30.11	95% Percentile (z)					30.03		
805	95% USL				47.96	99% Percentile (z)					36.51		
806													
807	Gamma GOF Test												
808	A-D Test Statistic				2.176	Anderson-Darling Gamma GOF Test							
809	5% A-D Critical Value				0.764	Data Not Gamma Distributed at 5% Significance Level							
810	K-S Test Statistic				0.0912	Kolmogorov-Smirnov Gamma GOF Test							
811	5% K-S Critical Value				0.0554	Data Not Gamma Distributed at 5% Significance Level							
812	Data Not Gamma Distributed at 5% Significance Level												
813													
814	Gamma Statistics												
815	k hat (MLE)				2.37	k star (bias corrected MLE)					2.347		
816	Theta hat (MLE)				6.062	Theta star (bias corrected MLE)					6.123		
817	nu hat (MLE)				1308	nu star (bias corrected)					1295		
818	MLE Mean (bias corrected)				14.37	MLE Sd (bias corrected)					9.379		
819													
820	Background Statistics Assuming Gamma Distribution												
821	95% Wilson Hilferty (WH) Approx. Gamma UPL				32.35	90% Percentile					26.93		
822	95% Hawkins Wixley (HW) Approx. Gamma UPL				33.03	95% Percentile					32.43		
823	95% WH Approx. Gamma UTL with 95% Coverage				34.86	99% Percentile					44.52		
824	95% HW Approx. Gamma UTL with 95% Coverage				35.8								
825	95% WH USL				72.73	95% HW USL					80.75		
826													
827	Lognormal GOF Test												
828	Shapiro Wilk Test Statistic				0.969	Shapiro Wilk Lognormal GOF Test							
829	10% Shapiro Wilk P Value				0.00228	Data Not Lognormal at 10% Significance Level							
830	Lilliefors Test Statistic				0.0684	Lilliefors Lognormal GOF Test							
831	10% Lilliefors Critical Value				0.0492	Data Not Lognormal at 10% Significance Level							
832	Data Not Lognormal at 10% Significance Level												
833													
834	Background Statistics assuming Lognormal Distribution												
835	95% UTL with 95% Coverage				40.38	90% Percentile (z)					28.02		
836	95% UPL (t)				36.31	95% Percentile (z)					36.1		
837	95% USL				134.2	99% Percentile (z)					58.05		
838													
839	Nonparametric Distribution Free Background Statistics												
840	Data do not follow a Discernible Distribution												
841													
842	Nonparametric Upper Limits for Background Threshold Values												
843	Order of Statistic, order				269	95% UTL with 95% Coverage					38.5		
844	Approx, f used to compute achieved CC				1.567	Approximate Actual Confidence Coefficient achieved by UTL					0.936		
845						Approximate Sample Size needed to achieve specified CC					260		
846	95% Percentile Bootstrap UTL with 95% Coverage				36.18	95% BCA Bootstrap UTL with 95% Coverage					36.18		
847	95% UPL				32.72	90% Percentile					28.75		
848	90% Chebyshev UPL				42.98	95% Percentile					32.3		

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	A	B	C	D	E	F	G	H	I	J	K	L
849	95% Chebyshev UPL					55.94	99% Percentile					41.88
850	95% USL					45.5						
851												
852	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
853	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
854	and consists of observations collected from clean unimpacted locations.											
855	The use of USL tends to provide a balance between false positives and false negatives provided the data											
856	represents a background data set and when many onsite observations need to be compared with the BTV.											
857												
858	GA_Pb <40											
859												
860	General Statistics											
861	Total Number of Observations					271	Number of Distinct Observations					176
862	Minimum					0.9	First Quartile					6.7
863	Second Largest					38.7	Median					11.7
864	Maximum					39.2	Third Quartile					19.65
865	Mean					13.84	SD					8.76
866	Coefficient of Variation					0.633	Skewness					0.832
867	Mean of logged Data					2.415	SD of logged Data					0.68
868												
869	Critical Values for Background Threshold Values (BTVs)											
870	Tolerance Factor K (For UTL)					1.807	d2max (for USL)					3.523
871												
872	Normal GOF Test											
873	Shapiro Wilk Test Statistic					0.897	Normal GOF Test					
874	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
875	Lilliefors Test Statistic					0.122	Lilliefors GOF Test					
876	1% Lilliefors Critical Value					0.0627	Data Not Normal at 1% Significance Level					
877	Data Not Normal at 1% Significance Level											
878												
879	Background Statistics Assuming Normal Distribution											
880	95% UTL with 95% Coverage					29.67	90% Percentile (z)					25.07
881	95% UPL (t)					28.32	95% Percentile (z)					28.25
882	95% USL					44.7	99% Percentile (z)					34.22
883												
884	Gamma GOF Test											
885	A-D Test Statistic					2.287	Anderson-Darling Gamma GOF Test					
886	5% A-D Critical Value					0.763	Data Not Gamma Distributed at 5% Significance Level					
887	K-S Test Statistic					0.092	Kolmogorov-Smirnov Gamma GOF Test					
888	5% K-S Critical Value					0.056	Data Not Gamma Distributed at 5% Significance Level					
889	Data Not Gamma Distributed at 5% Significance Level											
890												
891	Gamma Statistics											
892	k hat (MLE)					2.508	k star (bias corrected MLE)					2.483
893	Theta hat (MLE)					5.518	Theta star (bias corrected MLE)					5.575
894	nu hat (MLE)					1359	nu star (bias corrected)					1346
895	MLE Mean (bias corrected)					13.84	MLE Sd (bias corrected)					8.783
896												
897	Background Statistics Assuming Gamma Distribution											
898	95% Wilson Hilferty (WH) Approx. Gamma UPL					30.67	90% Percentile					25.61
899	95% Hawkins Wixley (HW) Approx. Gamma UPL					31.32	95% Percentile					30.71
900	95% WH Approx. Gamma UTL with 95% Coverage					33.01	99% Percentile					41.88
901	95% HW Approx. Gamma UTL with 95% Coverage					33.91						

	A	B	C	D	E	F	G	H	I	J	K	L
902	95% WH USL					67.72	95% HW USL					75.02
903												
904	Lognormal GOF Test											
905	Shapiro Wilk Test Statistic					0.964	Shapiro Wilk Lognormal GOF Test					
906	10% Shapiro Wilk P Value					1.1866E-4	Data Not Lognormal at 10% Significance Level					
907	Lilliefors Test Statistic					0.068	Lilliefors Lognormal GOF Test					
908	10% Lilliefors Critical Value					0.0496	Data Not Lognormal at 10% Significance Level					
909	Data Not Lognormal at 10% Significance Level											
910												
911	Background Statistics assuming Lognormal Distribution											
912	95% UTL with	95% Coverage				38.22	90% Percentile (z)					26.74
913		95% UPL (t)				34.43	95% Percentile (z)					34.23
914		95% USL				122.7	99% Percentile (z)					54.4
915												
916	Nonparametric Distribution Free Background Statistics											
917	Data do not follow a Discernible Distribution											
918												
919	Nonparametric Upper Limits for Background Threshold Values											
920	Order of Statistic, order					264	95% UTL with 95% Coverage					33.4
921	Approx, f used to compute achieved CC					1.538	Approximate Actual Confidence Coefficient achieved by UTL					0.928
922							Approximate Sample Size needed to achieve specified CC					260
923	95% Percentile Bootstrap UTL with	95% Coverage				32.4	95% BCA Bootstrap UTL with 95% Coverage					32.4
924		95% UPL				30.7	90% Percentile					27.1
925		90% Chebyshev UPL				40.17	95% Percentile					30.25
926		95% Chebyshev UPL				52.09	99% Percentile					37.24
927		95% USL				39.2						
928												
929	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
930	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
931	and consists of observations collected from clean unimpacted locations.											
932	The use of USL tends to provide a balance between false positives and false negatives provided the data											
933	represents a background data set and when many onsite observations need to be compared with the BTV.											
934												
935	IA_As											
936												
937	General Statistics											
938	Total Number of Observations					273	Number of Distinct Observations					95
939	Minimum					1.4	First Quartile					6.2
940	Second Largest					17.7	Median					7.9
941	Maximum					28.9	Third Quartile					9.6
942	Mean					7.937	SD					2.725
943	Coefficient of Variation					0.343	Skewness					1.7
944	Mean of logged Data					2.011	SD of logged Data					0.365
945												
946	Critical Values for Background Threshold Values (BTVs)											
947	Tolerance Factor K (For UTL)					1.807	d2max (for USL)					3.525
948												
949	Normal GOF Test											
950	Shapiro Wilk Test Statistic					0.927	Normal GOF Test					
951	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
952	Lilliefors Test Statistic					0.0537	Lilliefors GOF Test					
953	1% Lilliefors Critical Value					0.0625	Data appear Normal at 1% Significance Level					
954	Data appear Approximate Normal at 1% Significance Level											

	A	B	C	D	E	F	G	H	I	J	K	L
955												
956	Background Statistics Assuming Normal Distribution											
957	95% UTL with 95% Coverage				12.86					90% Percentile (z)		11.43
958	95% UPL (t)				12.44					95% Percentile (z)		12.42
959	95% USL				17.54					99% Percentile (z)		14.28
960												
961	Gamma GOF Test											
962	A-D Test Statistic				2.082	Anderson-Darling Gamma GOF Test						
963	5% A-D Critical Value				0.755	Data Not Gamma Distributed at 5% Significance Level						
964	K-S Test Statistic				0.0636	Kolmogorov-Smirnov Gamma GOF Test						
965	5% K-S Critical Value				0.0552	Data Not Gamma Distributed at 5% Significance Level						
966	Data Not Gamma Distributed at 5% Significance Level											
967												
968	Gamma Statistics											
969	k hat (MLE)				8.465					k star (bias corrected MLE)		8.374
970	Theta hat (MLE)				0.938					Theta star (bias corrected MLE)		0.948
971	nu hat (MLE)				4622					nu star (bias corrected)		4572
972	MLE Mean (bias corrected)				7.937					MLE Sd (bias corrected)		2.743
973												
974	Background Statistics Assuming Gamma Distribution											
975	95% Wilson Hilferty (WH) Approx. Gamma UPL				12.92					90% Percentile		11.59
976	95% Hawkins Wixley (HW) Approx. Gamma UPL				13.06					95% Percentile		12.92
977	95% WH Approx. Gamma UTL with 95% Coverage				13.5					99% Percentile		15.66
978	95% HW Approx. Gamma UTL with 95% Coverage				13.68							
979	95% WH USL				21.33					95% HW USL		22.31
980												
981	Lognormal GOF Test											
982	Shapiro Wilk Test Statistic				0.944	Shapiro Wilk Lognormal GOF Test						
983	10% Shapiro Wilk P Value				1.831E-12	Data Not Lognormal at 10% Significance Level						
984	Lilliefors Test Statistic				0.0804	Lilliefors Lognormal GOF Test						
985	10% Lilliefors Critical Value				0.0494	Data Not Lognormal at 10% Significance Level						
986	Data Not Lognormal at 10% Significance Level											
987												
988	Background Statistics assuming Lognormal Distribution											
989	95% UTL with 95% Coverage				14.44					90% Percentile (z)		11.92
990	95% UPL (t)				13.66					95% Percentile (z)		13.61
991	95% USL				27.02					99% Percentile (z)		17.45
992												
993	Nonparametric Distribution Free Background Statistics											
994	Data appear Approximate Normal at 1% Significance Level											
995												
996	Nonparametric Upper Limits for Background Threshold Values											
997	Order of Statistic, order				266					95% UTL with 95% Coverage		12.4
998	Approx, f used to compute achieved CC				1.55	Approximate Actual Confidence Coefficient achieved by UTL				0.931		
999						Approximate Sample Size needed to achieve specified CC				260		
1000	95% Percentile Bootstrap UTL with 95% Coverage				11.9	95% BCA Bootstrap UTL with 95% Coverage				11.9		
1001	95% UPL				11.59					90% Percentile		10.8
1002	90% Chebyshev UPL				16.13					95% Percentile		11.5
1003	95% Chebyshev UPL				19.84					99% Percentile		13.91
1004	95% USL				28.9							
1005												
1006	Note: The use of USL tends to yield a conservative estimate of BTv, especially when the sample size starts exceeding 20.											
1007	Therefore, one may use USL to estimate a BTv only when the data set represents a background data set free of outliers											

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	A	B	C	D	E	F	G	H	I	J	K	L
1008	and consists of observations collected from clean unimpacted locations.											
1009	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1010	represents a background data set and when many onsite observations need to be compared with the BTV.											
1011												
1012	IA_As <14											
1013												
1014	General Statistics											
1015	Total Number of Observations					270	Number of Distinct Observations					92
1016	Minimum					1.4	First Quartile					6.125
1017	Second Largest					13.2	Median					7.85
1018	Maximum					13.8	Third Quartile					9.5
1019	Mean					7.8	SD					2.315
1020	Coefficient of Variation					0.297	Skewness					-0.153
1021	Mean of logged Data					2.001	SD of logged Data					0.351
1022												
1023	Critical Values for Background Threshold Values (BTVs)											
1024	Tolerance Factor K (For UTL)					1.807	d2max (for USL)					3.522
1025												
1026	Normal GOF Test											
1027	Shapiro Wilk Test Statistic					0.979	Normal GOF Test					
1028	1% Shapiro Wilk P Value					0.181	Data appear Normal at 1% Significance Level					
1029	Lilliefors Test Statistic					0.061	Lilliefors GOF Test					
1030	1% Lilliefors Critical Value					0.0628	Data appear Normal at 1% Significance Level					
1031	Data appear Normal at 1% Significance Level											
1032												
1033	Background Statistics Assuming Normal Distribution											
1034	95% UTL with 95% Coverage					11.98	90% Percentile (z)					10.77
1035	95% UPL (t)					11.63	95% Percentile (z)					11.61
1036	95% USL					15.95	99% Percentile (z)					13.18
1037												
1038	Gamma GOF Test											
1039	A-D Test Statistic					2.363	Anderson-Darling Gamma GOF Test					
1040	5% A-D Critical Value					0.754	Data Not Gamma Distributed at 5% Significance Level					
1041	K-S Test Statistic					0.0802	Kolmogorov-Smirnov Gamma GOF Test					
1042	5% K-S Critical Value					0.0556	Data Not Gamma Distributed at 5% Significance Level					
1043	Data Not Gamma Distributed at 5% Significance Level											
1044												
1045	Gamma Statistics											
1046	k hat (MLE)					9.527	k star (bias corrected MLE)					9.424
1047	Theta hat (MLE)					0.819	Theta star (bias corrected MLE)					0.828
1048	nu hat (MLE)					5145	nu star (bias corrected)					5089
1049	MLE Mean (bias corrected)					7.8	MLE Sd (bias corrected)					2.541
1050												
1051	Background Statistics Assuming Gamma Distribution											
1052	95% Wilson Hiferty (WH) Approx. Gamma UPL					12.4	90% Percentile					11.18
1053	95% Hawkins Wixley (HW) Approx. Gamma UPL					12.56	95% Percentile					12.39
1054	95% WH Approx. Gamma UTL with 95% Coverage					12.94	99% Percentile					14.89
1055	95% HW Approx. Gamma UTL with 95% Coverage					13.14						
1056	95% WH USL					20	95% HW USL					20.97
1057												
1058	Lognormal GOF Test											
1059	Shapiro Wilk Test Statistic					0.914	Shapiro Wilk Lognormal GOF Test					
1060	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					

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	A	B	C	D	E	F	G	H	I	J	K	L	
1061	Lilliefors Test Statistic					0.09	Lilliefors Lognormal GOF Test						
1062	10% Lilliefors Critical Value					0.0497	Data Not Lognormal at 10% Significance Level						
1063	Data Not Lognormal at 10% Significance Level												
1064													
1065	Background Statistics assuming Lognormal Distribution												
1066	95% UTL with 95% Coverage				13.95	90% Percentile (z)					11.59		
1067	95% UPL (t)				13.21	95% Percentile (z)					13.17		
1068	95% USL				25.45	99% Percentile (z)					16.73		
1069													
1070	Nonparametric Distribution Free Background Statistics												
1071	Data appear Normal at 1% Significance Level												
1072													
1073	Nonparametric Upper Limits for Background Threshold Values												
1074	Order of Statistic, order				263	95% UTL with 95% Coverage					11.8		
1075	Approx, f used to compute achieved CC				1.532	Approximate Actual Confidence Coefficient achieved by UTL					0.926		
1076						Approximate Sample Size needed to achieve specified CC					260		
1077	95% Percentile Bootstrap UTL with 95% Coverage				11.8	95% BCA Bootstrap UTL with 95% Coverage					11.3		
1078	95% UPL				11.35	90% Percentile					10.7		
1079	90% Chebyshev UPL				14.76	95% Percentile					11.3		
1080	95% Chebyshev UPL				17.91	99% Percentile					12.59		
1081	95% USL				13.8								
1082													
1083	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1084	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1085	and consists of observations collected from clean unimpacted locations.												
1086	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1087	represents a background data set and when many onsite observations need to be compared with the BTV.												
1088													
1089	IA_Pb												
1090													
1091	General Statistics												
1092	Total Number of Observations				273	Number of Distinct Observations					146		
1093	Minimum				7.6	First Quartile					17.2		
1094	Second Largest				48.5	Median					19.6		
1095	Maximum				53.9	Third Quartile					22.7		
1096	Mean				20.55	SD					6.094		
1097	Coefficient of Variation				0.297	Skewness					1.627		
1098	Mean of logged Data				2.983	SD of logged Data					0.28		
1099													
1100	Critical Values for Background Threshold Values (BTVs)												
1101	Tolerance Factor K (For UTL)				1.807	d2max (for USL)					3.525		
1102													
1103	Normal GOF Test												
1104	Shapiro Wilk Test Statistic				0.899	Normal GOF Test							
1105	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level							
1106	Lilliefors Test Statistic				0.121	Lilliefors GOF Test							
1107	1% Lilliefors Critical Value				0.0625	Data Not Normal at 1% Significance Level							
1108	Data Not Normal at 1% Significance Level												
1109													
1110	Background Statistics Assuming Normal Distribution												
1111	95% UTL with 95% Coverage				31.56	90% Percentile (z)					28.36		
1112	95% UPL (t)				30.63	95% Percentile (z)					30.58		
1113	95% USL				42.03	99% Percentile (z)					34.73		

	A	B	C	D	E	F	G	H	I	J	K	L
1114												
1115	Gamma GOF Test											
1116	A-D Test Statistic					2.988	Anderson-Darling Gamma GOF Test					
1117	5% A-D Critical Value					0.753	Data Not Gamma Distributed at 5% Significance Level					
1118	K-S Test Statistic					0.0826	Kolmogorov-Smirnov Gamma GOF Test					
1119	5% K-S Critical Value					0.0552	Data Not Gamma Distributed at 5% Significance Level					
1120	Data Not Gamma Distributed at 5% Significance Level											
1121												
1122	Gamma Statistics											
1123	k hat (MLE)					12.83	k star (bias corrected MLE)					12.69
1124	Theta hat (MLE)					1.602	Theta star (bias corrected MLE)					1.62
1125	nu hat (MLE)					7003	nu star (bias corrected)					6928
1126	MLE Mean (bias corrected)					20.55	MLE Sd (bias corrected)					5.77
1127												
1128	Background Statistics Assuming Gamma Distribution											
1129	95% Wilson Hilferty (WH) Approx. Gamma UPL					30.87	90% Percentile					28.21
1130	95% Hawkins Wixley (HW) Approx. Gamma UPL					30.97	95% Percentile					30.87
1131	95% WH Approx. Gamma UTL with 95% Coverage					32.03	99% Percentile					36.3
1132	95% HW Approx. Gamma UTL with 95% Coverage					32.18						
1133	95% WH USL					47.21	95% HW USL					48.35
1134												
1135	Lognormal GOF Test											
1136	Shapiro Wilk Test Statistic					0.971	Shapiro Wilk Lognormal GOF Test					
1137	10% Shapiro Wilk P Value					0.00659	Data Not Lognormal at 10% Significance Level					
1138	Lilliefors Test Statistic					0.0727	Lilliefors Lognormal GOF Test					
1139	10% Lilliefors Critical Value					0.0494	Data Not Lognormal at 10% Significance Level					
1140	Data Not Lognormal at 10% Significance Level											
1141												
1142	Background Statistics assuming Lognormal Distribution											
1143	95% UTL with 95% Coverage					32.77	90% Percentile (z)					28.29
1144	95% UPL (t)					31.39	95% Percentile (z)					31.32
1145	95% USL					53.02	99% Percentile (z)					37.9
1146												
1147	Nonparametric Distribution Free Background Statistics											
1148	Data do not follow a Discernible Distribution											
1149												
1150	Nonparametric Upper Limits for Background Threshold Values											
1151	Order of Statistic, order					266	95% UTL with 95% Coverage					35.1
1152	Approx, f used to compute achieved CC					1.55	Approximate Actual Confidence Coefficient achieved by UTL					0.931
1153							Approximate Sample Size needed to achieve specified CC					260
1154	95% Percentile Bootstrap UTL with 95% Coverage					34.22	95% BCA Bootstrap UTL with 95% Coverage					33.7
1155	95% UPL					29.9	90% Percentile					28.18
1156	90% Chebyshev UPL					38.87	95% Percentile					29.9
1157	95% Chebyshev UPL					47.16	99% Percentile					43.75
1158	95% USL					53.9						
1159												
1160	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1161	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1162	and consists of observations collected from clean unimpacted locations.											
1163	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1164	represents a background data set and when many onsite observations need to be compared with the BTV.											
1165												
1166	IA_Pb <44											

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	A	B	C	D	E	F	G	H	I	J	K	L
1167												
1168	General Statistics											
1169	Total Number of Observations					270	Number of Distinct Observations					143
1170	Minimum					7.6	First Quartile					17.2
1171	Second Largest					38.2	Median					19.6
1172	Maximum					43.3	Third Quartile					22.58
1173	Mean					20.24	SD					5.311
1174	Coefficient of Variation					0.262	Skewness					0.833
1175	Mean of logged Data					2.973	SD of logged Data					0.264
1176												
1177	Critical Values for Background Threshold Values (BTVs)											
1178	Tolerance Factor K (For UTL)					1.807	d2max (for USL)					3.522
1179												
1180	Normal GOF Test											
1181	Shapiro Wilk Test Statistic					0.954	Normal GOF Test					
1182	1% Shapiro Wilk P Value					7.8514E-8	Data Not Normal at 1% Significance Level					
1183	Lilliefors Test Statistic					0.0924	Lilliefors GOF Test					
1184	1% Lilliefors Critical Value					0.0628	Data Not Normal at 1% Significance Level					
1185	Data Not Normal at 1% Significance Level											
1186												
1187	Background Statistics Assuming Normal Distribution											
1188	95% UTL with 95% Coverage					29.84	90% Percentile (z)					27.04
1189	95% UPL (t)					29.02	95% Percentile (z)					28.97
1190	95% USL					38.94	99% Percentile (z)					32.59
1191												
1192	Gamma GOF Test											
1193	A-D Test Statistic					1.895	Anderson-Darling Gamma GOF Test					
1194	5% A-D Critical Value					0.753	Data Not Gamma Distributed at 5% Significance Level					
1195	K-S Test Statistic					0.0629	Kolmogorov-Smirnov Gamma GOF Test					
1196	5% K-S Critical Value					0.0555	Data Not Gamma Distributed at 5% Significance Level					
1197	Data Not Gamma Distributed at 5% Significance Level											
1198												
1199	Gamma Statistics											
1200	k hat (MLE)					14.86	k star (bias corrected MLE)					14.7
1201	Theta hat (MLE)					1.361	Theta star (bias corrected MLE)					1.377
1202	nu hat (MLE)					8026	nu star (bias corrected)					7938
1203	MLE Mean (bias corrected)					20.24	MLE Sd (bias corrected)					5.278
1204												
1205	Background Statistics Assuming Gamma Distribution											
1206	95% Wilson Hilferty (WH) Approx. Gamma UPL					29.64	90% Percentile					27.22
1207	95% Hawkins Wixley (HW) Approx. Gamma UPL					29.77	95% Percentile					29.63
1208	95% WH Approx. Gamma UTL with 95% Coverage					30.69	99% Percentile					34.49
1209	95% HW Approx. Gamma UTL with 95% Coverage					30.87						
1210	95% WH USL					44.19	95% HW USL					45.27
1211												
1212	Lognormal GOF Test											
1213	Shapiro Wilk Test Statistic					0.973	Shapiro Wilk Lognormal GOF Test					
1214	10% Shapiro Wilk P Value					0.0146	Data Not Lognormal at 10% Significance Level					
1215	Lilliefors Test Statistic					0.0725	Lilliefors Lognormal GOF Test					
1216	10% Lilliefors Critical Value					0.0497	Data Not Lognormal at 10% Significance Level					
1217	Data Not Lognormal at 10% Significance Level											
1218												
1219	Background Statistics assuming Lognormal Distribution											

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	A	B	C	D	E	F	G	H	I	J	K	L
1220	95% UTL with 95% Coverage					31.55	90% Percentile (z)					27.45
1221	95% UPL (t)					30.29	95% Percentile (z)					30.22
1222	95% USL					49.65	99% Percentile (z)					36.19
1223												
1224	Nonparametric Distribution Free Background Statistics											
1225	Data do not follow a Discernible Distribution											
1226												
1227	Nonparametric Upper Limits for Background Threshold Values											
1228	Order of Statistic, order					263	95% UTL with 95% Coverage					32.5
1229	Approx, f used to compute achieved CC					1.532	Approximate Actual Confidence Coefficient achieved by UTL					0.926
1230							Approximate Sample Size needed to achieve specified CC					260
1231	95% Percentile Bootstrap UTL with 95% Coverage					31	95% BCA Bootstrap UTL with 95% Coverage					31
1232	95% UPL					29.69	90% Percentile					27.82
1233	90% Chebyshev UPL					36.2	95% Percentile					29.56
1234	95% Chebyshev UPL					43.43	99% Percentile					36.29
1235	95% USL					43.3						
1236												
1237	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1238	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1239	and consists of observations collected from clean unimpacted locations.											
1240	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1241	represents a background data set and when many onsite observations need to be compared with the BTV.											
1242												
1243	IA_Pb <35											
1244												
1245	General Statistics											
1246	Total Number of Observations					264	Number of Distinct Observations					137
1247	Minimum					7.6	First Quartile					17.1
1248	Second Largest					32.5	Median					19.5
1249	Maximum					33.7	Third Quartile					22.3
1250	Mean					19.84	SD					4.661
1251	Coefficient of Variation					0.235	Skewness					0.247
1252	Mean of logged Data					2.959	SD of logged Data					0.248
1253												
1254	Critical Values for Background Threshold Values (BTVs)											
1255	Tolerance Factor K (For UTL)					1.809	d2max (for USL)					3.515
1256												
1257	Normal GOF Test											
1258	Shapiro Wilk Test Statistic					0.973	Normal GOF Test					
1259	1% Shapiro Wilk P Value					0.0243	Data appear Normal at 1% Significance Level					
1260	Lilliefors Test Statistic					0.0661	Lilliefors GOF Test					
1261	1% Lilliefors Critical Value					0.0635	Data Not Normal at 1% Significance Level					
1262	Data appear Approximate Normal at 1% Significance Level											
1263												
1264	Background Statistics Assuming Normal Distribution											
1265	95% UTL with 95% Coverage					28.28	90% Percentile (z)					25.82
1266	95% UPL (t)					27.55	95% Percentile (z)					27.51
1267	95% USL					36.23	99% Percentile (z)					30.69
1268												
1269	Gamma GOF Test											
1270	A-D Test Statistic					1.49	Anderson-Darling Gamma GOF Test					
1271	5% A-D Critical Value					0.752	Data Not Gamma Distributed at 5% Significance Level					
1272	K-S Test Statistic					0.0637	Kolmogorov-Smirnov Gamma GOF Test					

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L
1273	5% K-S Critical Value					0.0561	Data Not Gamma Distributed at 5% Significance Level					
1274	Data Not Gamma Distributed at 5% Significance Level											
1275												
1276	Gamma Statistics											
1277	k hat (MLE)					17.3	k star (bias corrected MLE)					17.11
1278	Theta hat (MLE)					1.147	Theta star (bias corrected MLE)					1.16
1279	nu hat (MLE)					9136	nu star (bias corrected)					9033
1280	MLE Mean (bias corrected)					19.84	MLE Sd (bias corrected)					4.797
1281												
1282	Background Statistics Assuming Gamma Distribution											
1283	95% Wilson Hilferty (WH) Approx. Gamma UPL					28.35	90% Percentile					26.19
1284	95% Hawkins Wixley (HW) Approx. Gamma UPL					28.51	95% Percentile					28.34
1285	95% WH Approx. Gamma UTL with 95% Coverage					29.31	99% Percentile					32.67
1286	95% HW Approx. Gamma UTL with 95% Coverage					29.5						
1287	95% WH USL					41.2	95% HW USL					42.19
1288												
1289	Lognormal GOF Test											
1290	Shapiro Wilk Test Statistic					0.958	Shapiro Wilk Lognormal GOF Test					
1291	10% Shapiro Wilk P Value					2.5989E-6	Data Not Lognormal at 10% Significance Level					
1292	Lilliefors Test Statistic					0.08	Lilliefors Lognormal GOF Test					
1293	10% Lilliefors Critical Value					0.0503	Data Not Lognormal at 10% Significance Level					
1294	Data Not Lognormal at 10% Significance Level											
1295												
1296	Background Statistics assuming Lognormal Distribution											
1297	95% UTL with 95% Coverage					30.2	90% Percentile (z)					26.49
1298	95% UPL (t)					29.06	95% Percentile (z)					28.99
1299	95% USL					46.13	99% Percentile (z)					34.34
1300												
1301	Nonparametric Distribution Free Background Statistics											
1302	Data appear Approximate Normal at 1% Significance Level											
1303												
1304	Nonparametric Upper Limits for Background Threshold Values											
1305	Order of Statistic, order					257	95% UTL with 95% Coverage					29.6
1306	Approx, f used to compute achieved CC					1.497	Approximate Actual Confidence Coefficient achieved by UTL					0.915
1307							Approximate Sample Size needed to achieve specified CC					260
1308	95% Percentile Bootstrap UTL with 95% Coverage					29.47	95% BCA Bootstrap UTL with 95% Coverage					29.47
1309	95% UPL					28.88	90% Percentile					25.9
1310	90% Chebyshev UPL					33.85	95% Percentile					28.79
1311	95% Chebyshev UPL					40.2	99% Percentile					30.64
1312	95% USL					33.7						
1313												
1314	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1315	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1316	and consists of observations collected from clean unimpacted locations.											
1317	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1318	represents a background data set and when many onsite observations need to be compared with the BTV.											
1319												
1320	ID_As											
1321												
1322	General Statistics											
1323	Total Number of Observations					395	Number of Distinct Observations					117
1324	Minimum					0.8	First Quartile					3.4
1325	Second Largest					39.9	Median					4.8

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	A	B	C	D	E	F	G	H	I	J	K	L
1326	Maximum					41.7	Third Quartile					6.3
1327	Mean					5.51	SD					4.045
1328	Coefficient of Variation					0.734	Skewness					4.206
1329	Mean of logged Data					1.526	SD of logged Data					0.598
1330												
1331	Critical Values for Background Threshold Values (BTVs)											
1332	Tolerance Factor K (For UTL)					1.778	d2max (for USL)					3.63
1333												
1334	Normal GOF Test											
1335	Shapiro Wilk Test Statistic					0.709	Normal GOF Test					
1336	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1337	Lilliefors Test Statistic					0.183	Lilliefors GOF Test					
1338	1% Lilliefors Critical Value					0.052	Data Not Normal at 1% Significance Level					
1339	Data Not Normal at 1% Significance Level											
1340												
1341	Background Statistics Assuming Normal Distribution											
1342	95% UTL with		95% Coverage		12.7	90% Percentile (z)					10.69	
1343			95% UPL (t)		12.19	95% Percentile (z)					12.16	
1344			95% USL		20.2	99% Percentile (z)					14.92	
1345												
1346	Gamma GOF Test											
1347	A-D Test Statistic					3.809	Anderson-Darling Gamma GOF Test					
1348	5% A-D Critical Value					0.761	Data Not Gamma Distributed at 5% Significance Level					
1349	K-S Test Statistic					0.0946	Kolmogorov-Smirnov Gamma GOF Test					
1350	5% K-S Critical Value					0.0459	Data Not Gamma Distributed at 5% Significance Level					
1351	Data Not Gamma Distributed at 5% Significance Level											
1352												
1353	Gamma Statistics											
1354	k hat (MLE)					2.921	k star (bias corrected MLE)					2.9
1355	Theta hat (MLE)					1.887	Theta star (bias corrected MLE)					1.9
1356	nu hat (MLE)					2307	nu star (bias corrected)					2291
1357	MLE Mean (bias corrected)					5.51	MLE Sd (bias corrected)					3.236
1358												
1359	Background Statistics Assuming Gamma Distribution											
1360	95% Wilson Hilferty (WH) Approx. Gamma UPL					11.56	90% Percentile					9.848
1361	95% Hawkins Wixley (HW) Approx. Gamma UPL					11.66	95% Percentile					11.68
1362	95% WH Approx. Gamma UTL with		95% Coverage		12.24	99% Percentile					15.65	
1363	95% HW Approx. Gamma UTL with		95% Coverage		12.39							
1364			95% WH USL		25.38	95% HW USL					27.41	
1365												
1366	Lognormal GOF Test											
1367	Shapiro Wilk Test Statistic					0.974	Shapiro Wilk Lognormal GOF Test					
1368	10% Shapiro Wilk P Value					0.00316	Data Not Lognormal at 10% Significance Level					
1369	Lilliefors Test Statistic					0.072	Lilliefors Lognormal GOF Test					
1370	10% Lilliefors Critical Value					0.0411	Data Not Lognormal at 10% Significance Level					
1371	Data Not Lognormal at 10% Significance Level											
1372												
1373	Background Statistics assuming Lognormal Distribution											
1374	95% UTL with		95% Coverage		13.31	90% Percentile (z)					9.894	
1375			95% UPL (t)		12.34	95% Percentile (z)					12.29	
1376			95% USL		40.29	99% Percentile (z)					18.48	
1377												
1378	Nonparametric Distribution Free Background Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L
1379	Data do not follow a Discernible Distribution											
1380												
1381	Nonparametric Upper Limits for Background Threshold Values											
1382	Order of Statistic, order				383	95% UTL with 95% Coverage						14.2
1383	Approx, f used to compute achieved CC				1.436	Approximate Actual Confidence Coefficient achieved by UTL						0.932
1384						Approximate Sample Size needed to achieve specified CC						385
1385	95% Percentile Bootstrap UTL with 95% Coverage				13.8	95% BCA Bootstrap UTL with 95% Coverage						13.8
1386	95% UPL				12.54	90% Percentile						9.56
1387	90% Chebyshev UPL				17.66	95% Percentile						12.15
1388	95% Chebyshev UPL				23.17	99% Percentile						17.31
1389	95% USL				41.7							
1390												
1391	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1392	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1393	and consists of observations collected from clean unimpacted locations.											
1394	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1395	represents a background data set and when many onsite observations need to be compared with the BTV.											
1396												
1397	ID_As <25											
1398												
1399	General Statistics											
1400	Total Number of Observations				393	Number of Distinct Observations						115
1401	Minimum				0.8	First Quartile						3.4
1402	Second Largest				17.5	Median						4.8
1403	Maximum				24.7	Third Quartile						6.2
1404	Mean				5.331	SD						3.171
1405	Coefficient of Variation				0.595	Skewness						1.866
1406	Mean of logged Data				1.515	SD of logged Data						0.579
1407												
1408	Critical Values for Background Threshold Values (BTVs)											
1409	Tolerance Factor K (For UTL)				1.778	d2max (for USL)						3.629
1410												
1411	Normal GOF Test											
1412	Shapiro Wilk Test Statistic				0.861	Normal GOF Test						
1413	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level						
1414	Lilliefors Test Statistic				0.151	Lilliefors GOF Test						
1415	1% Lilliefors Critical Value				0.0521	Data Not Normal at 1% Significance Level						
1416	Data Not Normal at 1% Significance Level											
1417												
1418	Background Statistics Assuming Normal Distribution											
1419	95% UTL with 95% Coverage				10.97	90% Percentile (z)						9.395
1420	95% UPL (t)				10.57	95% Percentile (z)						10.55
1421	95% USL				16.84	99% Percentile (z)						12.71
1422												
1423	Gamma GOF Test											
1424	A-D Test Statistic				2.273	Anderson-Darling Gamma GOF Test						
1425	5% A-D Critical Value				0.76	Data Not Gamma Distributed at 5% Significance Level						
1426	K-S Test Statistic				0.0773	Kolmogorov-Smirnov Gamma GOF Test						
1427	5% K-S Critical Value				0.046	Data Not Gamma Distributed at 5% Significance Level						
1428	Data Not Gamma Distributed at 5% Significance Level											
1429												
1430	Gamma Statistics											
1431	k hat (MLE)				3.306	k star (bias corrected MLE)						3.282

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	A	B	C	D	E	F	G	H	I	J	K	L
1432	Theta hat (MLE)					1.613	Theta star (bias corrected MLE)					1.624
1433	nu hat (MLE)					2598	nu star (bias corrected)					2580
1434	MLE Mean (bias corrected)					5.331	MLE Sd (bias corrected)					2.943
1435												
1436	Background Statistics Assuming Gamma Distribution											
1437	95% Wilson Hilferty (WH) Approx. Gamma UPL					10.86	90% Percentile					9.276
1438	95% Hawkins Wixley (HW) Approx. Gamma UPL					11.02	95% Percentile					10.91
1439	95% WH Approx. Gamma UTL with 95% Coverage					11.47	99% Percentile					14.42
1440	95% HW Approx. Gamma UTL with 95% Coverage					11.68						
1441	95% WH USL					23.08	95% HW USL					25.06
1442												
1443	Lognormal GOF Test											
1444	Shapiro Wilk Test Statistic					0.971	Shapiro Wilk Lognormal GOF Test					
1445	10% Shapiro Wilk P Value					4.1122E-4	Data Not Lognormal at 10% Significance Level					
1446	Lilliefors Test Statistic					0.0752	Lilliefors Lognormal GOF Test					
1447	10% Lilliefors Critical Value					0.0412	Data Not Lognormal at 10% Significance Level					
1448	Data Not Lognormal at 10% Significance Level											
1449												
1450	Background Statistics assuming Lognormal Distribution											
1451	95% UTL with 95% Coverage					12.73	90% Percentile (z)					9.547
1452	95% UPL (t)					11.82	95% Percentile (z)					11.78
1453	95% USL					37.13	99% Percentile (z)					17.47
1454												
1455	Nonparametric Distribution Free Background Statistics											
1456	Data do not follow a Discernible Distribution											
1457												
1458	Nonparametric Upper Limits for Background Threshold Values											
1459	Order of Statistic, order					381	95% UTL with 95% Coverage					13.8
1460	Approx, f used to compute achieved CC					1.429	Approximate Actual Confidence Coefficient achieved by UTL					0.929
1461							Approximate Sample Size needed to achieve specified CC					385
1462	95% Percentile Bootstrap UTL with 95% Coverage					12.9	95% BCA Bootstrap UTL with 95% Coverage					13.2
1463	95% UPL					11.93	90% Percentile					9.44
1464	90% Chebyshev UPL					14.86	95% Percentile					11.84
1465	95% Chebyshev UPL					19.17	99% Percentile					16.61
1466	95% USL					24.7						
1467												
1468	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1469	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1470	and consists of observations collected from clean unimpacted locations.											
1471	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1472	represents a background data set and when many onsite observations need to be compared with the BTV.											
1473												
1474	ID_As <17											
1475												
1476	General Statistics											
1477	Total Number of Observations					390	Number of Distinct Observations					112
1478	Minimum					0.8	First Quartile					3.4
1479	Second Largest					16.6	Median					4.75
1480	Maximum					16.7	Third Quartile					6.175
1481	Mean					5.219	SD					2.9
1482	Coefficient of Variation					0.556	Skewness					1.434
1483	Mean of logged Data					1.503	SD of logged Data					0.566
1484												

	A	B	C	D	E	F	G	H	I	J	K	L
1485	Critical Values for Background Threshold Values (BTVs)											
1486	Tolerance Factor K (For UTL)					1.779	d2max (for USL)					3.627
1487												
1488	Normal GOF Test											
1489	Shapiro Wilk Test Statistic					0.883	Normal GOF Test					
1490	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1491	Lilliefors Test Statistic					0.136	Lilliefors GOF Test					
1492	1% Lilliefors Critical Value					0.0523	Data Not Normal at 1% Significance Level					
1493	Data Not Normal at 1% Significance Level											
1494												
1495	Background Statistics Assuming Normal Distribution											
1496	95% UTL with	95% Coverage			10.38	90% Percentile (z)					8.936	
1497		95% UPL (t)			10.01	95% Percentile (z)					9.989	
1498		95% USL			15.74	99% Percentile (z)					11.97	
1499												
1500	Gamma GOF Test											
1501	A-D Test Statistic					1.737	Anderson-Darling Gamma GOF Test					
1502	5% A-D Critical Value					0.759	Data Not Gamma Distributed at 5% Significance Level					
1503	K-S Test Statistic					0.0679	Kolmogorov-Smirnov Gamma GOF Test					
1504	5% K-S Critical Value					0.0461	Data Not Gamma Distributed at 5% Significance Level					
1505	Data Not Gamma Distributed at 5% Significance Level											
1506												
1507	Gamma Statistics											
1508	k hat (MLE)					3.516	k star (bias corrected MLE)					3.491
1509	Theta hat (MLE)					1.484	Theta star (bias corrected MLE)					1.495
1510	nu hat (MLE)					2743	nu star (bias corrected)					2723
1511	MLE Mean (bias corrected)					5.219	MLE Sd (bias corrected)					2.793
1512												
1513	Background Statistics Assuming Gamma Distribution											
1514	95% Wilson Hilferty (WH) Approx. Gamma UPL					10.47	90% Percentile					8.965
1515	95% Hawkins Wixley (HW) Approx. Gamma UPL					10.64	95% Percentile					10.5
1516	95% WH Approx. Gamma UTL with	95% Coverage			11.05	99% Percentile					13.79	
1517	95% HW Approx. Gamma UTL with	95% Coverage			11.27							
1518	95% WH USL					21.86	95% HW USL					23.75
1519												
1520	Lognormal GOF Test											
1521	Shapiro Wilk Test Statistic					0.964	Shapiro Wilk Lognormal GOF Test					
1522	10% Shapiro Wilk P Value					4.2485E-7	Data Not Lognormal at 10% Significance Level					
1523	Lilliefors Test Statistic					0.0787	Lilliefors Lognormal GOF Test					
1524	10% Lilliefors Critical Value					0.0414	Data Not Lognormal at 10% Significance Level					
1525	Data Not Lognormal at 10% Significance Level											
1526												
1527	Background Statistics assuming Lognormal Distribution											
1528	95% UTL with	95% Coverage			12.31	90% Percentile (z)					9.292	
1529		95% UPL (t)			11.45	95% Percentile (z)					11.41	
1530		95% USL			35.06	99% Percentile (z)					16.79	
1531												
1532	Nonparametric Distribution Free Background Statistics											
1533	Data do not follow a Discernible Distribution											
1534												
1535	Nonparametric Upper Limits for Background Threshold Values											
1536	Order of Statistic, order					378	95% UTL with 95% Coverage					12.8
1537	Approx, f used to compute achieved CC					1.417	Approximate Actual Confidence Coefficient achieved by UTL					0.924

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	A	B	C	D	E	F	G	H	I	J	K	L	
1538								Approximate Sample Size needed to achieve specified CC					385
1539	95% Percentile Bootstrap UTL with 95% Coverage						12.67	95% BCA Bootstrap UTL with 95% Coverage					12.61
1540	95% UPL						11.19	90% Percentile					9.01
1541	90% Chebyshev UPL						13.93	95% Percentile					10.97
1542	95% Chebyshev UPL						17.88	99% Percentile					15.67
1543	95% USL						16.7						
1544													
1545	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1546	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1547	and consists of observations collected from clean unimpacted locations.												
1548	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1549	represents a background data set and when many onsite observations need to be compared with the BTV.												
1550													
1551	ID_As <13												
1552													
1553	General Statistics												
1554	Total Number of Observations						380	Number of Distinct Observations					103
1555	Minimum						0.8	First Quartile					3.3
1556	Second Largest						12.9	Median					4.7
1557	Maximum						12.9	Third Quartile					6
1558	Mean						4.955	SD					2.422
1559	Coefficient of Variation						0.489	Skewness					0.894
1560	Mean of logged Data						1.471	SD of logged Data					0.537
1561													
1562	Critical Values for Background Threshold Values (BTVs)												
1563	Tolerance Factor K (For UTL)						1.781	d2max (for USL)					3.62
1564													
1565	Normal GOF Test												
1566	Shapiro Wilk Test Statistic						0.932	Normal GOF Test					
1567	1% Shapiro Wilk P Value						0	Data Not Normal at 1% Significance Level					
1568	Lilliefors Test Statistic						0.0977	Lilliefors GOF Test					
1569	1% Lilliefors Critical Value						0.053	Data Not Normal at 1% Significance Level					
1570	Data Not Normal at 1% Significance Level												
1571													
1572	Background Statistics Assuming Normal Distribution												
1573	95% UTL with 95% Coverage						9.267	90% Percentile (z)					8.058
1574	95% UPL (t)						8.953	95% Percentile (z)					8.938
1575	95% USL						13.72	99% Percentile (z)					10.59
1576													
1577	Gamma GOF Test												
1578	A-D Test Statistic						1.25	Anderson-Darling Gamma GOF Test					
1579	5% A-D Critical Value						0.759	Data Not Gamma Distributed at 5% Significance Level					
1580	K-S Test Statistic						0.0551	Kolmogorov-Smirnov Gamma GOF Test					
1581	5% K-S Critical Value						0.0468	Data Not Gamma Distributed at 5% Significance Level					
1582	Data Not Gamma Distributed at 5% Significance Level												
1583													
1584	Gamma Statistics												
1585	k hat (MLE)						4.036	k star (bias corrected MLE)					4.005
1586	Theta hat (MLE)						1.228	Theta star (bias corrected MLE)					1.237
1587	nu hat (MLE)						3067	nu star (bias corrected)					3044
1588	MLE Mean (bias corrected)						4.955	MLE Sd (bias corrected)					2.476
1589													
1590	Background Statistics Assuming Gamma Distribution												

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	A	B	C	D	E	F	G	H	I	J	K	L
1591	95% Wilson Hilferty (WH) Approx. Gamma UPL					9.596	90% Percentile					8.273
1592	95% Hawkins Wixley (HW) Approx. Gamma UPL					9.773	95% Percentile					9.601
1593	95% WH Approx. Gamma UTL with 95% Coverage					10.1	99% Percentile					12.44
1594	95% HW Approx. Gamma UTL with 95% Coverage					10.32						
1595	95% WH USL					19.28	95% HW USL					20.92
1596												
1597	Lognormal GOF Test											
1598	Shapiro Wilk Test Statistic					0.952	Shapiro Wilk Lognormal GOF Test					
1599	10% Shapiro Wilk P Value					1.147E-13	Data Not Lognormal at 10% Significance Level					
1600	Lilliefors Test Statistic					0.0895	Lilliefors Lognormal GOF Test					
1601	10% Lilliefors Critical Value					0.0419	Data Not Lognormal at 10% Significance Level					
1602	Data Not Lognormal at 10% Significance Level											
1603												
1604	Background Statistics assuming Lognormal Distribution											
1605	95% UTL with 95% Coverage					11.34	90% Percentile (z)					8.67
1606	95% UPL (t)					10.57	95% Percentile (z)					10.54
1607	95% USL					30.45	99% Percentile (z)					15.2
1608												
1609	Nonparametric Distribution Free Background Statistics											
1610	Data do not follow a Discernible Distribution											
1611												
1612	Nonparametric Upper Limits for Background Threshold Values											
1613	Order of Statistic, order					369	95% UTL with 95% Coverage					10.7
1614	Approx, f used to compute achieved CC					1.49	Approximate Actual Confidence Coefficient achieved by UTL					0.944
1615							Approximate Sample Size needed to achieve specified CC					361
1616	95% Percentile Bootstrap UTL with 95% Coverage					10.4	95% BCA Bootstrap UTL with 95% Coverage					10.4
1617	95% UPL					9.995	90% Percentile					8.11
1618	90% Chebyshev UPL					12.23	95% Percentile					9.905
1619	95% Chebyshev UPL					15.52	99% Percentile					12.54
1620	95% USL					12.9						
1621												
1622	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1623	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1624	and consists of observations collected from clean unimpacted locations.											
1625	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1626	represents a background data set and when many onsite observations need to be compared with the BTV.											
1627												
1628	ID_Pb											
1629												
1630	General Statistics											
1631	Total Number of Observations					395	Number of Distinct Observations					186
1632	Minimum					5.5	First Quartile					14.6
1633	Second Largest					200	Median					17.9
1634	Maximum					541	Third Quartile					21.3
1635	Mean					22.23	SD					32.66
1636	Coefficient of Variation					1.469	Skewness					11.52
1637	Mean of logged Data					2.901	SD of logged Data					0.485
1638												
1639	Critical Values for Background Threshold Values (BTVs)											
1640	Tolerance Factor K (For UTL)					1.778	d2max (for USL)					3.63
1641												
1642	Normal GOF Test											
1643	Shapiro Wilk Test Statistic					0.276	Normal GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L	
1644	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
1645	Lilliefors Test Statistic					0.351	Lilliefors GOF Test						
1646	1% Lilliefors Critical Value					0.052	Data Not Normal at 1% Significance Level						
1647	Data Not Normal at 1% Significance Level												
1648													
1649	Background Statistics Assuming Normal Distribution												
1650	95% UTL with 95% Coverage					80.29	90% Percentile (z)					64.08	
1651	95% UPL (t)					76.14	95% Percentile (z)					75.94	
1652	95% USL					140.8	99% Percentile (z)					98.2	
1653													
1654	Gamma GOF Test												
1655	A-D Test Statistic					2.532E+28	Anderson-Darling Gamma GOF Test						
1656	5% A-D Critical Value					0.762	Data Not Gamma Distributed at 5% Significance Level						
1657	K-S Test Statistic					0.235	Kolmogorov-Smirnov Gamma GOF Test						
1658	5% K-S Critical Value					0.0459	Data Not Gamma Distributed at 5% Significance Level						
1659	Data Not Gamma Distributed at 5% Significance Level												
1660													
1661	Gamma Statistics												
1662	k hat (MLE)					2.656	k star (bias corrected MLE)					2.637	
1663	Theta hat (MLE)					8.368	Theta star (bias corrected MLE)					8.427	
1664	nu hat (MLE)					2098	nu star (bias corrected)					2083	
1665	MLE Mean (bias corrected)					22.23	MLE Sd (bias corrected)					13.69	
1666													
1667	Background Statistics Assuming Gamma Distribution												
1668	95% Wilson Hilferty (WH) Approx. Gamma UPL					45.85	90% Percentile					40.57	
1669	95% Hawkins Wixley (HW) Approx. Gamma UPL					44.05	95% Percentile					48.43	
1670	95% WH Approx. Gamma UTL with 95% Coverage					48.59	99% Percentile					65.59	
1671	95% HW Approx. Gamma UTL with 95% Coverage					46.7							
1672	95% WH USL					101.8	95% HW USL					100.8	
1673													
1674	Lognormal GOF Test												
1675	Shapiro Wilk Test Statistic					0.829	Shapiro Wilk Lognormal GOF Test						
1676	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level						
1677	Lilliefors Test Statistic					0.154	Lilliefors Lognormal GOF Test						
1678	10% Lilliefors Critical Value					0.0411	Data Not Lognormal at 10% Significance Level						
1679	Data Not Lognormal at 10% Significance Level												
1680													
1681	Background Statistics assuming Lognormal Distribution												
1682	95% UTL with 95% Coverage					43.08	90% Percentile (z)					33.87	
1683	95% UPL (t)					40.5	95% Percentile (z)					40.39	
1684	95% USL					105.7	99% Percentile (z)					56.19	
1685													
1686	Nonparametric Distribution Free Background Statistics												
1687	Data do not follow a Discernible Distribution												
1688													
1689	Nonparametric Upper Limits for Background Threshold Values												
1690	Order of Statistic, order					383	95% UTL with 95% Coverage					39.7	
1691	Approx, f used to compute achieved CC					1.436	Approximate Actual Confidence Coefficient achieved by UTL					0.932	
1692							Approximate Sample Size needed to achieve specified CC					385	
1693	95% Percentile Bootstrap UTL with 95% Coverage					37.32	95% BCA Bootstrap UTL with 95% Coverage					36.54	
1694	95% UPL					33.64	90% Percentile					26.56	
1695	90% Chebyshev UPL					120.3	95% Percentile					33.6	
1696	95% Chebyshev UPL					164.8	99% Percentile					158.2	

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	A	B	C	D	E	F	G	H	I	J	K	L	
1697	95% USL					541							
1698													
1699	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1700	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1701	and consists of observations collected from clean unimpacted locations.												
1702	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1703	represents a background data set and when many onsite observations need to be compared with the BTV.												
1704													
1705	ID_Pb <201												
1706													
1707	General Statistics												
1708	Total Number of Observations					394	Number of Distinct Observations					185	
1709	Minimum					5.5	First Quartile					14.6	
1710	Second Largest					178	Median					17.9	
1711	Maximum					200	Third Quartile					21.28	
1712	Mean					20.91	SD					19.56	
1713	Coefficient of Variation					0.936	Skewness					6.258	
1714	Mean of logged Data					2.893	SD of logged Data					0.454	
1715													
1716	Critical Values for Background Threshold Values (BTVs)												
1717	Tolerance Factor K (For UTL)					1.778	d2max (for USL)					3.63	
1718													
1719	Normal GOF Test												
1720	Shapiro Wilk Test Statistic					0.4	Normal GOF Test						
1721	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
1722	Lilliefors Test Statistic					0.3	Lilliefors GOF Test						
1723	1% Lilliefors Critical Value					0.0521	Data Not Normal at 1% Significance Level						
1724	Data Not Normal at 1% Significance Level												
1725													
1726	Background Statistics Assuming Normal Distribution												
1727	95% UTL with		95% Coverage		55.69	90% Percentile (z)					45.98		
1728			95% UPL (t)		53.2	95% Percentile (z)					53.09		
1729			95% USL		91.92	99% Percentile (z)					66.42		
1730													
1731	Gamma GOF Test												
1732	A-D Test Statistic					25.8	Anderson-Darling Gamma GOF Test						
1733	5% A-D Critical Value					0.759	Data Not Gamma Distributed at 5% Significance Level						
1734	K-S Test Statistic					0.201	Kolmogorov-Smirnov Gamma GOF Test						
1735	5% K-S Critical Value					0.0458	Data Not Gamma Distributed at 5% Significance Level						
1736	Data Not Gamma Distributed at 5% Significance Level												
1737													
1738	Gamma Statistics												
1739	k hat (MLE)					3.549	k star (bias corrected MLE)					3.523	
1740	Theta hat (MLE)					5.892	Theta star (bias corrected MLE)					5.934	
1741	nu hat (MLE)					2796	nu star (bias corrected)					2776	
1742	MLE Mean (bias corrected)					20.91	MLE Sd (bias corrected)					11.14	
1743													
1744	Background Statistics Assuming Gamma Distribution												
1745	95% Wilson Hilferty (WH) Approx. Gamma UPL					40.83	90% Percentile					35.84	
1746	95% Hawkins Wixley (HW) Approx. Gamma UPL					39.94	95% Percentile					41.94	
1747	95% WH Approx. Gamma UTL with		95% Coverage		43.03	99% Percentile					55.04		
1748	95% HW Approx. Gamma UTL with		95% Coverage		42.13								
1749	95% WH USL					84.46	95% HW USL					85.38	

	A	B	C	D	E	F	G	H	I	J	K	L	
1750													
1751	Lognormal GOF Test												
1752	Shapiro Wilk Test Statistic					0.856	Shapiro Wilk Lognormal GOF Test						
1753	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level						
1754	Lilliefors Test Statistic					0.138	Lilliefors Lognormal GOF Test						
1755	10% Lilliefors Critical Value					0.0412	Data Not Lognormal at 10% Significance Level						
1756	Data Not Lognormal at 10% Significance Level												
1757													
1758	Background Statistics assuming Lognormal Distribution												
1759	95% UTL with		95% Coverage		40.45					90% Percentile (z)		32.28	
1760					95% UPL (t)	38.17					95% Percentile (z)		38.07
1761					95% USL	93.75					99% Percentile (z)		51.88
1762													
1763	Nonparametric Distribution Free Background Statistics												
1764	Data do not follow a Discernible Distribution												
1765													
1766	Nonparametric Upper Limits for Background Threshold Values												
1767	Order of Statistic, order					382	95% UTL with 95% Coverage				38.5		
1768	Approx, f used to compute achieved CC					1.432	Approximate Actual Confidence Coefficient achieved by UTL				0.93		
1769							Approximate Sample Size needed to achieve specified CC				385		
1770	95% Percentile Bootstrap UTL with		95% Coverage		35.91	95% BCA Bootstrap UTL with		95% Coverage		35.91			
1771					95% UPL	33.6					90% Percentile		26.47
1772					90% Chebyshev UPL	79.67					95% Percentile		33.02
1773					95% Chebyshev UPL	106.3					99% Percentile		121.7
1774					95% USL	200							
1775													
1776	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1777	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1778	and consists of observations collected from clean unimpacted locations.												
1779	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1780	represents a background data set and when many onsite observations need to be compared with the BTV.												
1781													
1782	ID_Pb <100												
1783													
1784	General Statistics												
1785	Total Number of Observations					386	Number of Distinct Observations				177		
1786	Minimum					5.5	First Quartile				14.5		
1787	Second Largest					47.4	Median				17.9		
1788	Maximum					90.9	Third Quartile				20.8		
1789	Mean					18.37	SD				7.085		
1790	Coefficient of Variation					0.386	Skewness				3.393		
1791	Mean of logged Data					2.85	SD of logged Data				0.347		
1792													
1793	Critical Values for Background Threshold Values (BTVs)												
1794	Tolerance Factor K (For UTL)					1.78	d2max (for USL)				3.624		
1795													
1796	Normal GOF Test												
1797	Shapiro Wilk Test Statistic					0.839	Normal GOF Test						
1798	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
1799	Lilliefors Test Statistic					0.123	Lilliefors GOF Test						
1800	1% Lilliefors Critical Value					0.0526	Data Not Normal at 1% Significance Level						
1801	Data Not Normal at 1% Significance Level												
1802													

	A	B	C	D	E	F	G	H	I	J	K	L
1803	Background Statistics Assuming Normal Distribution											
1804	95% UTL with				95% Coverage	30.98	90% Percentile (z)				27.45	
1805					95% UPL (t)	30.07	95% Percentile (z)				30.03	
1806					95% USL	44.05	99% Percentile (z)				34.85	
1807												
1808	Gamma GOF Test											
1809					A-D Test Statistic	3.147	Anderson-Darling Gamma GOF Test					
1810					5% A-D Critical Value	0.755	Data Not Gamma Distributed at 5% Significance Level					
1811					K-S Test Statistic	0.0751	Kolmogorov-Smirnov Gamma GOF Test					
1812					5% K-S Critical Value	0.0462	Data Not Gamma Distributed at 5% Significance Level					
1813	Data Not Gamma Distributed at 5% Significance Level											
1814												
1815	Gamma Statistics											
1816					k hat (MLE)	8.417	k star (bias corrected MLE)				8.354	
1817					Theta hat (MLE)	2.183	Theta star (bias corrected MLE)				2.199	
1818					nu hat (MLE)	6498	nu star (bias corrected)				6449	
1819					MLE Mean (bias corrected)	18.37	MLE Sd (bias corrected)				6.357	
1820												
1821	Background Statistics Assuming Gamma Distribution											
1822	95% Wilson Hilferty (WH) Approx.				Gamma UPL	29.87	90% Percentile				26.84	
1823	95% Hawkins Wixley (HW) Approx.				Gamma UPL	30.01	95% Percentile				29.92	
1824	95% WH Approx.				Gamma UTL with	95% Coverage	31.01	99% Percentile				36.29
1825	95% HW Approx.				Gamma UTL with	95% Coverage	31.2					
1826					95% WH USL	50.64	95% HW USL				52.46	
1827												
1828	Lognormal GOF Test											
1829					Shapiro Wilk Test Statistic	0.974	Shapiro Wilk Lognormal GOF Test					
1830					10% Shapiro Wilk P Value	0.00463	Data Not Lognormal at 10% Significance Level					
1831					Lilliefors Test Statistic	0.0754	Lilliefors Lognormal GOF Test					
1832					10% Lilliefors Critical Value	0.0416	Data Not Lognormal at 10% Significance Level					
1833	Data Not Lognormal at 10% Significance Level											
1834												
1835	Background Statistics assuming Lognormal Distribution											
1836	95% UTL with				95% Coverage	32.08	90% Percentile (z)				26.99	
1837					95% UPL (t)	30.68	95% Percentile (z)				30.61	
1838					95% USL	60.87	99% Percentile (z)				38.79	
1839												
1840	Nonparametric Distribution Free Background Statistics											
1841	Data do not follow a Discernible Distribution											
1842												
1843	Nonparametric Upper Limits for Background Threshold Values											
1844	Order of Statistic, order				374	95% UTL with				95% Coverage	32.7	
1845	Approx, f used to compute achieved CC				1.402	Approximate Actual Confidence Coefficient achieved by UTL				0.918		
1846						Approximate Sample Size needed to achieve specified CC				385		
1847	95% Percentile Bootstrap UTL with				95% Coverage	32.35	95% BCA Bootstrap UTL with				95% Coverage	32.2
1848					95% UPL	30.4	90% Percentile				25.3	
1849					90% Chebyshev UPL	39.65	95% Percentile				30.05	
1850					95% Chebyshev UPL	49.29	99% Percentile				38.68	
1851					95% USL	90.9						
1852												
1853	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1854	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1855	and consists of observations collected from clean unimpacted locations.											

	A	B	C	D	E	F	G	H	I	J	K	L
1856	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1857	represents a background data set and when many onsite observations need to be compared with the BTV.											
1858												
1859	ID_Pb <48											
1860												
1861	General Statistics											
1862	Total Number of Observations					385	Number of Distinct Observations					176
1863	Minimum					5.5	First Quartile					14.5
1864	Second Largest					43.8	Median					17.9
1865	Maximum					47.4	Third Quartile					20.8
1866	Mean					18.18	SD					6.049
1867	Coefficient of Variation					0.333	Skewness					1.048
1868	Mean of logged Data					2.846	SD of logged Data					0.337
1869												
1870	Critical Values for Background Threshold Values (BTVs)											
1871	Tolerance Factor K (For UTL)					1.78	d2max (for USL)					3.623
1872												
1873	Normal GOF Test											
1874	Shapiro Wilk Test Statistic					0.94	Normal GOF Test					
1875	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1876	Lilliefors Test Statistic					0.0929	Lilliefors GOF Test					
1877	1% Lilliefors Critical Value					0.0527	Data Not Normal at 1% Significance Level					
1878	Data Not Normal at 1% Significance Level											
1879												
1880	Background Statistics Assuming Normal Distribution											
1881	95% UTL with		95% Coverage		28.95	90% Percentile (z)					25.94	
1882			95% UPL (t)		28.17	95% Percentile (z)					28.13	
1883			95% USL		40.1	99% Percentile (z)					32.26	
1884												
1885	Gamma GOF Test											
1886	A-D Test Statistic					2.195	Anderson-Darling Gamma GOF Test					
1887	5% A-D Critical Value					0.755	Data Not Gamma Distributed at 5% Significance Level					
1888	K-S Test Statistic					0.0592	Kolmogorov-Smirnov Gamma GOF Test					
1889	5% K-S Critical Value					0.0462	Data Not Gamma Distributed at 5% Significance Level					
1890	Data Not Gamma Distributed at 5% Significance Level											
1891												
1892	Gamma Statistics											
1893	k hat (MLE)					9.325	k star (bias corrected MLE)					9.254
1894	Theta hat (MLE)					1.95	Theta star (bias corrected MLE)					1.965
1895	nu hat (MLE)					7180	nu star (bias corrected)					7125
1896	MLE Mean (bias corrected)					18.18	MLE Sd (bias corrected)					5.978
1897												
1898	Background Statistics Assuming Gamma Distribution											
1899	95% Wilson Hilferty (WH) Approx. Gamma UPL					29	90% Percentile					26.14
1900	95% Hawkins Wixley (HW) Approx. Gamma UPL					29.21	95% Percentile					29
1901	95% WH Approx. Gamma UTL with		95% Coverage		30.06	99% Percentile					34.89	
1902	95% HW Approx. Gamma UTL with		95% Coverage		30.32							
1903	95% WH USL					48.17	95% HW USL					50.05
1904												
1905	Lognormal GOF Test											
1906	Shapiro Wilk Test Statistic					0.968	Shapiro Wilk Lognormal GOF Test					
1907	10% Shapiro Wilk P Value					5.6247E-5	Data Not Lognormal at 10% Significance Level					
1908	Lilliefors Test Statistic					0.0767	Lilliefors Lognormal GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L	
1909	10% Lilliefors Critical Value					0.0417	Data Not Lognormal at 10% Significance Level						
1910	Data Not Lognormal at 10% Significance Level												
1911													
1912	Background Statistics assuming Lognormal Distribution												
1913	95% UTL with 95% Coverage				31.38					90% Percentile (z)		26.53	
1914	95% UPL (t)				30.05					95% Percentile (z)		29.98	
1915	95% USL				58.43					99% Percentile (z)		37.73	
1916													
1917	Nonparametric Distribution Free Background Statistics												
1918	Data do not follow a Discernible Distribution												
1919													
1920	Nonparametric Upper Limits for Background Threshold Values												
1921	Order of Statistic, order				374	95% UTL with 95% Coverage				32.7			
1922	Approx, f used to compute achieved CC				1.51	Approximate Actual Confidence Coefficient achieved by UTL				0.95			
1923						Approximate Sample Size needed to achieve specified CC				361			
1924	95% Percentile Bootstrap UTL with 95% Coverage				32.2	95% BCA Bootstrap UTL with 95% Coverage				32.18			
1925	95% UPL				30.02	90% Percentile				25.26			
1926	90% Chebyshev UPL				36.36	95% Percentile				29.56			
1927	95% Chebyshev UPL				44.59	99% Percentile				36.65			
1928	95% USL				47.4								
1929													
1930	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1931	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1932	and consists of observations collected from clean unimpacted locations.												
1933	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1934	represents a background data set and when many onsite observations need to be compared with the BTV.												
1935													
1936	ID_Pb <38												
1937													
1938	General Statistics												
1939	Total Number of Observations				381	Number of Distinct Observations				172			
1940	Minimum				5.5	First Quartile				14.5			
1941	Second Largest				35.7	Median				17.8			
1942	Maximum				36.3	Third Quartile				20.6			
1943	Mean				17.93	SD				5.535			
1944	Coefficient of Variation				0.309	Skewness				0.584			
1945	Mean of logged Data				2.837	SD of logged Data				0.326			
1946													
1947	Critical Values for Background Threshold Values (BTVs)												
1948	Tolerance Factor K (For UTL)				1.78	d2max (for USL)				3.62			
1949													
1950	Normal GOF Test												
1951	Shapiro Wilk Test Statistic				0.959	Normal GOF Test							
1952	1% Shapiro Wilk P Value				3.5659E-9	Data Not Normal at 1% Significance Level							
1953	Lilliefors Test Statistic				0.0707	Lilliefors GOF Test							
1954	1% Lilliefors Critical Value				0.0529	Data Not Normal at 1% Significance Level							
1955	Data Not Normal at 1% Significance Level												
1956													
1957	Background Statistics Assuming Normal Distribution												
1958	95% UTL with 95% Coverage				27.79	90% Percentile (z)				25.02			
1959	95% UPL (t)				27.07	95% Percentile (z)				27.03			
1960	95% USL				37.97	99% Percentile (z)				30.81			
1961													

	A	B	C	D	E	F	G	H	I	J	K	L
1962	Gamma GOF Test											
1963	A-D Test Statistic					1.84	Anderson-Darling Gamma GOF Test					
1964	5% A-D Critical Value					0.754	Data Not Gamma Distributed at 5% Significance Level					
1965	K-S Test Statistic					0.0602	Kolmogorov-Smirnov Gamma GOF Test					
1966	5% K-S Critical Value					0.0465	Data Not Gamma Distributed at 5% Significance Level					
1967	Data Not Gamma Distributed at 5% Significance Level											
1968												
1969	Gamma Statistics											
1970	k hat (MLE)					10.18	k star (bias corrected MLE)					10.1
1971	Theta hat (MLE)					1.762	Theta star (bias corrected MLE)					1.776
1972	nu hat (MLE)					7754	nu star (bias corrected)					7694
1973	MLE Mean (bias corrected)					17.93	MLE Sd (bias corrected)					5.643
1974												
1975	Background Statistics Assuming Gamma Distribution											
1976	95% Wilson Hilferty (WH) Approx. Gamma UPL					28.12	90% Percentile					25.44
1977	95% Hawkins Wixley (HW) Approx. Gamma UPL					28.34	95% Percentile					28.11
1978	95% WH Approx. Gamma UTL with 95% Coverage					29.11	99% Percentile					33.59
1979	95% HW Approx. Gamma UTL with 95% Coverage					29.39						
1980	95% WH USL					45.87	95% HW USL					47.66
1981												
1982	Lognormal GOF Test											
1983	Shapiro Wilk Test Statistic					0.959	Shapiro Wilk Lognormal GOF Test					
1984	10% Shapiro Wilk P Value					1.8578E-9	Data Not Lognormal at 10% Significance Level					
1985	Lilliefors Test Statistic					0.0814	Lilliefors Lognormal GOF Test					
1986	10% Lilliefors Critical Value					0.0419	Data Not Lognormal at 10% Significance Level					
1987	Data Not Lognormal at 10% Significance Level											
1988												
1989	Background Statistics assuming Lognormal Distribution											
1990	95% UTL with 95% Coverage					30.48	90% Percentile (z)					25.9
1991	95% UPL (t)					29.22	95% Percentile (z)					29.16
1992	95% USL					55.52	99% Percentile (z)					36.42
1993												
1994	Nonparametric Distribution Free Background Statistics											
1995	Data do not follow a Discernible Distribution											
1996												
1997	Nonparametric Upper Limits for Background Threshold Values											
1998	Order of Statistic, order					370	95% UTL with 95% Coverage					31.3
1999	Approx, f used to compute achieved CC					1.494	Approximate Actual Confidence Coefficient achieved by UTL					0.945
2000							Approximate Sample Size needed to achieve specified CC					361
2001	95% Percentile Bootstrap UTL with 95% Coverage					30.5	95% BCA Bootstrap UTL with 95% Coverage					30.5
2002	95% UPL					28.59	90% Percentile					24.4
2003	90% Chebyshev UPL					34.56	95% Percentile					28.5
2004	95% Chebyshev UPL					42.09	99% Percentile					33.94
2005	95% USL					36.3						
2006												
2007	Note: The use of USL tends to yield a conservative estimate of BTv, especially when the sample size starts exceeding 20.											
2008	Therefore, one may use USL to estimate a BTv only when the data set represents a background data set free of outliers											
2009	and consists of observations collected from clean unimpacted locations.											
2010	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2011	represents a background data set and when many onsite observations need to be compared with the BTv.											
2012												
2013	IL_As											
2014												

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L
2015	General Statistics											
2016	Total Number of Observations					264	Number of Distinct Observations					94
2017	Minimum					1.3	First Quartile					5.875
2018	Second Largest					17.8	Median					7.2
2019	Maximum					21.6	Third Quartile					8.725
2020	Mean					7.58	SD					2.751
2021	Coefficient of Variation					0.363	Skewness					1.376
2022	Mean of logged Data					1.961	SD of logged Data					0.37
2023												
2024	Critical Values for Background Threshold Values (BTVs)											
2025	Tolerance Factor K (For UTL)					1.809	d2max (for USL)					3.515
2026												
2027	Normal GOF Test											
2028	Shapiro Wilk Test Statistic					0.92	Normal GOF Test					
2029	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
2030	Lilliefors Test Statistic					0.0993	Lilliefors GOF Test					
2031	1% Lilliefors Critical Value					0.0635	Data Not Normal at 1% Significance Level					
2032	Data Not Normal at 1% Significance Level											
2033												
2034	Background Statistics Assuming Normal Distribution											
2035	95% UTL with 95% Coverage					12.56	90% Percentile (z)					11.11
2036	95% UPL (t)					12.13	95% Percentile (z)					12.11
2037	95% USL					17.25	99% Percentile (z)					13.98
2038												
2039	Gamma GOF Test											
2040	A-D Test Statistic					1.724	Anderson-Darling Gamma GOF Test					
2041	5% A-D Critical Value					0.755	Data Not Gamma Distributed at 5% Significance Level					
2042	K-S Test Statistic					0.0568	Kolmogorov-Smirnov Gamma GOF Test					
2043	5% K-S Critical Value					0.0563	Data Not Gamma Distributed at 5% Significance Level					
2044	Data Not Gamma Distributed at 5% Significance Level											
2045												
2046	Gamma Statistics											
2047	k hat (MLE)					7.959	k star (bias corrected MLE)					7.871
2048	Theta hat (MLE)					0.952	Theta star (bias corrected MLE)					0.963
2049	nu hat (MLE)					4202	nu star (bias corrected)					4156
2050	MLE Mean (bias corrected)					7.58	MLE Sd (bias corrected)					2.702
2051												
2052	Background Statistics Assuming Gamma Distribution											
2053	95% Wilson Hiferty (WH) Approx. Gamma UPL					12.49	90% Percentile					11.18
2054	95% Hawkins Wixley (HW) Approx. Gamma UPL					12.61	95% Percentile					12.5
2055	95% WH Approx. Gamma UTL with 95% Coverage					13.09	99% Percentile					15.23
2056	95% HW Approx. Gamma UTL with 95% Coverage					13.24						
2057	95% WH USL					20.84	95% HW USL					21.76
2058												
2059	Lognormal GOF Test											
2060	Shapiro Wilk Test Statistic					0.956	Shapiro Wilk Lognormal GOF Test					
2061	10% Shapiro Wilk P Value					5.8916E-7	Data Not Lognormal at 10% Significance Level					
2062	Lilliefors Test Statistic					0.0787	Lilliefors Lognormal GOF Test					
2063	10% Lilliefors Critical Value					0.0503	Data Not Lognormal at 10% Significance Level					
2064	Data Not Lognormal at 10% Significance Level											
2065												
2066	Background Statistics assuming Lognormal Distribution											
2067	95% UTL with 95% Coverage					13.9	90% Percentile (z)					11.43

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L
2068					95% UPL (t)	13.12					95% Percentile (z)	13.08
2069					95% USL	26.15					99% Percentile (z)	16.83
2070												
2071	Nonparametric Distribution Free Background Statistics											
2072	Data do not follow a Discernible Distribution											
2073												
2074	Nonparametric Upper Limits for Background Threshold Values											
2075	Order of Statistic, order				257	95% UTL with 95% Coverage				13.5		
2076	Approx, f used to compute achieved CC				1.497	Approximate Actual Confidence Coefficient achieved by UTL				0.915		
2077						Approximate Sample Size needed to achieve specified CC				260		
2078	95% Percentile Bootstrap UTL with 95% Coverage				13.19	95% BCA Bootstrap UTL with 95% Coverage				13.1		
2079	95% UPL				12.23	90% Percentile				10.67		
2080	90% Chebyshev UPL				15.85	95% Percentile				11.99		
2081	95% Chebyshev UPL				19.59	99% Percentile				17.6		
2082	95% USL				21.6							
2083												
2084	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2085	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2086	and consists of observations collected from clean unimpacted locations.											
2087	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2088	represents a background data set and when many onsite observations need to be compared with the BTV.											
2089												
2090	IL_As <18											
2091												
2092	General Statistics											
2093	Total Number of Observations				263	Number of Distinct Observations				93		
2094	Minimum				1.3	First Quartile				5.85		
2095	Second Largest				17.6	Median				7.2		
2096	Maximum				17.8	Third Quartile				8.7		
2097	Mean				7.527	SD				2.616		
2098	Coefficient of Variation				0.348	Skewness				1.076		
2099	Mean of logged Data				1.957	SD of logged Data				0.365		
2100												
2101	Critical Values for Background Threshold Values (BTVs)											
2102	Tolerance Factor K (For UTL)				1.81	d2max (for USL)				3.514		
2103												
2104	Normal GOF Test											
2105	Shapiro Wilk Test Statistic				0.934	Normal GOF Test						
2106	1% Shapiro Wilk P Value				2.220E-16	Data Not Normal at 1% Significance Level						
2107	Lilliefors Test Statistic				0.0901	Lilliefors GOF Test						
2108	1% Lilliefors Critical Value				0.0637	Data Not Normal at 1% Significance Level						
2109	Data Not Normal at 1% Significance Level											
2110												
2111	Background Statistics Assuming Normal Distribution											
2112	95% UTL with 95% Coverage				12.26	90% Percentile (z)				10.88		
2113	95% UPL (t)				11.85	95% Percentile (z)				11.83		
2114	95% USL				16.72	99% Percentile (z)				13.61		
2115												
2116	Gamma GOF Test											
2117	A-D Test Statistic				1.428	Anderson-Darling Gamma GOF Test						
2118	5% A-D Critical Value				0.755	Data Not Gamma Distributed at 5% Significance Level						
2119	K-S Test Statistic				0.0567	Kolmogorov-Smirnov Gamma GOF Test						
2120	5% K-S Critical Value				0.0564	Data Not Gamma Distributed at 5% Significance Level						

	A	B	C	D	E	F	G	H	I	J	K	L
2121	Data Not Gamma Distributed at 5% Significance Level											
2122												
2123	Gamma Statistics											
2124	k hat (MLE)				8.319	k star (bias corrected MLE)				8.227		
2125	Theta hat (MLE)				0.905	Theta star (bias corrected MLE)				0.915		
2126	nu hat (MLE)				4376	nu star (bias corrected)				4327		
2127	MLE Mean (bias corrected)				7.527	MLE Sd (bias corrected)				2.624		
2128												
2129	Background Statistics Assuming Gamma Distribution											
2130	95% Wilson Hilferty (WH) Approx. Gamma UPL				12.3	90% Percentile				11.02		
2131	95% Hawkins Wixley (HW) Approx. Gamma UPL				12.42	95% Percentile				12.3		
2132	95% WH Approx. Gamma UTL with	95% Coverage			12.87	99% Percentile				14.93		
2133	95% HW Approx. Gamma UTL with	95% Coverage			13.02							
2134	95% WH USL				20.32	95% HW USL				21.22		
2135												
2136	Lognormal GOF Test											
2137	Shapiro Wilk Test Statistic				0.951	Shapiro Wilk Lognormal GOF Test						
2138	10% Shapiro Wilk P Value				5.2263E-9	Data Not Lognormal at 10% Significance Level						
2139	Lilliefors Test Statistic				0.0805	Lilliefors Lognormal GOF Test						
2140	10% Lilliefors Critical Value				0.0504	Data Not Lognormal at 10% Significance Level						
2141	Data Not Lognormal at 10% Significance Level											
2142												
2143	Background Statistics assuming Lognormal Distribution											
2144	95% UTL with	95% Coverage			13.7	90% Percentile (z)				11.3		
2145	95% UPL (t)				12.94	95% Percentile (z)				12.9		
2146	95% USL				25.51	99% Percentile (z)				16.54		
2147												
2148	Nonparametric Distribution Free Background Statistics											
2149	Data do not follow a Discernible Distribution											
2150												
2151	Nonparametric Upper Limits for Background Threshold Values											
2152	Order of Statistic, order				256	95% UTL with 95% Coverage				13.2		
2153	Approx, f used to compute achieved CC				1.491	Approximate Actual Confidence Coefficient achieved by UTL				0.913		
2154						Approximate Sample Size needed to achieve specified CC				260		
2155	95% Percentile Bootstrap UTL with	95% Coverage			13.05	95% BCA Bootstrap UTL with 95% Coverage				12.6		
2156	95% UPL				11.98	90% Percentile				10.6		
2157	90% Chebyshev UPL				15.39	95% Percentile				11.9		
2158	95% Chebyshev UPL				18.95	99% Percentile				17.23		
2159	95% USL				17.8							
2160												
2161	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2162	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2163	and consists of observations collected from clean unimpacted locations.											
2164	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2165	represents a background data set and when many onsite observations need to be compared with the BTV.											
2166												
2167	IL_As <14											
2168												
2169	General Statistics											
2170	Total Number of Observations				257	Number of Distinct Observations				88		
2171	Minimum				1.3	First Quartile				5.8		
2172	Second Largest				13.2	Median				7.1		
2173	Maximum				13.5	Third Quartile				8.6		

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	A	B	C	D	E	F	G	H	I	J	K	L
2174	Mean					7.305	SD					2.196
2175	Coefficient of Variation					0.301	Skewness					0.218
2176	Mean of logged Data					1.937	SD of logged Data					0.343
2177												
2178	Critical Values for Background Threshold Values (BTVs)											
2179	Tolerance Factor K (For UTL)					1.812	d2max (for USL)					3.507
2180												
2181	Normal GOF Test											
2182	Shapiro Wilk Test Statistic					0.98	Normal GOF Test					
2183	1% Shapiro Wilk P Value					0.27	Data appear Normal at 1% Significance Level					
2184	Lilliefors Test Statistic					0.0513	Lilliefors GOF Test					
2185	1% Lilliefors Critical Value					0.0644	Data appear Normal at 1% Significance Level					
2186	Data appear Normal at 1% Significance Level											
2187												
2188	Background Statistics Assuming Normal Distribution											
2189	95% UTL with		95% Coverage		11.28	90% Percentile (z)					10.12	
2190			95% UPL (t)		10.94	95% Percentile (z)					10.92	
2191			95% USL		15.01	99% Percentile (z)					12.41	
2192												
2193	Gamma GOF Test											
2194	A-D Test Statistic					1.031	Anderson-Darling Gamma GOF Test					
2195	5% A-D Critical Value					0.754	Data Not Gamma Distributed at 5% Significance Level					
2196	K-S Test Statistic					0.0663	Kolmogorov-Smirnov Gamma GOF Test					
2197	5% K-S Critical Value					0.057	Data Not Gamma Distributed at 5% Significance Level					
2198	Data Not Gamma Distributed at 5% Significance Level											
2199												
2200	Gamma Statistics											
2201	k hat (MLE)					9.807	k star (bias corrected MLE)					9.695
2202	Theta hat (MLE)					0.745	Theta star (bias corrected MLE)					0.753
2203	nu hat (MLE)					5041	nu star (bias corrected)					4983
2204	MLE Mean (bias corrected)					7.305	MLE Sd (bias corrected)					2.346
2205												
2206	Background Statistics Assuming Gamma Distribution											
2207	95% Wilson Hilferty (WH) Approx. Gamma UPL					11.55	90% Percentile					10.43
2208	95% Hawkins Wixley (HW) Approx. Gamma UPL					11.68	95% Percentile					11.54
2209	95% WH Approx. Gamma UTL with		95% Coverage		12.05	99% Percentile					13.84	
2210	95% HW Approx. Gamma UTL with		95% Coverage		12.22							
2211			95% WH USL		18.46	95% HW USL					19.28	
2212												
2213	Lognormal GOF Test											
2214	Shapiro Wilk Test Statistic					0.929	Shapiro Wilk Lognormal GOF Test					
2215	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
2216	Lilliefors Test Statistic					0.0903	Lilliefors Lognormal GOF Test					
2217	10% Lilliefors Critical Value					0.051	Data Not Lognormal at 10% Significance Level					
2218	Data Not Lognormal at 10% Significance Level											
2219												
2220	Background Statistics assuming Lognormal Distribution											
2221	95% UTL with		95% Coverage		12.91	90% Percentile (z)					10.77	
2222			95% UPL (t)		12.23	95% Percentile (z)					12.19	
2223			95% USL		23.1	99% Percentile (z)					15.41	
2224												
2225	Nonparametric Distribution Free Background Statistics											
2226	Data appear Normal at 1% Significance Level											

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	A	B	C	D	E	F	G	H	I	J	K	L						
2227																		
2228	Nonparametric Upper Limits for Background Threshold Values																	
2229	Order of Statistic, order					251	95% UTL with 95% Coverage					12						
2230	Approx, f used to compute achieved CC					1.645	Approximate Actual Confidence Coefficient achieved by UTL					0.946						
2231							Approximate Sample Size needed to achieve specified CC					234						
2232	95% Percentile Bootstrap UTL with 95% Coverage					11.9	95% BCA Bootstrap UTL with 95% Coverage					11.9						
2233	95% UPL					11.04	90% Percentile					10.44						
2234	90% Chebyshev UPL					13.91	95% Percentile					11						
2235	95% Chebyshev UPL					16.9	99% Percentile					12.82						
2236	95% USL					13.5	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations. The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.											
2237																		
2238																		
2239																		
2240																		
2241																		
2242																		
2243																		
2244	IL_As <11																	
2245																		
2246	General Statistics																	
2247	Total Number of Observations					243	Number of Distinct Observations					76						
2248	Minimum					1.3	First Quartile					5.8						
2249	Second Largest					10.9	Median					7						
2250	Maximum					10.9	Third Quartile					8.3						
2251	Mean					7.028	SD					1.911						
2252	Coefficient of Variation					0.272	Skewness					-0.212						
2253	Mean of logged Data					1.905	SD of logged Data					0.325						
2254																		
2255	Critical Values for Background Threshold Values (BTVs)																	
2256	Tolerance Factor K (For UTL)					1.817	d2max (for USL)					3.491						
2257																		
2258	Normal GOF Test																	
2259	Shapiro Wilk Test Statistic					0.975	Normal GOF Test											
2260	1% Shapiro Wilk P Value					0.0608	Data appear Normal at 1% Significance Level											
2261	Lilliefors Test Statistic					0.0373	Lilliefors GOF Test											
2262	1% Lilliefors Critical Value					0.0662	Data appear Normal at 1% Significance Level											
2263	Data appear Normal at 1% Significance Level																	
2264																		
2265	Background Statistics Assuming Normal Distribution																	
2266	95% UTL with 95% Coverage					10.5	90% Percentile (z)					9.476						
2267	95% UPL (t)					10.19	95% Percentile (z)					10.17						
2268	95% USL					13.7	99% Percentile (z)					11.47						
2269																		
2270	Gamma GOF Test																	
2271	A-D Test Statistic					1.922	Anderson-Darling Gamma GOF Test											
2272	5% A-D Critical Value					0.753	Data Not Gamma Distributed at 5% Significance Level											
2273	K-S Test Statistic					0.0834	Kolmogorov-Smirnov Gamma GOF Test											
2274	5% K-S Critical Value					0.0586	Data Not Gamma Distributed at 5% Significance Level											
2275	Data Not Gamma Distributed at 5% Significance Level																	
2276																		
2277	Gamma Statistics																	
2278	k hat (MLE)					11.23	k star (bias corrected MLE)					11.1						
2279	Theta hat (MLE)					0.626	Theta star (bias corrected MLE)					0.633						

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	A	B	C	D	E	F	G	H	I	J	K	L
2280	nu hat (MLE)					5459	nu star (bias corrected)					5393
2281	MLE Mean (bias corrected)					7.028	MLE Sd (bias corrected)					2.11
2282												
2283	Background Statistics Assuming Gamma Distribution											
2284	95% Wilson Hilferty (WH) Approx. Gamma UPL					10.82	90% Percentile					9.83
2285	95% Hawkins Wixley (HW) Approx. Gamma UPL					10.96	95% Percentile					10.82
2286	95% WH Approx. Gamma UTL with 95% Coverage					11.28	99% Percentile					12.84
2287	95% HW Approx. Gamma UTL with 95% Coverage					11.45						
2288	95% WH USL					16.81	95% HW USL					17.53
2289												
2290	Lognormal GOF Test											
2291	Shapiro Wilk Test Statistic					0.895	Shapiro Wilk Lognormal GOF Test					
2292	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
2293	Lilliefors Test Statistic					0.106	Lilliefors Lognormal GOF Test					
2294	10% Lilliefors Critical Value					0.0524	Data Not Lognormal at 10% Significance Level					
2295	Data Not Lognormal at 10% Significance Level											
2296												
2297	Background Statistics assuming Lognormal Distribution											
2298	95% UTL with 95% Coverage					12.11	90% Percentile (z)					10.18
2299	95% UPL (t)					11.49	95% Percentile (z)					11.46
2300	95% USL					20.85	99% Percentile (z)					14.29
2301												
2302	Nonparametric Distribution Free Background Statistics											
2303	Data appear Normal at 1% Significance Level											
2304												
2305	Nonparametric Upper Limits for Background Threshold Values											
2306	Order of Statistic, order					237	95% UTL with 95% Coverage					10.6
2307	Approx, f used to compute achieved CC					1.553	Approximate Actual Confidence Coefficient achieved by UTL					0.922
2308							Approximate Sample Size needed to achieve specified CC					234
2309	95% Percentile Bootstrap UTL with 95% Coverage					10.6	95% BCA Bootstrap UTL with 95% Coverage					10.6
2310	95% UPL					10.48	90% Percentile					9.5
2311	90% Chebyshev UPL					12.77	95% Percentile					10.37
2312	95% Chebyshev UPL					15.37	99% Percentile					10.8
2313	95% USL					10.9						
2314												
2315	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2316	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2317	and consists of observations collected from clean unimpacted locations.											
2318	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2319	represents a background data set and when many onsite observations need to be compared with the BTV.											
2320												
2321	IL_Pb											
2322												
2323	General Statistics											
2324	Total Number of Observations					264	Number of Distinct Observations					168
2325	Minimum					6.3	First Quartile					17.7
2326	Second Largest					75.9	Median					21
2327	Maximum					103	Third Quartile					25.73
2328	Mean					23.19	SD					9.908
2329	Coefficient of Variation					0.427	Skewness					3.291
2330	Mean of logged Data					3.079	SD of logged Data					0.346
2331												
2332	Critical Values for Background Threshold Values (BTVs)											

	A	B	C	D	E	F	G	H	I	J	K	L
2333	Tolerance Factor K (For UTL)					1.809	d2max (for USL)					3.515
2334												
2335	Normal GOF Test											
2336	Shapiro Wilk Test Statistic					0.776	Normal GOF Test					
2337	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
2338	Lilliefors Test Statistic					0.154	Lilliefors GOF Test					
2339	1% Lilliefors Critical Value					0.0635	Data Not Normal at 1% Significance Level					
2340	Data Not Normal at 1% Significance Level											
2341												
2342	Background Statistics Assuming Normal Distribution											
2343	95% UTL with		95% Coverage		41.12	90% Percentile (z)					35.89	
2344			95% UPL (t)		39.58	95% Percentile (z)					39.49	
2345			95% USL		58.02	99% Percentile (z)					46.24	
2346												
2347	Gamma GOF Test											
2348	A-D Test Statistic					4.73	Anderson-Darling Gamma GOF Test					
2349	5% A-D Critical Value					0.755	Data Not Gamma Distributed at 5% Significance Level					
2350	K-S Test Statistic					0.096	Kolmogorov-Smirnov Gamma GOF Test					
2351	5% K-S Critical Value					0.0563	Data Not Gamma Distributed at 5% Significance Level					
2352	Data Not Gamma Distributed at 5% Significance Level											
2353												
2354	Gamma Statistics											
2355	k hat (MLE)					7.835	k star (bias corrected MLE)					7.748
2356	Theta hat (MLE)					2.96	Theta star (bias corrected MLE)					2.993
2357	nu hat (MLE)					4137	nu star (bias corrected)					4091
2358	MLE Mean (bias corrected)					23.19	MLE Sd (bias corrected)					8.332
2359												
2360	Background Statistics Assuming Gamma Distribution											
2361	95% Wilson Hilferty (WH) Approx. Gamma UPL					38.28	90% Percentile					34.31
2362	95% Hawkins Wixley (HW) Approx. Gamma UPL					38.27	95% Percentile					38.38
2363	95% WH Approx. Gamma UTL with		95% Coverage		40.1	99% Percentile					46.83	
2364	95% HW Approx. Gamma UTL with		95% Coverage		40.16							
2365			95% WH USL		64.05	95% HW USL					65.74	
2366												
2367	Lognormal GOF Test											
2368	Shapiro Wilk Test Statistic					0.968	Shapiro Wilk Lognormal GOF Test					
2369	10% Shapiro Wilk P Value					0.00122	Data Not Lognormal at 10% Significance Level					
2370	Lilliefors Test Statistic					0.0688	Lilliefors Lognormal GOF Test					
2371	10% Lilliefors Critical Value					0.0503	Data Not Lognormal at 10% Significance Level					
2372	Data Not Lognormal at 10% Significance Level											
2373												
2374	Background Statistics assuming Lognormal Distribution											
2375	95% UTL with		95% Coverage		40.65	90% Percentile (z)					33.86	
2376			95% UPL (t)		38.52	95% Percentile (z)					38.4	
2377			95% USL		73.38	99% Percentile (z)					48.62	
2378												
2379	Nonparametric Distribution Free Background Statistics											
2380	Data do not follow a Discernible Distribution											
2381												
2382	Nonparametric Upper Limits for Background Threshold Values											
2383	Order of Statistic, order					257	95% UTL with 95% Coverage					49.2
2384	Approx, f used to compute achieved CC					1.497	Approximate Actual Confidence Coefficient achieved by UTL					0.915
2385							Approximate Sample Size needed to achieve specified CC					260

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	A	B	C	D	E	F	G	H	I	J	K	L
2386	95% Percentile Bootstrap UTL with 95% Coverage					46.79	95% BCA Bootstrap UTL with 95% Coverage					46.79
2387	95% UPL					40.98	90% Percentile					31.91
2388	90% Chebyshev UPL					52.97	95% Percentile					39.97
2389	95% Chebyshev UPL					66.46	99% Percentile					53.97
2390	95% USL					103						
2391												
2392	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2393	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2394	and consists of observations collected from clean unimpacted locations.											
2395	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2396	represents a background data set and when many onsite observations need to be compared with the BTV.											
2397												
2398	IL_Pb <76											
2399												
2400	General Statistics											
2401	Total Number of Observations					263	Number of Distinct Observations					167
2402	Minimum					6.3	First Quartile					17.7
2403	Second Largest					54.1	Median					21
2404	Maximum					75.9	Third Quartile					25.65
2405	Mean					22.89	SD					8.611
2406	Coefficient of Variation					0.376	Skewness					2.078
2407	Mean of logged Data					3.073	SD of logged Data					0.333
2408												
2409	Critical Values for Background Threshold Values (BTVs)											
2410	Tolerance Factor K (For UTL)					1.81	d2max (for USL)					3.514
2411												
2412	Normal GOF Test											
2413	Shapiro Wilk Test Statistic					0.854	Normal GOF Test					
2414	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
2415	Lilliefors Test Statistic					0.131	Lilliefors GOF Test					
2416	1% Lilliefors Critical Value					0.0637	Data Not Normal at 1% Significance Level					
2417	Data Not Normal at 1% Significance Level											
2418												
2419	Background Statistics Assuming Normal Distribution											
2420	95% UTL with 95% Coverage					38.47	90% Percentile (z)					33.93
2421	95% UPL (t)					37.13	95% Percentile (z)					37.05
2422	95% USL					53.15	99% Percentile (z)					42.92
2423												
2424	Gamma GOF Test											
2425	A-D Test Statistic					3.447	Anderson-Darling Gamma GOF Test					
2426	5% A-D Critical Value					0.754	Data Not Gamma Distributed at 5% Significance Level					
2427	K-S Test Statistic					0.081	Kolmogorov-Smirnov Gamma GOF Test					
2428	5% K-S Critical Value					0.0564	Data Not Gamma Distributed at 5% Significance Level					
2429	Data Not Gamma Distributed at 5% Significance Level											
2430												
2431	Gamma Statistics											
2432	k hat (MLE)					8.796	k star (bias corrected MLE)					8.698
2433	Theta hat (MLE)					2.602	Theta star (bias corrected MLE)					2.632
2434	nu hat (MLE)					4627	nu star (bias corrected)					4575
2435	MLE Mean (bias corrected)					22.89	MLE Sd (bias corrected)					7.761
2436												
2437	Background Statistics Assuming Gamma Distribution											
2438	95% Wilson Hiferty (WH) Approx. Gamma UPL					36.93	90% Percentile					33.23

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	A	B	C	D	E	F	G	H	I	J	K	L
2439	95% Hawkins Wixley (HW) Approx. Gamma UPL					37.02	95% Percentile					36.97
2440	95% WH Approx. Gamma UTL with 95% Coverage					38.61	99% Percentile					44.69
2441	95% HW Approx. Gamma UTL with 95% Coverage					38.76						
2442	95% WH USL					60.41	95% HW USL					62.14
2443												
2444	Lognormal GOF Test											
2445	Shapiro Wilk Test Statistic					0.975	Shapiro Wilk Lognormal GOF Test					
2446	10% Shapiro Wilk P Value					0.0502	Data Not Lognormal at 10% Significance Level					
2447	Lilliefors Test Statistic					0.0591	Lilliefors Lognormal GOF Test					
2448	10% Lilliefors Critical Value					0.0504	Data Not Lognormal at 10% Significance Level					
2449	Data Not Lognormal at 10% Significance Level											
2450												
2451	Background Statistics assuming Lognormal Distribution											
2452	95% UTL with 95% Coverage					39.48	90% Percentile (z)					33.11
2453	95% UPL (t)					37.48	95% Percentile (z)					37.37
2454	95% USL					69.67	99% Percentile (z)					46.9
2455												
2456	Nonparametric Distribution Free Background Statistics											
2457	Data do not follow a Discernible Distribution											
2458												
2459	Nonparametric Upper Limits for Background Threshold Values											
2460	Order of Statistic, order					256	95% UTL with 95% Coverage					47
2461	Approx, f used to compute achieved CC					1.491	Approximate Actual Confidence Coefficient achieved by UTL					0.913
2462							Approximate Sample Size needed to achieve specified CC					260
2463	95% Percentile Bootstrap UTL with 95% Coverage					45.55	95% BCA Bootstrap UTL with 95% Coverage					45.1
2464	95% UPL					39.96	90% Percentile					31.66
2465	90% Chebyshev UPL					48.77	95% Percentile					39.72
2466	95% Chebyshev UPL					60.5	99% Percentile					52.97
2467	95% USL					75.9						
2468												
2469	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2470	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2471	and consists of observations collected from clean unimpacted locations.											
2472	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2473	represents a background data set and when many onsite observations need to be compared with the BTV.											
2474												
2475	IL_Pb <44											
2476												
2477	General Statistics											
2478	Total Number of Observations					253	Number of Distinct Observations					157
2479	Minimum					6.3	First Quartile					17.5
2480	Second Largest					41.3	Median					20.7
2481	Maximum					43.5	Third Quartile					25
2482	Mean					21.72	SD					6.168
2483	Coefficient of Variation					0.284	Skewness					0.755
2484	Mean of logged Data					3.038	SD of logged Data					0.288
2485												
2486	Critical Values for Background Threshold Values (BTVs)											
2487	Tolerance Factor K (For UTL)					1.813	d2max (for USL)					3.503
2488												
2489	Normal GOF Test											
2490	Shapiro Wilk Test Statistic					0.958	Normal GOF Test					
2491	1% Shapiro Wilk P Value					4.6780E-6	Data Not Normal at 1% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L	
2492	Lilliefors Test Statistic					0.0747	Lilliefors GOF Test						
2493	1% Lilliefors Critical Value					0.0649	Data Not Normal at 1% Significance Level						
2494	Data Not Normal at 1% Significance Level												
2495													
2496	Background Statistics Assuming Normal Distribution												
2497	95% UTL with 95% Coverage				32.9	90% Percentile (z)						29.62	
2498	95% UPL (t)				31.92	95% Percentile (z)						31.86	
2499	95% USL				43.32	99% Percentile (z)						36.07	
2500													
2501	Gamma GOF Test												
2502	A-D Test Statistic				0.543	Anderson-Darling Gamma GOF Test							
2503	5% A-D Critical Value				0.753	Detected data appear Gamma Distributed at 5% Significance Level							
2504	K-S Test Statistic				0.0426	Kolmogorov-Smirnov Gamma GOF Test							
2505	5% K-S Critical Value				0.0575	Detected data appear Gamma Distributed at 5% Significance Level							
2506	Detected data appear Gamma Distributed at 5% Significance Level												
2507													
2508	Gamma Statistics												
2509	k hat (MLE)				12.64	k star (bias corrected MLE)						12.49	
2510	Theta hat (MLE)				1.718	Theta star (bias corrected MLE)						1.738	
2511	nu hat (MLE)				6397	nu star (bias corrected)						6322	
2512	MLE Mean (bias corrected)				21.72	MLE Sd (bias corrected)						6.144	
2513													
2514	Background Statistics Assuming Gamma Distribution												
2515	95% Wilson Hilferty (WH) Approx. Gamma UPL				32.73	90% Percentile						29.87	
2516	95% Hawkins Wixley (HW) Approx. Gamma UPL				32.9	95% Percentile						32.71	
2517	95% WH Approx. Gamma UTL with 95% Coverage				34.02	99% Percentile						38.5	
2518	95% HW Approx. Gamma UTL with 95% Coverage				34.26								
2519	95% WH USL				49.95	95% HW USL						51.36	
2520													
2521	Lognormal GOF Test												
2522	Shapiro Wilk Test Statistic				0.979	Shapiro Wilk Lognormal GOF Test							
2523	10% Shapiro Wilk P Value				0.215	Data appear Lognormal at 10% Significance Level							
2524	Lilliefors Test Statistic				0.0461	Lilliefors Lognormal GOF Test							
2525	10% Lilliefors Critical Value				0.0514	Data appear Lognormal at 10% Significance Level							
2526	Data appear Lognormal at 10% Significance Level												
2527													
2528	Background Statistics assuming Lognormal Distribution												
2529	95% UTL with 95% Coverage				35.16	90% Percentile (z)						30.17	
2530	95% UPL (t)				33.59	95% Percentile (z)						33.5	
2531	95% USL				57.19	99% Percentile (z)						40.76	
2532													
2533	Nonparametric Distribution Free Background Statistics												
2534	Data appear Gamma Distributed at 5% Significance Level												
2535													
2536	Nonparametric Upper Limits for Background Threshold Values												
2537	Order of Statistic, order				247	95% UTL with 95% Coverage						38.4	
2538	Approx, f used to compute achieved CC				1.618	Approximate Actual Confidence Coefficient achieved by UTL						0.94	
2539						Approximate Sample Size needed to achieve specified CC						234	
2540	95% Percentile Bootstrap UTL with 95% Coverage				36.08	95% BCA Bootstrap UTL with 95% Coverage						35.8	
2541	95% UPL				32.94	90% Percentile						29.46	
2542	90% Chebyshev UPL				40.26	95% Percentile						32.52	
2543	95% Chebyshev UPL				48.66	99% Percentile						39.9	
2544	95% USL				43.5								

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	A	B	C	D	E	F	G	H	I	J	K	L
2545												
2546	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2547	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2548	and consists of observations collected from clean unimpacted locations.											
2549	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2550	represents a background data set and when many onsite observations need to be compared with the BTV.											
2551												
2552	IL_Pb <35											
2553												
2554	General Statistics											
2555	Total Number of Observations					244	Number of Distinct Observations					148
2556	Minimum					6.3	First Quartile					17.18
2557	Second Largest					34.4	Median					20.4
2558	Maximum					34.6	Third Quartile					24.8
2559	Mean					21.07	SD					5.245
2560	Coefficient of Variation					0.249	Skewness					0.194
2561	Mean of logged Data					3.015	SD of logged Data					0.266
2562												
2563	Critical Values for Background Threshold Values (BTVs)											
2564	Tolerance Factor K (For UTL)					1.816	d2max (for USL)					3.492
2565												
2566	Normal GOF Test											
2567	Shapiro Wilk Test Statistic					0.979	Normal GOF Test					
2568	1% Shapiro Wilk P Value					0.194	Data appear Normal at 1% Significance Level					
2569	Lilliefors Test Statistic					0.0592	Lilliefors GOF Test					
2570	1% Lilliefors Critical Value					0.0661	Data appear Normal at 1% Significance Level					
2571	Data appear Normal at 1% Significance Level											
2572												
2573	Background Statistics Assuming Normal Distribution											
2574	95% UTL with 95% Coverage					30.6	90% Percentile (z)					27.79
2575	95% UPL (t)					29.75	95% Percentile (z)					29.7
2576	95% USL					39.39	99% Percentile (z)					33.27
2577												
2578	Gamma GOF Test											
2579	A-D Test Statistic					0.324	Anderson-Darling Gamma GOF Test					
2580	5% A-D Critical Value					0.752	Detected data appear Gamma Distributed at 5% Significance Level					
2581	K-S Test Statistic					0.0365	Kolmogorov-Smirnov Gamma GOF Test					
2582	5% K-S Critical Value					0.0585	Detected data appear Gamma Distributed at 5% Significance Level					
2583	Detected data appear Gamma Distributed at 5% Significance Level											
2584												
2585	Gamma Statistics											
2586	k hat (MLE)					15.26	k star (bias corrected MLE)					15.08
2587	Theta hat (MLE)					1.381	Theta star (bias corrected MLE)					1.398
2588	nu hat (MLE)					7448	nu star (bias corrected)					7358
2589	MLE Mean (bias corrected)					21.07	MLE Sd (bias corrected)					5.427
2590												
2591	Background Statistics Assuming Gamma Distribution											
2592	95% Wilson Hilferty (WH) Approx. Gamma UPL					30.74	90% Percentile					28.26
2593	95% Hawkins Wixley (HW) Approx. Gamma UPL					30.93	95% Percentile					30.72
2594	95% WH Approx. Gamma UTL with 95% Coverage					31.88	99% Percentile					35.7
2595	95% HW Approx. Gamma UTL with 95% Coverage					32.12						
2596	95% WH USL					45.36	95% HW USL					46.58
2597												

	A	B	C	D	E	F	G	H	I	J	K	L
2598	Lognormal GOF Test											
2599	Shapiro Wilk Test Statistic					0.963	Shapiro Wilk Lognormal GOF Test					
2600	10% Shapiro Wilk P Value					1.7066E-4	Data Not Lognormal at 10% Significance Level					
2601	Lilliefors Test Statistic					0.0436	Lilliefors Lognormal GOF Test					
2602	10% Lilliefors Critical Value					0.0523	Data appear Lognormal at 10% Significance Level					
2603	Data appear Approximate Lognormal at 10% Significance Level											
2604												
2605	Background Statistics assuming Lognormal Distribution											
2606	95% UTL with 95% Coverage				33.03					90% Percentile (z)		28.65
2607	95% UPL (t)				31.64					95% Percentile (z)		31.56
2608	95% USL				51.55					99% Percentile (z)		37.82
2609												
2610	Nonparametric Distribution Free Background Statistics											
2611	Data appear Normal at 1% Significance Level											
2612												
2613	Nonparametric Upper Limits for Background Threshold Values											
2614	Order of Statistic, order				238	95% UTL with 95% Coverage				32		
2615	Approx, f used to compute achieved CC				1.559	Approximate Actual Confidence Coefficient achieved by UTL				0.924		
2616						Approximate Sample Size needed to achieve specified CC				234		
2617	95% Percentile Bootstrap UTL with 95% Coverage				31.67	95% BCA Bootstrap UTL with 95% Coverage				31.47		
2618	95% UPL				30.18	90% Percentile				28.14		
2619	90% Chebyshev UPL				36.84	95% Percentile				30.1		
2620	95% Chebyshev UPL				43.98	99% Percentile				33.16		
2621	95% USL				34.6							
2622												
2623	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2624	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2625	and consists of observations collected from clean unimpacted locations.											
2626	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2627	represents a background data set and when many onsite observations need to be compared with the BTV.											
2628												
2629	IN_As											
2630												
2631	General Statistics											
2632	Total Number of Observations				168	Number of Distinct Observations				78		
2633	Minimum				1.3	First Quartile				5.425		
2634	Second Largest				94.5	Median				7.45		
2635	Maximum				110	Third Quartile				9		
2636	Mean				8.554	SD				10.82		
2637	Coefficient of Variation				1.264	Skewness				8.037		
2638	Mean of logged Data				1.936	SD of logged Data				0.565		
2639												
2640	Critical Values for Background Threshold Values (BTVs)											
2641	Tolerance Factor K (For UTL)				1.855	d2max (for USL)				3.379		
2642												
2643	Normal GOF Test											
2644	Shapiro Wilk Test Statistic				0.328	Normal GOF Test						
2645	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level						
2646	Lilliefors Test Statistic				0.333	Lilliefors GOF Test						
2647	1% Lilliefors Critical Value				0.0795	Data Not Normal at 1% Significance Level						
2648	Data Not Normal at 1% Significance Level											
2649												
2650	Background Statistics Assuming Normal Distribution											

	A	B	C	D	E	F	G	H	I	J	K	L
2651	95% UTL with			95% Coverage	28.61	90% Percentile (z)			22.41			
2652	95% UPL (t)			26.5	95% Percentile (z)			26.34				
2653	95% USL			45.1	99% Percentile (z)			33.71				
2654												
2655	Gamma GOF Test											
2656	A-D Test Statistic			8.507	Anderson-Darling Gamma GOF Test							
2657	5% A-D Critical Value			0.763	Data Not Gamma Distributed at 5% Significance Level							
2658	K-S Test Statistic			0.184	Kolmogorov-Smirnov Gamma GOF Test							
2659	5% K-S Critical Value			0.0726	Data Not Gamma Distributed at 5% Significance Level							
2660	Data Not Gamma Distributed at 5% Significance Level											
2661												
2662	Gamma Statistics											
2663	k hat (MLE)			2.526	k star (bias corrected MLE)			2.485				
2664	Theta hat (MLE)			3.387	Theta star (bias corrected MLE)			3.443				
2665	nu hat (MLE)			848.6	nu star (bias corrected)			834.8				
2666	MLE Mean (bias corrected)			8.554	MLE Sd (bias corrected)			5.427				
2667												
2668	Background Statistics Assuming Gamma Distribution											
2669	95% Wilson Hilferty (WH) Approx. Gamma UPL			18.23	90% Percentile			15.82				
2670	95% Hawkins Wixley (HW) Approx. Gamma UPL			17.86	95% Percentile			18.97				
2671	95% WH Approx. Gamma UTL with 95% Coverage			19.97	99% Percentile			25.87				
2672	95% HW Approx. Gamma UTL with 95% Coverage			19.63								
2673	95% WH USL			37.49	95% HW USL			38.3				
2674												
2675	Lognormal GOF Test											
2676	Shapiro Wilk Test Statistic			0.896	Shapiro Wilk Lognormal GOF Test							
2677	10% Shapiro Wilk P Value			0	Data Not Lognormal at 10% Significance Level							
2678	Lilliefors Test Statistic			0.155	Lilliefors Lognormal GOF Test							
2679	10% Lilliefors Critical Value			0.0629	Data Not Lognormal at 10% Significance Level							
2680	Data Not Lognormal at 10% Significance Level											
2681												
2682	Background Statistics assuming Lognormal Distribution											
2683	95% UTL with 95% Coverage			19.76	90% Percentile (z)			14.29				
2684	95% UPL (t)			17.69	95% Percentile (z)			17.55				
2685	95% USL			46.74	99% Percentile (z)			25.79				
2686												
2687	Nonparametric Distribution Free Background Statistics											
2688	Data do not follow a Discernible Distribution											
2689												
2690	Nonparametric Upper Limits for Background Threshold Values											
2691	Order of Statistic, order			165	95% UTL with 95% Coverage			19.7				
2692	Approx, f used to compute achieved CC			1.726	Approximate Actual Confidence Coefficient achieved by UTL			0.926				
2693					Approximate Sample Size needed to achieve specified CC			153				
2694	95% Percentile Bootstrap UTL with 95% Coverage			17.38	95% BCA Bootstrap UTL with 95% Coverage			17.38				
2695	95% UPL			12.51	90% Percentile			10.9				
2696	90% Chebyshev UPL			41.1	95% Percentile			12.3				
2697	95% Chebyshev UPL			55.84	99% Percentile			45.39				
2698	95% USL			110								
2699												
2700	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2701	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2702	and consists of observations collected from clean unimpacted locations.											
2703	The use of USL tends to provide a balance between false positives and false negatives provided the data											

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	A	B	C	D	E	F	G	H	I	J	K	L
2704	represents a background data set and when many onsite observations need to be compared with the BTV.											
2705												
2706	IN_As <22											
2707												
2708	General Statistics											
2709	Total Number of Observations					166	Number of Distinct Observations					76
2710	Minimum					1.3	First Quartile					5.275
2711	Second Largest					19.7	Median					7.4
2712	Maximum					21.2	Third Quartile					9
2713	Mean					7.425	SD					3.159
2714	Coefficient of Variation					0.425	Skewness					0.949
2715	Mean of logged Data					1.903	SD of logged Data					0.484
2716												
2717	Critical Values for Background Threshold Values (BTVs)											
2718	Tolerance Factor K (For UTL)					1.856	d2max (for USL)					3.375
2719												
2720	Normal GOF Test											
2721	Shapiro Wilk Test Statistic					0.932	Normal GOF Test					
2722	1% Shapiro Wilk P Value					2.9282E-9	Data Not Normal at 1% Significance Level					
2723	Lilliefors Test Statistic					0.0871	Lilliefors GOF Test					
2724	1% Lilliefors Critical Value					0.08	Data Not Normal at 1% Significance Level					
2725	Data Not Normal at 1% Significance Level											
2726												
2727	Background Statistics Assuming Normal Distribution											
2728	95% UTL with		95% Coverage		13.29	90% Percentile (z)					11.47	
2729			95% UPL (t)		12.67	95% Percentile (z)					12.62	
2730			95% USL		18.09	99% Percentile (z)					14.77	
2731												
2732	Gamma GOF Test											
2733	A-D Test Statistic					2.987	Anderson-Darling Gamma GOF Test					
2734	5% A-D Critical Value					0.755	Data Not Gamma Distributed at 5% Significance Level					
2735	K-S Test Statistic					0.144	Kolmogorov-Smirnov Gamma GOF Test					
2736	5% K-S Critical Value					0.0726	Data Not Gamma Distributed at 5% Significance Level					
2737	Data Not Gamma Distributed at 5% Significance Level											
2738												
2739	Gamma Statistics											
2740	k hat (MLE)					5.077	k star (bias corrected MLE)					4.989
2741	Theta hat (MLE)					1.462	Theta star (bias corrected MLE)					1.488
2742	nu hat (MLE)					1686	nu star (bias corrected)					1657
2743	MLE Mean (bias corrected)					7.425	MLE Sd (bias corrected)					3.324
2744												
2745	Background Statistics Assuming Gamma Distribution											
2746	95% Wilson Hilferty (WH) Approx. Gamma UPL					13.62	90% Percentile					11.87
2747	95% Hawkins Wixley (HW) Approx. Gamma UPL					13.87	95% Percentile					13.6
2748	95% WH Approx. Gamma UTL with		95% Coverage		14.61	99% Percentile					17.24	
2749	95% HW Approx. Gamma UTL with		95% Coverage		14.96							
2750	95% WH USL					23.97	95% HW USL					25.62
2751												
2752	Lognormal GOF Test											
2753	Shapiro Wilk Test Statistic					0.921	Shapiro Wilk Lognormal GOF Test					
2754	10% Shapiro Wilk P Value					7.847E-12	Data Not Lognormal at 10% Significance Level					
2755	Lilliefors Test Statistic					0.174	Lilliefors Lognormal GOF Test					
2756	10% Lilliefors Critical Value					0.0633	Data Not Lognormal at 10% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L
2757	Data Not Lognormal at 10% Significance Level											
2758												
2759	Background Statistics assuming Lognormal Distribution											
2760	95% UTL with 95% Coverage				16.47					90% Percentile (z)		12.47
2761	95% UPL (t)				14.97					95% Percentile (z)		14.87
2762	95% USL				34.36					99% Percentile (z)		20.68
2763												
2764	Nonparametric Distribution Free Background Statistics											
2765	Data do not follow a Discernible Distribution											
2766												
2767	Nonparametric Upper Limits for Background Threshold Values											
2768	Order of Statistic, order				163					95% UTL with 95% Coverage		13.8
2769	Approx, f used to compute achieved CC				1.705	Approximate Actual Confidence Coefficient achieved by UTL				0.922		
2770						Approximate Sample Size needed to achieve specified CC				153		
2771	95% Percentile Bootstrap UTL with 95% Coverage				13.5	95% BCA Bootstrap UTL with 95% Coverage				12.33		
2772	95% UPL				11.89					90% Percentile		10.8
2773	90% Chebyshev UPL				16.93					95% Percentile		11.5
2774	95% Chebyshev UPL				21.23					99% Percentile		19.44
2775	95% USL				21.2							
2776												
2777	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2778	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2779	and consists of observations collected from clean unimpacted locations.											
2780	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2781	represents a background data set and when many onsite observations need to be compared with the BTV.											
2782												
2783	IN_As <14											
2784												
2785	General Statistics											
2786	Total Number of Observations				163	Number of Distinct Observations				73		
2787	Minimum				1.3	First Quartile				5.2		
2788	Second Largest				13.8	Median				7.4		
2789	Maximum				13.8	Third Quartile				8.9		
2790	Mean				7.192	SD				2.671		
2791	Coefficient of Variation				0.371	Skewness				-0.149		
2792	Mean of logged Data				1.883	SD of logged Data				0.465		
2793												
2794	Critical Values for Background Threshold Values (BTVs)											
2795	Tolerance Factor K (For UTL)				1.858	d2max (for USL)				3.369		
2796												
2797	Normal GOF Test											
2798	Shapiro Wilk Test Statistic				0.965	Normal GOF Test						
2799	1% Shapiro Wilk P Value				0.00981	Data Not Normal at 1% Significance Level						
2800	Lilliefors Test Statistic				0.0956	Lilliefors GOF Test						
2801	1% Lilliefors Critical Value				0.0807	Data Not Normal at 1% Significance Level						
2802	Data Not Normal at 1% Significance Level											
2803												
2804	Background Statistics Assuming Normal Distribution											
2805	95% UTL with 95% Coverage				12.16	90% Percentile (z)				10.62		
2806	95% UPL (t)				11.62	95% Percentile (z)				11.59		
2807	95% USL				16.19	99% Percentile (z)				13.41		
2808												
2809	Gamma GOF Test											

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	A	B	C	D	E	F	G	H	I	J	K	L	
2810	A-D Test Statistic					3.723	Anderson-Darling Gamma GOF Test						
2811	5% A-D Critical Value					0.755	Data Not Gamma Distributed at 5% Significance Level						
2812	K-S Test Statistic					0.158	Kolmogorov-Smirnov Gamma GOF Test						
2813	5% K-S Critical Value					0.0733	Data Not Gamma Distributed at 5% Significance Level						
2814	Data Not Gamma Distributed at 5% Significance Level												
2815													
2816	Gamma Statistics												
2817	k hat (MLE)					5.716	k star (bias corrected MLE)					5.615	
2818	Theta hat (MLE)					1.258	Theta star (bias corrected MLE)					1.281	
2819	nu hat (MLE)					1863	nu star (bias corrected)					1830	
2820	MLE Mean (bias corrected)					7.192	MLE Sd (bias corrected)					3.035	
2821													
2822	Background Statistics Assuming Gamma Distribution												
2823	95% Wilson Hilferty (WH) Approx. Gamma UPL					12.83	90% Percentile					11.25	
2824	95% Hawkins Wixley (HW) Approx. Gamma UPL					13.1	95% Percentile					12.8	
2825	95% WH Approx. Gamma UTL with 95% Coverage					13.73	99% Percentile					16.06	
2826	95% HW Approx. Gamma UTL with 95% Coverage					14.09							
2827	95% WH USL					21.99	95% HW USL					23.52	
2828													
2829	Lognormal GOF Test												
2830	Shapiro Wilk Test Statistic					0.889	Shapiro Wilk Lognormal GOF Test						
2831	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level						
2832	Lilliefors Test Statistic					0.185	Lilliefors Lognormal GOF Test						
2833	10% Lilliefors Critical Value					0.0639	Data Not Lognormal at 10% Significance Level						
2834	Data Not Lognormal at 10% Significance Level												
2835													
2836	Background Statistics assuming Lognormal Distribution												
2837	95% UTL with 95% Coverage					15.59	90% Percentile (z)					11.93	
2838	95% UPL (t)					14.21	95% Percentile (z)					14.12	
2839	95% USL					31.47	99% Percentile (z)					19.38	
2840													
2841	Nonparametric Distribution Free Background Statistics												
2842	Data do not follow a Discernible Distribution												
2843													
2844	Nonparametric Upper Limits for Background Threshold Values												
2845	Order of Statistic, order					160	95% UTL with 95% Coverage					12.4	
2846	Approx, f used to compute achieved CC					1.674	Approximate Actual Confidence Coefficient achieved by UTL					0.914	
2847							Approximate Sample Size needed to achieve specified CC					153	
2848	95% Percentile Bootstrap UTL with 95% Coverage					12.04	95% BCA Bootstrap UTL with 95% Coverage					11.5	
2849	95% UPL					11.42	90% Percentile					10.7	
2850	90% Chebyshev UPL					15.23	95% Percentile					11.09	
2851	95% Chebyshev UPL					18.87	99% Percentile					13.06	
2852	95% USL					13.8							
2853													
2854	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
2855	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
2856	and consists of observations collected from clean unimpacted locations.												
2857	The use of USL tends to provide a balance between false positives and false negatives provided the data												
2858	represents a background data set and when many onsite observations need to be compared with the BTV.												
2859													
2860	IN_As <11												
2861													
2862	General Statistics												

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	A	B	C	D	E	F	G	H	I	J	K	L
2863	Total Number of Observations					152	Number of Distinct Observations					66
2864	Minimum					1.3	First Quartile					5.075
2865	Second Largest					10.9	Median					7.2
2866	Maximum					10.9	Third Quartile					8.6
2867	Mean					6.842	SD					2.4
2868	Coefficient of Variation					0.351	Skewness					-0.456
2869	Mean of logged Data					1.839	SD of logged Data					0.451
2870												
2871	Critical Values for Background Threshold Values (BTVs)											
2872	Tolerance Factor K (For UTL)					1.866	d2max (for USL)					3.347
2873												
2874	Normal GOF Test											
2875	Shapiro Wilk Test Statistic					0.936	Normal GOF Test					
2876	1% Shapiro Wilk P Value					2.0549E-7	Data Not Normal at 1% Significance Level					
2877	Lilliefors Test Statistic					0.121	Lilliefors GOF Test					
2878	1% Lilliefors Critical Value					0.0836	Data Not Normal at 1% Significance Level					
2879	Data Not Normal at 1% Significance Level											
2880												
2881	Background Statistics Assuming Normal Distribution											
2882	95% UTL with 95% Coverage					11.32	90% Percentile (z)					9.918
2883	95% UPL (t)					10.83	95% Percentile (z)					10.79
2884	95% USL					14.87	99% Percentile (z)					12.42
2885												
2886	Gamma GOF Test											
2887	A-D Test Statistic					4.962	Anderson-Darling Gamma GOF Test					
2888	5% A-D Critical Value					0.754	Data Not Gamma Distributed at 5% Significance Level					
2889	K-S Test Statistic					0.178	Kolmogorov-Smirnov Gamma GOF Test					
2890	5% K-S Critical Value					0.0761	Data Not Gamma Distributed at 5% Significance Level					
2891	Data Not Gamma Distributed at 5% Significance Level											
2892												
2893	Gamma Statistics											
2894	k hat (MLE)					6.14	k star (bias corrected MLE)					6.024
2895	Theta hat (MLE)					1.114	Theta star (bias corrected MLE)					1.136
2896	nu hat (MLE)					1867	nu star (bias corrected)					1831
2897	MLE Mean (bias corrected)					6.842	MLE Sd (bias corrected)					2.788
2898												
2899	Background Statistics Assuming Gamma Distribution											
2900	95% Wilson Hiferty (WH) Approx. Gamma UPL					12.01	90% Percentile					10.57
2901	95% Hawkins Wixley (HW) Approx. Gamma UPL					12.26	95% Percentile					11.98
2902	95% WH Approx. Gamma UTL with 95% Coverage					12.86	99% Percentile					14.93
2903	95% HW Approx. Gamma UTL with 95% Coverage					13.19						
2904	95% WH USL					20.15	95% HW USL					21.52
2905												
2906	Lognormal GOF Test											
2907	Shapiro Wilk Test Statistic					0.859	Shapiro Wilk Lognormal GOF Test					
2908	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
2909	Lilliefors Test Statistic					0.2	Lilliefors Lognormal GOF Test					
2910	10% Lilliefors Critical Value					0.0661	Data Not Lognormal at 10% Significance Level					
2911	Data Not Lognormal at 10% Significance Level											
2912												
2913	Background Statistics assuming Lognormal Distribution											
2914	95% UTL with 95% Coverage					14.59	90% Percentile (z)					11.21
2915	95% UPL (t)					13.3	95% Percentile (z)					13.21

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	A	B	C	D	E	F	G	H	I	J	K	L
2916					95% USL	28.45					99% Percentile (z)	17.96
2917												
2918	Nonparametric Distribution Free Background Statistics											
2919	Data do not follow a Discernible Distribution											
2920												
2921	Nonparametric Upper Limits for Background Threshold Values											
2922	Order of Statistic, order				150	95% UTL with 95% Coverage				10.8		
2923	Approx, f used to compute achieved CC				1.961	Approximate Actual Confidence Coefficient achieved by UTL				0.949		
2924						Approximate Sample Size needed to achieve specified CC				124		
2925	95% Percentile Bootstrap UTL with 95% Coverage				10.8	95% BCA Bootstrap UTL with 95% Coverage				10.8		
2926	95% UPL				10.3	90% Percentile				9.88		
2927	90% Chebyshev UPL				14.07	95% Percentile				10.25		
2928	95% Chebyshev UPL				17.34	99% Percentile				10.85		
2929	95% USL				10.9							
2930												
2931	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2932	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2933	and consists of observations collected from clean unimpacted locations.											
2934	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2935	represents a background data set and when many onsite observations need to be compared with the BTV.											
2936												
2937	IN_Pb											
2938												
2939	General Statistics											
2940	Total Number of Observations				168	Number of Distinct Observations				121		
2941	Minimum				2.4	First Quartile				15.88		
2942	Second Largest				259	Median				20		
2943	Maximum				423	Third Quartile				23.73		
2944	Mean				24.93	SD				37.69		
2945	Coefficient of Variation				1.512	Skewness				8.65		
2946	Mean of logged Data				2.982	SD of logged Data				0.541		
2947												
2948	Critical Values for Background Threshold Values (BTVs)											
2949	Tolerance Factor K (For UTL)				1.855	d2max (for USL)				3.379		
2950												
2951	Normal GOF Test											
2952	Shapiro Wilk Test Statistic				0.295	Normal GOF Test						
2953	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level						
2954	Lilliefors Test Statistic				0.376	Lilliefors GOF Test						
2955	1% Lilliefors Critical Value				0.0795	Data Not Normal at 1% Significance Level						
2956	Data Not Normal at 1% Significance Level											
2957												
2958	Background Statistics Assuming Normal Distribution											
2959	95% UTL with 95% Coverage				94.83	90% Percentile (z)				73.24		
2960	95% UPL (t)				87.46	95% Percentile (z)				86.93		
2961	95% USL				152.3	99% Percentile (z)				112.6		
2962												
2963	Gamma GOF Test											
2964	A-D Test Statistic				14.26	Anderson-Darling Gamma GOF Test						
2965	5% A-D Critical Value				0.764	Data Not Gamma Distributed at 5% Significance Level						
2966	K-S Test Statistic				0.24	Kolmogorov-Smirnov Gamma GOF Test						
2967	5% K-S Critical Value				0.0727	Data Not Gamma Distributed at 5% Significance Level						
2968	Data Not Gamma Distributed at 5% Significance Level											

	A	B	C	D	E	F	G	H	I	J	K	L	
2969													
2970	Gamma Statistics												
2971	k hat (MLE)					2.289	k star (bias corrected MLE)					2.252	
2972	Theta hat (MLE)					10.89	Theta star (bias corrected MLE)					11.07	
2973	nu hat (MLE)					769.2	nu star (bias corrected)					756.8	
2974	MLE Mean (bias corrected)					24.93	MLE Sd (bias corrected)					16.61	
2975													
2976	Background Statistics Assuming Gamma Distribution												
2977	95% Wilson Hilferty (WH) Approx. Gamma UPL					53.84	90% Percentile					47.17	
2978	95% Hawkins Wixley (HW) Approx. Gamma UPL					51.8	95% Percentile					56.99	
2979	95% WH Approx. Gamma UTL with 95% Coverage					59.18	99% Percentile					78.61	
2980	95% HW Approx. Gamma UTL with 95% Coverage					57.04							
2981	95% WH USL					113.2	95% HW USL					112.6	
2982													
2983	Lognormal GOF Test												
2984	Shapiro Wilk Test Statistic					0.869	Shapiro Wilk Lognormal GOF Test						
2985	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level						
2986	Lilliefors Test Statistic					0.153	Lilliefors Lognormal GOF Test						
2987	10% Lilliefors Critical Value					0.0629	Data Not Lognormal at 10% Significance Level						
2988	Data Not Lognormal at 10% Significance Level												
2989													
2990	Background Statistics assuming Lognormal Distribution												
2991	95% UTL with 95% Coverage					53.79	90% Percentile (z)					39.46	
2992	95% UPL (t)					48.39	95% Percentile (z)					48.03	
2993	95% USL					122.7	99% Percentile (z)					69.43	
2994													
2995	Nonparametric Distribution Free Background Statistics												
2996	Data do not follow a Discernible Distribution												
2997													
2998	Nonparametric Upper Limits for Background Threshold Values												
2999	Order of Statistic, order					165	95% UTL with 95% Coverage					80.6	
3000	Approx, f used to compute achieved CC					1.726	Approximate Actual Confidence Coefficient achieved by UTL					0.926	
3001							Approximate Sample Size needed to achieve specified CC					153	
3002	95% Percentile Bootstrap UTL with 95% Coverage					70.03	95% BCA Bootstrap UTL with 95% Coverage					70.03	
3003	95% UPL					44.78	90% Percentile					28.73	
3004	90% Chebyshev UPL					138.3	95% Percentile					41.21	
3005	95% Chebyshev UPL					189.7	99% Percentile					141.7	
3006	95% USL					423							
3007													
3008	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
3009	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
3010	and consists of observations collected from clean unimpacted locations.												
3011	The use of USL tends to provide a balance between false positives and false negatives provided the data												
3012	represents a background data set and when many onsite observations need to be compared with the BTV.												
3013													
3014	IN_Pb <260												
3015													
3016	General Statistics												
3017	Total Number of Observations					167	Number of Distinct Observations					120	
3018	Minimum					2.4	First Quartile					15.85	
3019	Second Largest					83.9	Median					19.9	
3020	Maximum					259	Third Quartile					23.55	
3021	Mean					22.55	SD					21.66	

	A	B	C	D	E	F	G	H	I	J	K	L
3022	Coefficient of Variation					0.96	Skewness					8.353
3023	Mean of logged Data					2.964	SD of logged Data					0.487
3024												
3025	Critical Values for Background Threshold Values (BTVs)											
3026	Tolerance Factor K (For UTL)					1.855	d2max (for USL)					3.377
3027												
3028	Normal GOF Test											
3029	Shapiro Wilk Test Statistic					0.419	Normal GOF Test					
3030	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
3031	Lilliefors Test Statistic					0.303	Lilliefors GOF Test					
3032	1% Lilliefors Critical Value					0.0798	Data Not Normal at 1% Significance Level					
3033	Data Not Normal at 1% Significance Level											
3034												
3035	Background Statistics Assuming Normal Distribution											
3036	95% UTL with		95% Coverage		62.72	90% Percentile (z)					50.3	
3037			95% UPL (t)		58.48	95% Percentile (z)					58.17	
3038			95% USL		95.67	99% Percentile (z)					72.93	
3039												
3040	Gamma GOF Test											
3041	A-D Test Statistic					8.144	Anderson-Darling Gamma GOF Test					
3042	5% A-D Critical Value					0.758	Data Not Gamma Distributed at 5% Significance Level					
3043	K-S Test Statistic					0.173	Kolmogorov-Smirnov Gamma GOF Test					
3044	5% K-S Critical Value					0.0726	Data Not Gamma Distributed at 5% Significance Level					
3045	Data Not Gamma Distributed at 5% Significance Level											
3046												
3047	Gamma Statistics											
3048	k hat (MLE)					3.449	k star (bias corrected MLE)					3.391
3049	Theta hat (MLE)					6.538	Theta star (bias corrected MLE)					6.649
3050	nu hat (MLE)					1152	nu star (bias corrected)					1133
3051	MLE Mean (bias corrected)					22.55	MLE Sd (bias corrected)					12.25
3052												
3053	Background Statistics Assuming Gamma Distribution											
3054	95% Wilson Hilferty (WH) Approx. Gamma UPL					44.63	90% Percentile					38.97
3055	95% Hawkins Wixley (HW) Approx. Gamma UPL					43.97	95% Percentile					45.71
3056	95% WH Approx. Gamma UTL with		95% Coverage		48.41	99% Percentile					60.24	
3057	95% HW Approx. Gamma UTL with		95% Coverage		47.82							
3058			95% WH USL		85.19	95% HW USL					86.82	
3059												
3060	Lognormal GOF Test											
3061	Shapiro Wilk Test Statistic					0.922	Shapiro Wilk Lognormal GOF Test					
3062	10% Shapiro Wilk P Value					7.917E-12	Data Not Lognormal at 10% Significance Level					
3063	Lilliefors Test Statistic					0.124	Lilliefors Lognormal GOF Test					
3064	10% Lilliefors Critical Value					0.0631	Data Not Lognormal at 10% Significance Level					
3065	Data Not Lognormal at 10% Significance Level											
3066												
3067	Background Statistics assuming Lognormal Distribution											
3068	95% UTL with		95% Coverage		47.82	90% Percentile (z)					36.17	
3069			95% UPL (t)		43.47	95% Percentile (z)					43.17	
3070			95% USL		100.4	99% Percentile (z)					60.16	
3071												
3072	Nonparametric Distribution Free Background Statistics											
3073	Data do not follow a Discernible Distribution											
3074												

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	A	B	C	D	E	F	G	H	I	J	K	L	
3075	Nonparametric Upper Limits for Background Threshold Values												
3076	Order of Statistic, order					164	95% UTL with 95% Coverage					78.5	
3077	Approx, f used to compute achieved CC					1.716	Approximate Actual Confidence Coefficient achieved by UTL					0.924	
3078							Approximate Sample Size needed to achieve specified CC					153	
3079	95% Percentile Bootstrap UTL with 95% Coverage					64.17	95% BCA Bootstrap UTL with 95% Coverage					62.07	
3080	95% UPL					41.14	90% Percentile					28.64	
3081	90% Chebyshev UPL					87.71	95% Percentile					38.89	
3082	95% Chebyshev UPL					117.2	99% Percentile					81.72	
3083	95% USL					259	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations. The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.						
3084													
3085													
3086													
3087													
3088													
3089													
3090													
3091	IN_Pb <55												
3092													
3093	General Statistics												
3094	Total Number of Observations					162	Number of Distinct Observations					115	
3095	Minimum					2.4	First Quartile					15.65	
3096	Second Largest					47.3	Median					19.8	
3097	Maximum					54.3	Third Quartile					22.9	
3098	Mean					19.73	SD					7.17	
3099	Coefficient of Variation					0.363	Skewness					1.171	
3100	Mean of logged Data					2.914	SD of logged Data					0.39	
3101													
3102	Critical Values for Background Threshold Values (BTVs)												
3103	Tolerance Factor K (For UTL)					1.859	d2max (for USL)					3.367	
3104													
3105	Normal GOF Test												
3106	Shapiro Wilk Test Statistic					0.94	Normal GOF Test						
3107	1% Shapiro Wilk P Value					2.9582E-7	Data Not Normal at 1% Significance Level						
3108	Lilliefors Test Statistic					0.0844	Lilliefors GOF Test						
3109	1% Lilliefors Critical Value					0.081	Data Not Normal at 1% Significance Level						
3110	Data Not Normal at 1% Significance Level												
3111													
3112	Background Statistics Assuming Normal Distribution												
3113	95% UTL with 95% Coverage					33.05	90% Percentile (z)					28.91	
3114	95% UPL (t)					31.62	95% Percentile (z)					31.52	
3115	95% USL					43.87	99% Percentile (z)					36.41	
3116													
3117	Gamma GOF Test												
3118	A-D Test Statistic					1.321	Anderson-Darling Gamma GOF Test						
3119	5% A-D Critical Value					0.753	Data Not Gamma Distributed at 5% Significance Level						
3120	K-S Test Statistic					0.0763	Kolmogorov-Smirnov Gamma GOF Test						
3121	5% K-S Critical Value					0.0735	Data Not Gamma Distributed at 5% Significance Level						
3122	Data Not Gamma Distributed at 5% Significance Level												
3123													
3124	Gamma Statistics												
3125	k hat (MLE)					7.48	k star (bias corrected MLE)					7.345	
3126	Theta hat (MLE)					2.637	Theta star (bias corrected MLE)					2.685	
3127	nu hat (MLE)					2423	nu star (bias corrected)					2380	

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	A	B	C	D	E	F	G	H	I	J	K	L
3128	MLE Mean (bias corrected)					19.73	MLE Sd (bias corrected)					7.278
3129												
3130	Background Statistics Assuming Gamma Distribution											
3131	95% Wilson Hilferty (WH) Approx. Gamma UPL					33.03	90% Percentile					29.44
3132	95% Hawkins Wixley (HW) Approx. Gamma UPL					33.43	95% Percentile					33.02
3133	95% WH Approx. Gamma UTL with 95% Coverage					35.1	99% Percentile					40.46
3134	95% HW Approx. Gamma UTL with 95% Coverage					35.64						
3135	95% WH USL					53.6	95% HW USL					56.14
3136												
3137	Lognormal GOF Test											
3138	Shapiro Wilk Test Statistic					0.951	Shapiro Wilk Lognormal GOF Test					
3139	10% Shapiro Wilk P Value					4.7572E-5	Data Not Lognormal at 10% Significance Level					
3140	Lilliefors Test Statistic					0.102	Lilliefors Lognormal GOF Test					
3141	10% Lilliefors Critical Value					0.0641	Data Not Lognormal at 10% Significance Level					
3142	Data Not Lognormal at 10% Significance Level											
3143												
3144	Background Statistics assuming Lognormal Distribution											
3145	95% UTL with 95% Coverage					38.05	90% Percentile (z)					30.38
3146	95% UPL (t)					35.21	95% Percentile (z)					35.01
3147	95% USL					68.57	99% Percentile (z)					45.67
3148												
3149	Nonparametric Distribution Free Background Statistics											
3150	Data do not follow a Discernible Distribution											
3151												
3152	Nonparametric Upper Limits for Background Threshold Values											
3153	Order of Statistic, order					159	95% UTL with 95% Coverage					40.3
3154	Approx, f used to compute achieved CC					1.663	Approximate Actual Confidence Coefficient achieved by UTL					0.912
3155							Approximate Sample Size needed to achieve specified CC					153
3156	95% Percentile Bootstrap UTL with 95% Coverage					35.4	95% BCA Bootstrap UTL with 95% Coverage					35.29
3157	95% UPL					29.44	90% Percentile					27.98
3158	90% Chebyshev UPL					41.3	95% Percentile					29.1
3159	95% Chebyshev UPL					51.07	99% Percentile					43.88
3160	95% USL					54.3						
3161												
3162	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
3163	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3164	and consists of observations collected from clean unimpacted locations.											
3165	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3166	represents a background data set and when many onsite observations need to be compared with the BTV.											
3167												
3168	IN_Pb <30											
3169												
3170	General Statistics											
3171	Total Number of Observations					156	Number of Distinct Observations					109
3172	Minimum					2.4	First Quartile					15.35
3173	Second Largest					29.5	Median					19.35
3174	Maximum					29.9	Third Quartile					22.7
3175	Mean					18.88	SD					5.629
3176	Coefficient of Variation					0.298	Skewness					-0.22
3177	Mean of logged Data					2.883	SD of logged Data					0.362
3178												
3179	Critical Values for Background Threshold Values (BTVs)											
3180	Tolerance Factor K (For UTL)					1.863	d2max (for USL)					3.355

	A	B	C	D	E	F	G	H	I	J	K	L
3181												
3182	Normal GOF Test											
3183	Shapiro Wilk Test Statistic					0.973	Normal GOF Test					
3184	1% Shapiro Wilk P Value					0.095	Data appear Normal at 1% Significance Level					
3185	Lilliefors Test Statistic					0.0523	Lilliefors GOF Test					
3186	1% Lilliefors Critical Value					0.0825	Data appear Normal at 1% Significance Level					
3187	Data appear Normal at 1% Significance Level											
3188												
3189	Background Statistics Assuming Normal Distribution											
3190	95% UTL with		95% Coverage		29.37	90% Percentile (z)					26.09	
3191			95% UPL (t)		28.22	95% Percentile (z)					28.14	
3192			95% USL		37.77	99% Percentile (z)					31.97	
3193												
3194	Gamma GOF Test											
3195	A-D Test Statistic					1.831	Anderson-Darling Gamma GOF Test					
3196	5% A-D Critical Value					0.752	Data Not Gamma Distributed at 5% Significance Level					
3197	K-S Test Statistic					0.0948	Kolmogorov-Smirnov Gamma GOF Test					
3198	5% K-S Critical Value					0.075	Data Not Gamma Distributed at 5% Significance Level					
3199	Data Not Gamma Distributed at 5% Significance Level											
3200												
3201	Gamma Statistics											
3202	k hat (MLE)					9.211	k star (bias corrected MLE)					9.038
3203	Theta hat (MLE)					2.049	Theta star (bias corrected MLE)					2.089
3204	nu hat (MLE)					2874	nu star (bias corrected)					2820
3205	MLE Mean (bias corrected)					18.88	MLE Sd (bias corrected)					6.279
3206												
3207	Background Statistics Assuming Gamma Distribution											
3208	95% Wilson Hilferty (WH) Approx. Gamma UPL					30.29	90% Percentile					27.24
3209	95% Hawkins Wixley (HW) Approx. Gamma UPL					30.73	95% Percentile					30.25
3210	95% WH Approx. Gamma UTL with		95% Coverage		32.05	99% Percentile					36.46	
3211	95% HW Approx. Gamma UTL with		95% Coverage		32.63							
3212			95% WH USL		47.14	95% HW USL					49.41	
3213												
3214	Lognormal GOF Test											
3215	Shapiro Wilk Test Statistic					0.901	Shapiro Wilk Lognormal GOF Test					
3216	10% Shapiro Wilk P Value					7.772E-16	Data Not Lognormal at 10% Significance Level					
3217	Lilliefors Test Statistic					0.119	Lilliefors Lognormal GOF Test					
3218	10% Lilliefors Critical Value					0.0653	Data Not Lognormal at 10% Significance Level					
3219	Data Not Lognormal at 10% Significance Level											
3220												
3221	Background Statistics assuming Lognormal Distribution											
3222	95% UTL with		95% Coverage		35.07	90% Percentile (z)					28.41	
3223			95% UPL (t)		32.58	95% Percentile (z)					32.4	
3224			95% USL		60.19	99% Percentile (z)					41.47	
3225												
3226	Nonparametric Distribution Free Background Statistics											
3227	Data appear Normal at 1% Significance Level											
3228												
3229	Nonparametric Upper Limits for Background Threshold Values											
3230	Order of Statistic, order					153	95% UTL with 95% Coverage					29
3231	Approx, f used to compute achieved CC					1.6	Approximate Actual Confidence Coefficient achieved by UTL					0.894
3232							Approximate Sample Size needed to achieve specified CC					153
3233	95% Percentile Bootstrap UTL with		95% Coverage		28.8	95% BCA Bootstrap UTL with 95% Coverage					28.8	

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	A	B	C	D	E	F	G	H	I	J	K	L
3234					95% UPL	28.43					90% Percentile	26
3235					90% Chebyshev UPL	35.82					95% Percentile	28.33
3236					95% Chebyshev UPL	43.49					99% Percentile	29.28
3237					95% USL	29.9						
3238												
3239					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
3240					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
3241					and consists of observations collected from clean unimpacted locations.							
3242					The use of USL tends to provide a balance between false positives and false negatives provided the data							
3243					represents a background data set and when many onsite observations need to be compared with the BTV.							
3244												
3245					KS_As							
3246												
3247					General Statistics							
3248					Total Number of Observations	386					Number of Distinct Observations	110
3249					Minimum	0.9					First Quartile	4.9
3250					Second Largest	20.1					Median	6.4
3251					Maximum	46.2					Third Quartile	8.1
3252					Mean	6.794					SD	3.409
3253					Coefficient of Variation	0.502					Skewness	4.568
3254					Mean of logged Data	1.819					SD of logged Data	0.448
3255												
3256					Critical Values for Background Threshold Values (BTVs)							
3257					Tolerance Factor K (For UTL)	1.78					d2max (for USL)	3.624
3258												
3259					Normal GOF Test							
3260					Shapiro Wilk Test Statistic	0.788					Normal GOF Test	
3261					1% Shapiro Wilk P Value	0					Data Not Normal at 1% Significance Level	
3262					Lilliefors Test Statistic	0.124					Lilliefors GOF Test	
3263					1% Lilliefors Critical Value	0.0526					Data Not Normal at 1% Significance Level	
3264					Data Not Normal at 1% Significance Level							
3265												
3266					Background Statistics Assuming Normal Distribution							
3267					95% UTL with 95% Coverage	12.86					90% Percentile (z)	11.16
3268					95% UPL (t)	12.42					95% Percentile (z)	12.4
3269					95% USL	19.15					99% Percentile (z)	14.72
3270												
3271					Gamma GOF Test							
3272					A-D Test Statistic	2.441					Anderson-Darling Gamma GOF Test	
3273					5% A-D Critical Value	0.757					Data Not Gamma Distributed at 5% Significance Level	
3274					K-S Test Statistic	0.0637					Kolmogorov-Smirnov Gamma GOF Test	
3275					5% K-S Critical Value	0.0463					Data Not Gamma Distributed at 5% Significance Level	
3276					Data Not Gamma Distributed at 5% Significance Level							
3277												
3278					Gamma Statistics							
3279					k hat (MLE)	5.311					k star (bias corrected MLE)	5.271
3280					Theta hat (MLE)	1.279					Theta star (bias corrected MLE)	1.289
3281					nu hat (MLE)	4100					nu star (bias corrected)	4069
3282					MLE Mean (bias corrected)	6.794					MLE Sd (bias corrected)	2.959
3283												
3284					Background Statistics Assuming Gamma Distribution							
3285					95% Wilson Hilferty (WH) Approx. Gamma UPL	12.23					90% Percentile	10.75
3286					95% Hawkins Wixley (HW) Approx. Gamma UPL	12.34					95% Percentile	12.28

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L	
3287	95% WH Approx. Gamma UTL with 95% Coverage				12.8	99% Percentile							15.49
3288	95% HW Approx. Gamma UTL with 95% Coverage				12.94								
3289	95% WH USL				22.95	95% HW USL							24.26
3290													
3291	Lognormal GOF Test												
3292	Shapiro Wilk Test Statistic				0.971	Shapiro Wilk Lognormal GOF Test							
3293	10% Shapiro Wilk P Value				6.0704E-4	Data Not Lognormal at 10% Significance Level							
3294	Lilliefors Test Statistic				0.0728	Lilliefors Lognormal GOF Test							
3295	10% Lilliefors Critical Value				0.0416	Data Not Lognormal at 10% Significance Level							
3296	Data Not Lognormal at 10% Significance Level												
3297													
3298	Background Statistics assuming Lognormal Distribution												
3299	95% UTL with		95% Coverage		13.69	90% Percentile (z)					10.95		
3300			95% UPL (t)		12.92	95% Percentile (z)					12.89		
3301			95% USL		31.29	99% Percentile (z)					17.49		
3302													
3303	Nonparametric Distribution Free Background Statistics												
3304	Data do not follow a Discernible Distribution												
3305													
3306	Nonparametric Upper Limits for Background Threshold Values												
3307	Order of Statistic, order				374	95% UTL with 95% Coverage				13.3			
3308	Approx, f used to compute achieved CC				1.402	Approximate Actual Confidence Coefficient achieved by UTL					0.918		
3309						Approximate Sample Size needed to achieve specified CC					385		
3310	95% Percentile Bootstrap UTL with		95% Coverage		13.2	95% BCA Bootstrap UTL with 95% Coverage				13.2			
3311			95% UPL		11.99	90% Percentile				9.85			
3312			90% Chebyshev UPL		17.03	95% Percentile				11.58			
3313			95% Chebyshev UPL		21.67	99% Percentile				15.52			
3314			95% USL		46.2								
3315													
3316	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
3317	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
3318	and consists of observations collected from clean unimpacted locations.												
3319	The use of USL tends to provide a balance between false positives and false negatives provided the data												
3320	represents a background data set and when many onsite observations need to be compared with the BTV.												
3321													
3322	KS_As <20												
3323													
3324	General Statistics												
3325	Total Number of Observations				385	Number of Distinct Observations				109			
3326	Minimum				0.9	First Quartile				4.9			
3327	Second Largest				19.3	Median				6.4			
3328	Maximum				20.1	Third Quartile				8.1			
3329	Mean				6.692	SD				2.756			
3330	Coefficient of Variation				0.412	Skewness				1.129			
3331	Mean of logged Data				1.814	SD of logged Data				0.437			
3332													
3333	Critical Values for Background Threshold Values (BTVs)												
3334	Tolerance Factor K (For UTL)				1.78	d2max (for USL)				3.623			
3335													
3336	Normal GOF Test												
3337	Shapiro Wilk Test Statistic				0.937	Normal GOF Test							
3338	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level							
3339	Lilliefors Test Statistic				0.0755	Lilliefors GOF Test							

	A	B	C	D	E	F	G	H	I	J	K	L	
3340	1% Lilliefors Critical Value					0.0527	Data Not Normal at 1% Significance Level						
3341	Data Not Normal at 1% Significance Level												
3342													
3343	Background Statistics Assuming Normal Distribution												
3344	95% UTL with		95% Coverage		11.6		90% Percentile (z)				10.22		
3345			95% UPL (t)		11.24		95% Percentile (z)				11.23		
3346			95% USL		16.68		99% Percentile (z)				13.1		
3347													
3348	Gamma GOF Test												
3349	A-D Test Statistic				1.509		Anderson-Darling Gamma GOF Test						
3350	5% A-D Critical Value				0.757		Data Not Gamma Distributed at 5% Significance Level						
3351	K-S Test Statistic				0.0469		Kolmogorov-Smirnov Gamma GOF Test						
3352	5% K-S Critical Value				0.0463		Data Not Gamma Distributed at 5% Significance Level						
3353	Data Not Gamma Distributed at 5% Significance Level												
3354													
3355	Gamma Statistics												
3356	k hat (MLE)				5.899		k star (bias corrected MLE)				5.855		
3357	Theta hat (MLE)				1.134		Theta star (bias corrected MLE)				1.143		
3358	nu hat (MLE)				4543		nu star (bias corrected)				4508		
3359	MLE Mean (bias corrected)				6.692		MLE Sd (bias corrected)				2.765		
3360													
3361	Background Statistics Assuming Gamma Distribution												
3362	95% Wilson Hilferty (WH) Approx. Gamma UPL				11.78		90% Percentile				10.39		
3363	95% Hawkins Wixley (HW) Approx. Gamma UPL				11.94		95% Percentile				11.79		
3364	95% WH Approx. Gamma UTL with		95% Coverage		12.31		99% Percentile				14.74		
3365	95% HW Approx. Gamma UTL with		95% Coverage		12.5								
3366			95% WH USL		21.6		95% HW USL				22.94		
3367													
3368	Lognormal GOF Test												
3369	Shapiro Wilk Test Statistic				0.962		Shapiro Wilk Lognormal GOF Test						
3370	10% Shapiro Wilk P Value				5.6432E-8		Data Not Lognormal at 10% Significance Level						
3371	Lilliefors Test Statistic				0.0737		Lilliefors Lognormal GOF Test						
3372	10% Lilliefors Critical Value				0.0417		Data Not Lognormal at 10% Significance Level						
3373	Data Not Lognormal at 10% Significance Level												
3374													
3375	Background Statistics assuming Lognormal Distribution												
3376	95% UTL with		95% Coverage		13.35		90% Percentile (z)				10.74		
3377			95% UPL (t)		12.62		95% Percentile (z)				12.58		
3378			95% USL		29.86		99% Percentile (z)				16.94		
3379													
3380	Nonparametric Distribution Free Background Statistics												
3381	Data do not follow a Discernible Distribution												
3382													
3383	Nonparametric Upper Limits for Background Threshold Values												
3384	Order of Statistic, order				374		95% UTL with 95% Coverage				13.3		
3385	Approx, f used to compute achieved CC				1.51		Approximate Actual Confidence Coefficient achieved by UTL				0.95		
3386							Approximate Sample Size needed to achieve specified CC				361		
3387	95% Percentile Bootstrap UTL with		95% Coverage		13.2		95% BCA Bootstrap UTL with		95% Coverage		13.2		
3388			95% UPL		11.57				90% Percentile		9.8		
3389			90% Chebyshev UPL		14.97				95% Percentile		11.42		
3390			95% Chebyshev UPL		18.72				99% Percentile		15.06		
3391			95% USL		20.1								
3392													

	A	B	C	D	E	F	G	H	I	J	K	L
3393	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
3394	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3395	and consists of observations collected from clean unimpacted locations.											
3396	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3397	represents a background data set and when many onsite observations need to be compared with the BTV.											
3398												
3399	KS_As <12											
3400												
3401	General Statistics											
3402	Total Number of Observations					367	Number of Distinct Observations					94
3403	Minimum					0.9	First Quartile					4.8
3404	Second Largest					11.5	Median					6.2
3405	Maximum					11.6	Third Quartile					7.9
3406	Mean					6.305	SD					2.131
3407	Coefficient of Variation					0.338	Skewness					0.00979
3408	Mean of logged Data					1.772	SD of logged Data					0.402
3409												
3410	Critical Values for Background Threshold Values (BTVs)											
3411	Tolerance Factor K (For UTL)					1.783	d2max (for USL)					3.61
3412												
3413	Normal GOF Test											
3414	Shapiro Wilk Test Statistic					0.978	Normal GOF Test					
3415	1% Shapiro Wilk P Value					0.0616	Data appear Normal at 1% Significance Level					
3416	Lilliefors Test Statistic					0.0293	Lilliefors GOF Test					
3417	1% Lilliefors Critical Value					0.0539	Data appear Normal at 1% Significance Level					
3418	Data appear Normal at 1% Significance Level											
3419												
3420	Background Statistics Assuming Normal Distribution											
3421	95% UTL with 95% Coverage					10.11	90% Percentile (z)					9.036
3422	95% UPL (t)					9.824	95% Percentile (z)					9.811
3423	95% USL					14	99% Percentile (z)					11.26
3424												
3425	Gamma GOF Test											
3426	A-D Test Statistic					2.445	Anderson-Darling Gamma GOF Test					
3427	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level					
3428	K-S Test Statistic					0.0685	Kolmogorov-Smirnov Gamma GOF Test					
3429	5% K-S Critical Value					0.0475	Data Not Gamma Distributed at 5% Significance Level					
3430	Data Not Gamma Distributed at 5% Significance Level											
3431												
3432	Gamma Statistics											
3433	k hat (MLE)					7.348	k star (bias corrected MLE)					7.29
3434	Theta hat (MLE)					0.858	Theta star (bias corrected MLE)					0.865
3435	nu hat (MLE)					5393	nu star (bias corrected)					5351
3436	MLE Mean (bias corrected)					6.305	MLE Sd (bias corrected)					2.335
3437												
3438	Background Statistics Assuming Gamma Distribution											
3439	95% Wilson Hilferty (WH) Approx. Gamma UPL					10.58	90% Percentile					9.421
3440	95% Hawkins Wixley (HW) Approx. Gamma UPL					10.74	95% Percentile					10.57
3441	95% WH Approx. Gamma UTL with 95% Coverage					11.02	99% Percentile					12.96
3442	95% HW Approx. Gamma UTL with 95% Coverage					11.21						
3443	95% WH USL					18.39	95% HW USL					19.51
3444												
3445	Lognormal GOF Test											

	A	B	C	D	E	F	G	H	I	J	K	L	
3446	Shapiro Wilk Test Statistic					0.921	Shapiro Wilk Lognormal GOF Test						
3447	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level						
3448	Lilliefors Test Statistic					0.0921	Lilliefors Lognormal GOF Test						
3449	10% Lilliefors Critical Value					0.0427	Data Not Lognormal at 10% Significance Level						
3450	Data Not Lognormal at 10% Significance Level												
3451													
3452	Background Statistics assuming Lognormal Distribution												
3453	95% UTL with		95% Coverage		12.04	90% Percentile (z)					9.842		
3454			95% UPL (t)		11.42	95% Percentile (z)					11.39		
3455			95% USL		25.08	99% Percentile (z)					14.98		
3456													
3457	Nonparametric Distribution Free Background Statistics												
3458	Data appear Normal at 1% Significance Level												
3459													
3460	Nonparametric Upper Limits for Background Threshold Values												
3461	Order of Statistic, order				356	95% UTL with					95% Coverage	10.4	
3462	Approx, f used to compute achieved CC				1.437	Approximate Actual Confidence Coefficient achieved by UTL					0.926		
3463						Approximate Sample Size needed to achieve specified CC					361		
3464	95% Percentile Bootstrap UTL with		95% Coverage		10.37	95% BCA Bootstrap UTL with		95% Coverage		10.37			
3465			95% UPL		10			90% Percentile		9.1			
3466			90% Chebyshev UPL		12.71			95% Percentile		9.97			
3467			95% Chebyshev UPL		15.61			99% Percentile		10.87			
3468			95% USL		11.6								
3469													
3470	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
3471	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
3472	and consists of observations collected from clean unimpacted locations.												
3473	The use of USL tends to provide a balance between false positives and false negatives provided the data												
3474	represents a background data set and when many onsite observations need to be compared with the BTV.												
3475													
3476	KS_Pb												
3477													
3478	General Statistics												
3479	Total Number of Observations				386	Number of Distinct Observations					181		
3480	Minimum				3.9	First Quartile					18.4		
3481	Second Largest				450	Median					21		
3482	Maximum				494	Third Quartile					24.7		
3483	Mean				24.95	SD					33.45		
3484	Coefficient of Variation				1.341	Skewness					12.6		
3485	Mean of logged Data				3.082	SD of logged Data					0.384		
3486													
3487	Critical Values for Background Threshold Values (BTVs)												
3488	Tolerance Factor K (For UTL)				1.78	d2max (for USL)					3.624		
3489													
3490	Normal GOF Test												
3491	Shapiro Wilk Test Statistic				0.206	Normal GOF Test							
3492	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level							
3493	Lilliefors Test Statistic				0.337	Lilliefors GOF Test							
3494	1% Lilliefors Critical Value				0.0526	Data Not Normal at 1% Significance Level							
3495	Data Not Normal at 1% Significance Level												
3496													
3497	Background Statistics Assuming Normal Distribution												
3498	95% UTL with		95% Coverage		84.47	90% Percentile (z)					67.81		

	A	B	C	D	E	F	G	H	I	J	K	L
3499					95% UPL (t)	80.17					95% Percentile (z)	79.97
3500					95% USL	146.2					99% Percentile (z)	102.8
3501												
3502												
3503					A-D Test Statistic	2.591E+28					Anderson-Darling Gamma GOF Test	
3504					5% A-D Critical Value	0.759					Data Not Gamma Distributed at 5% Significance Level	
3505					K-S Test Statistic	0.205					Kolmogorov-Smirnov Gamma GOF Test	
3506					5% K-S Critical Value	0.0464					Data Not Gamma Distributed at 5% Significance Level	
3507											Data Not Gamma Distributed at 5% Significance Level	
3508												
3509											Gamma Statistics	
3510					k hat (MLE)	3.876					k star (bias corrected MLE)	3.847
3511					Theta hat (MLE)	6.438					Theta star (bias corrected MLE)	6.485
3512					nu hat (MLE)	2992					nu star (bias corrected)	2970
3513					MLE Mean (bias corrected)	24.95					MLE Sd (bias corrected)	12.72
3514												
3515											Background Statistics Assuming Gamma Distribution	
3516					95% Wilson Hilferty (WH) Approx. Gamma UPL	46.42					90% Percentile	42
3517					95% Hawkins Wixley (HW) Approx. Gamma UPL	44.57					95% Percentile	48.87
3518					95% WH Approx. Gamma UTL with 95% Coverage	48.8					99% Percentile	63.56
3519					95% HW Approx. Gamma UTL with 95% Coverage	46.82						
3520					95% WH USL	92.25					95% HW USL	89.5
3521												
3522											Lognormal GOF Test	
3523					Shapiro Wilk Test Statistic	0.825					Shapiro Wilk Lognormal GOF Test	
3524					10% Shapiro Wilk P Value	0					Data Not Lognormal at 10% Significance Level	
3525					Lilliefors Test Statistic	0.131					Lilliefors Lognormal GOF Test	
3526					10% Lilliefors Critical Value	0.0416					Data Not Lognormal at 10% Significance Level	
3527											Data Not Lognormal at 10% Significance Level	
3528												
3529											Background Statistics assuming Lognormal Distribution	
3530					95% UTL with 95% Coverage	43.21					90% Percentile (z)	35.69
3531					95% UPL (t)	41.13					95% Percentile (z)	41.03
3532					95% USL	87.79					99% Percentile (z)	53.32
3533												
3534											Nonparametric Distribution Free Background Statistics	
3535											Data do not follow a Discernible Distribution	
3536												
3537											Nonparametric Upper Limits for Background Threshold Values	
3538					Order of Statistic, order	374					95% UTL with 95% Coverage	42.2
3539					Approx, f used to compute achieved CC	1.402					Approximate Actual Confidence Coefficient achieved by UTL	0.918
3540											Approximate Sample Size needed to achieve specified CC	385
3541					95% Percentile Bootstrap UTL with 95% Coverage	40.73					95% BCA Bootstrap UTL with 95% Coverage	40.73
3542					95% UPL	36.83					90% Percentile	31.2
3543					90% Chebyshev UPL	125.4					95% Percentile	36.48
3544					95% Chebyshev UPL	170.9					99% Percentile	72.87
3545					95% USL	494						
3546												
3547											Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.	
3548											Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers	
3549											and consists of observations collected from clean unimpacted locations.	
3550											The use of USL tends to provide a balance between false positives and false negatives provided the data	
3551											represents a background data set and when many onsite observations need to be compared with the BTV.	

	A	B	C	D	E	F	G	H	I	J	K	L
3552												
3553	KS_Pb <91											
3554												
3555	General Statistics											
3556	Total Number of Observations					384	Number of Distinct Observations					179
3557	Minimum					3.9	First Quartile					18.4
3558	Second Largest					76.1	Median					21
3559	Maximum					90.6	Third Quartile					24.63
3560	Mean					22.62	SD					8.54
3561	Coefficient of Variation					0.378	Skewness					3.295
3562	Mean of logged Data					3.066	SD of logged Data					0.314
3563												
3564	Critical Values for Background Threshold Values (BTVs)											
3565	Tolerance Factor K (For UTL)					1.78	d2max (for USL)					3.622
3566												
3567	Normal GOF Test											
3568	Shapiro Wilk Test Statistic					0.769	Normal GOF Test					
3569	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
3570	Lilliefors Test Statistic					0.168	Lilliefors GOF Test					
3571	1% Lilliefors Critical Value					0.0527	Data Not Normal at 1% Significance Level					
3572	Data Not Normal at 1% Significance Level											
3573												
3574	Background Statistics Assuming Normal Distribution											
3575	95% UTL with 95% Coverage					37.82	90% Percentile (z)					33.57
3576	95% UPL (t)					36.72	95% Percentile (z)					36.67
3577	95% USL					53.56	99% Percentile (z)					42.49
3578												
3579	Gamma GOF Test											
3580	A-D Test Statistic					8.144	Anderson-Darling Gamma GOF Test					
3581	5% A-D Critical Value					0.755	Data Not Gamma Distributed at 5% Significance Level					
3582	K-S Test Statistic					0.117	Kolmogorov-Smirnov Gamma GOF Test					
3583	5% K-S Critical Value					0.0463	Data Not Gamma Distributed at 5% Significance Level					
3584	Data Not Gamma Distributed at 5% Significance Level											
3585												
3586	Gamma Statistics											
3587	k hat (MLE)					9.677	k star (bias corrected MLE)					9.603
3588	Theta hat (MLE)					2.338	Theta star (bias corrected MLE)					2.356
3589	nu hat (MLE)					7432	nu star (bias corrected)					7375
3590	MLE Mean (bias corrected)					22.62	MLE Sd (bias corrected)					7.3
3591												
3592	Background Statistics Assuming Gamma Distribution											
3593	95% Wilson Hilferty (WH) Approx. Gamma UPL					35.72	90% Percentile					32.34
3594	95% Hawkins Wixley (HW) Approx. Gamma UPL					35.74	95% Percentile					35.81
3595	95% WH Approx. Gamma UTL with 95% Coverage					37	99% Percentile					42.96
3596	95% HW Approx. Gamma UTL with 95% Coverage					37.06						
3597	95% WH USL					58.82	95% HW USL					60.29
3598												
3599	Lognormal GOF Test											
3600	Shapiro Wilk Test Statistic					0.954	Shapiro Wilk Lognormal GOF Test					
3601	10% Shapiro Wilk P Value					9.760E-13	Data Not Lognormal at 10% Significance Level					
3602	Lilliefors Test Statistic					0.0932	Lilliefors Lognormal GOF Test					
3603	10% Lilliefors Critical Value					0.0417	Data Not Lognormal at 10% Significance Level					
3604	Data Not Lognormal at 10% Significance Level											

	A	B	C	D	E	F	G	H	I	J	K	L
3605												
3606	Background Statistics assuming Lognormal Distribution											
3607	95% UTL with 95% Coverage					37.56	90% Percentile (z)					32.11
3608	95% UPL (t)					36.07	95% Percentile (z)					36
3609	95% USL					67.03	99% Percentile (z)					44.6
3610												
3611	Nonparametric Distribution Free Background Statistics											
3612	Data do not follow a Discernible Distribution											
3613												
3614	Nonparametric Upper Limits for Background Threshold Values											
3615	Order of Statistic, order					373	95% UTL with 95% Coverage					41
3616	Approx, f used to compute achieved CC					1.506	Approximate Actual Confidence Coefficient achieved by UTL					0.949
3617							Approximate Sample Size needed to achieve specified CC					361
3618	95% Percentile Bootstrap UTL with 95% Coverage					38	95% BCA Bootstrap UTL with 95% Coverage					37.96
3619	95% UPL					36.3	90% Percentile					30.98
3620	90% Chebyshev UPL					48.28	95% Percentile					35.91
3621	95% Chebyshev UPL					59.9	99% Percentile					54.45
3622	95% USL					90.6						
3623												
3624	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
3625	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3626	and consists of observations collected from clean unimpacted locations.											
3627	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3628	represents a background data set and when many onsite observations need to be compared with the BTV.											
3629												
3630	KS_Pb <49											
3631												
3632	General Statistics											
3633	Total Number of Observations					379	Number of Distinct Observations					174
3634	Minimum					3.9	First Quartile					18.4
3635	Second Largest					48.8	Median					21
3636	Maximum					48.8	Third Quartile					24.35
3637	Mean					21.98	SD					6.302
3638	Coefficient of Variation					0.287	Skewness					1.166
3639	Mean of logged Data					3.051	SD of logged Data					0.284
3640												
3641	Critical Values for Background Threshold Values (BTVs)											
3642	Tolerance Factor K (For UTL)					1.781	d2max (for USL)					3.619
3643												
3644	Normal GOF Test											
3645	Shapiro Wilk Test Statistic					0.925	Normal GOF Test					
3646	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
3647	Lilliefors Test Statistic					0.116	Lilliefors GOF Test					
3648	1% Lilliefors Critical Value					0.0531	Data Not Normal at 1% Significance Level					
3649	Data Not Normal at 1% Significance Level											
3650												
3651	Background Statistics Assuming Normal Distribution											
3652	95% UTL with 95% Coverage					33.2	90% Percentile (z)					30.05
3653	95% UPL (t)					32.38	95% Percentile (z)					32.34
3654	95% USL					44.78	99% Percentile (z)					36.64
3655												
3656	Gamma GOF Test											
3657	A-D Test Statistic					3.617	Anderson-Darling Gamma GOF Test					

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L
3658	5% A-D Critical Value					0.754	Data Not Gamma Distributed at 5% Significance Level					
3659	K-S Test Statistic					0.0808	Kolmogorov-Smirnov Gamma GOF Test					
3660	5% K-S Critical Value					0.0466	Data Not Gamma Distributed at 5% Significance Level					
3661	Data Not Gamma Distributed at 5% Significance Level											
3662												
3663	Gamma Statistics											
3664	k hat (MLE)					12.89	k star (bias corrected MLE)					12.79
3665	Theta hat (MLE)					1.704	Theta star (bias corrected MLE)					1.718
3666	nu hat (MLE)					9774	nu star (bias corrected)					9698
3667	MLE Mean (bias corrected)					21.98	MLE Sd (bias corrected)					6.144
3668												
3669	Background Statistics Assuming Gamma Distribution											
3670	95% Wilson Hilferty (WH) Approx. Gamma UPL					32.95	90% Percentile					30.13
3671	95% Hawkins Wixley (HW) Approx. Gamma UPL					33.11	95% Percentile					32.96
3672	95% WH Approx. Gamma UTL with 95% Coverage					34	99% Percentile					38.73
3673	95% HW Approx. Gamma UTL with 95% Coverage					34.2						
3674	95% WH USL					51.37	95% HW USL					52.83
3675												
3676	Lognormal GOF Test											
3677	Shapiro Wilk Test Statistic					0.968	Shapiro Wilk Lognormal GOF Test					
3678	10% Shapiro Wilk P Value					4.6031E-5	Data Not Lognormal at 10% Significance Level					
3679	Lilliefors Test Statistic					0.0714	Lilliefors Lognormal GOF Test					
3680	10% Lilliefors Critical Value					0.042	Data Not Lognormal at 10% Significance Level					
3681	Data Not Lognormal at 10% Significance Level											
3682												
3683	Background Statistics assuming Lognormal Distribution											
3684	95% UTL with 95% Coverage					35.05	90% Percentile (z)					30.42
3685	95% UPL (t)					33.78	95% Percentile (z)					33.72
3686	95% USL					59.1	99% Percentile (z)					40.93
3687												
3688	Nonparametric Distribution Free Background Statistics											
3689	Data do not follow a Discernible Distribution											
3690												
3691	Nonparametric Upper Limits for Background Threshold Values											
3692	Order of Statistic, order					368	95% UTL with 95% Coverage					37
3693	Approx, f used to compute achieved CC					1.486	Approximate Actual Confidence Coefficient achieved by UTL					0.943
3694							Approximate Sample Size needed to achieve specified CC					361
3695	95% Percentile Bootstrap UTL with 95% Coverage					36.46	95% BCA Bootstrap UTL with 95% Coverage					36.1
3696	95% UPL					34.3	90% Percentile					30.16
3697	90% Chebyshev UPL					40.91	95% Percentile					34.3
3698	95% Chebyshev UPL					49.48	99% Percentile					43.83
3699	95% USL					48.8						
3700												
3701	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
3702	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3703	and consists of observations collected from clean unimpacted locations.											
3704	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3705	represents a background data set and when many onsite observations need to be compared with the BTV.											
3706												
3707	KS_Pb <40											
3708												
3709	General Statistics											
3710	Total Number of Observations					372	Number of Distinct Observations					169

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	A	B	C	D	E	F	G	H	I	J	K	L
3711	Minimum					3.9	First Quartile					18.38
3712	Second Largest					38	Median					20.9
3713	Maximum					39.9	Third Quartile					24.03
3714	Mean					21.55	SD					5.496
3715	Coefficient of Variation					0.255	Skewness					0.59
3716	Mean of logged Data					3.037	SD of logged Data					0.267
3717												
3718	Critical Values for Background Threshold Values (BTVs)											
3719	Tolerance Factor K (For UTL)					1.782	d2max (for USL)					3.614
3720												
3721	Normal GOF Test											
3722	Shapiro Wilk Test Statistic					0.962	Normal GOF Test					
3723	1% Shapiro Wilk P Value					1.8941E-7	Data Not Normal at 1% Significance Level					
3724	Lilliefors Test Statistic					0.0932	Lilliefors GOF Test					
3725	1% Lilliefors Critical Value					0.0536	Data Not Normal at 1% Significance Level					
3726	Data Not Normal at 1% Significance Level											
3727												
3728	Background Statistics Assuming Normal Distribution											
3729	95% UTL with 95% Coverage				31.34	90% Percentile (z)					28.59	
3730	95% UPL (t)				30.62	95% Percentile (z)					30.59	
3731	95% USL				41.41	99% Percentile (z)					34.33	
3732												
3733	Gamma GOF Test											
3734	A-D Test Statistic					2.18	Anderson-Darling Gamma GOF Test					
3735	5% A-D Critical Value					0.753	Data Not Gamma Distributed at 5% Significance Level					
3736	K-S Test Statistic					0.0607	Kolmogorov-Smirnov Gamma GOF Test					
3737	5% K-S Critical Value					0.0471	Data Not Gamma Distributed at 5% Significance Level					
3738	Data Not Gamma Distributed at 5% Significance Level											
3739												
3740	Gamma Statistics											
3741	k hat (MLE)					15.04	k star (bias corrected MLE)					14.93
3742	Theta hat (MLE)					1.432	Theta star (bias corrected MLE)					1.444
3743	nu hat (MLE)					11193	nu star (bias corrected)					11104
3744	MLE Mean (bias corrected)					21.55	MLE Sd (bias corrected)					5.577
3745												
3746	Background Statistics Assuming Gamma Distribution											
3747	95% Wilson Hilferty (WH) Approx. Gamma UPL				31.46	90% Percentile					28.93	
3748	95% Hawkins Wixley (HW) Approx. Gamma UPL				31.65	95% Percentile					31.46	
3749	95% WH Approx. Gamma UTL with 95% Coverage				32.41	99% Percentile					36.59	
3750	95% HW Approx. Gamma UTL with 95% Coverage				32.63							
3751	95% WH USL				47.67	95% HW USL					49.02	
3752												
3753	Lognormal GOF Test											
3754	Shapiro Wilk Test Statistic					0.961	Shapiro Wilk Lognormal GOF Test					
3755	10% Shapiro Wilk P Value					6.6477E-8	Data Not Lognormal at 10% Significance Level					
3756	Lilliefors Test Statistic					0.0735	Lilliefors Lognormal GOF Test					
3757	10% Lilliefors Critical Value					0.0424	Data Not Lognormal at 10% Significance Level					
3758	Data Not Lognormal at 10% Significance Level											
3759												
3760	Background Statistics assuming Lognormal Distribution											
3761	95% UTL with 95% Coverage				33.54	90% Percentile (z)					29.34	
3762	95% UPL (t)				32.38	95% Percentile (z)					32.33	
3763	95% USL				54.7	99% Percentile (z)					38.78	

	A	B	C	D	E	F	G	H	I	J	K	L
3764												
3765	Nonparametric Distribution Free Background Statistics											
3766	Data do not follow a Discernible Distribution											
3767												
3768	Nonparametric Upper Limits for Background Threshold Values											
3769	Order of Statistic, order				361	95% UTL with 95% Coverage						34.3
3770	Approx, f used to compute achieved CC				1.457	Approximate Actual Confidence Coefficient achieved by UTL						0.933
3771						Approximate Sample Size needed to achieve specified CC						361
3772	95% Percentile Bootstrap UTL with 95% Coverage				34.03	95% BCA Bootstrap UTL with 95% Coverage						33.8
3773	95% UPL				31.9	90% Percentile						29.09
3774	90% Chebyshev UPL				38.06	95% Percentile						31.85
3775	95% Chebyshev UPL				45.54	99% Percentile						37
3776	95% USL				39.9							
3777												
3778	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
3779	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3780	and consists of observations collected from clean unimpacted locations.											
3781	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3782	represents a background data set and when many onsite observations need to be compared with the BTV.											
3783												
3784	KY_As											
3785												
3786	General Statistics											
3787	Total Number of Observations				192	Number of Distinct Observations						98
3788	Minimum				2.4	First Quartile						5.7
3789	Second Largest				38.4	Median						7.4
3790	Maximum				90.4	Third Quartile						9.525
3791	Mean				8.976	SD						8.087
3792	Coefficient of Variation				0.901	Skewness						6.271
3793	Mean of logged Data				2.023	SD of logged Data						0.522
3794												
3795	Critical Values for Background Threshold Values (BTVs)											
3796	Tolerance Factor K (For UTL)				1.84	d2max (for USL)						3.42
3797												
3798	Normal GOF Test											
3799	Shapiro Wilk Test Statistic				0.534	Normal GOF Test						
3800	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level						
3801	Lilliefors Test Statistic				0.275	Lilliefors GOF Test						
3802	1% Lilliefors Critical Value				0.0744	Data Not Normal at 1% Significance Level						
3803	Data Not Normal at 1% Significance Level											
3804												
3805	Background Statistics Assuming Normal Distribution											
3806	95% UTL with 95% Coverage				23.86	90% Percentile (z)						19.34
3807	95% UPL (t)				22.38	95% Percentile (z)						22.28
3808	95% USL				36.63	99% Percentile (z)						27.79
3809												
3810	Gamma GOF Test											
3811	A-D Test Statistic				7.111	Anderson-Darling Gamma GOF Test						
3812	5% A-D Critical Value				0.76	Data Not Gamma Distributed at 5% Significance Level						
3813	K-S Test Statistic				0.165	Kolmogorov-Smirnov Gamma GOF Test						
3814	5% K-S Critical Value				0.0661	Data Not Gamma Distributed at 5% Significance Level						
3815	Data Not Gamma Distributed at 5% Significance Level											
3816												

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	A	B	C	D	E	F	G	H	I	J	K	L	
3817	Gamma Statistics												
3818	k hat (MLE)					3.072	k star (bias corrected MLE)					3.027	
3819	Theta hat (MLE)					2.922	Theta star (bias corrected MLE)					2.965	
3820	nu hat (MLE)					1180	nu star (bias corrected)					1162	
3821	MLE Mean (bias corrected)					8.976	MLE Sd (bias corrected)					5.159	
3822													
3823	Background Statistics Assuming Gamma Distribution												
3824	95% Wilson Hilferty (WH) Approx. Gamma UPL					18.44	90% Percentile					15.89	
3825	95% Hawkins Wixley (HW) Approx. Gamma UPL					18.22	95% Percentile					18.79	
3826	95% WH Approx. Gamma UTL with 95% Coverage					19.97	99% Percentile					25.06	
3827	95% HW Approx. Gamma UTL with 95% Coverage					19.8							
3828	95% WH USL					36.93	95% HW USL					38.09	
3829													
3830	Lognormal GOF Test												
3831	Shapiro Wilk Test Statistic					0.942	Shapiro Wilk Lognormal GOF Test						
3832	10% Shapiro Wilk P Value					2.7698E-8	Data Not Lognormal at 10% Significance Level						
3833	Lilliefors Test Statistic					0.112	Lilliefors Lognormal GOF Test						
3834	10% Lilliefors Critical Value					0.0589	Data Not Lognormal at 10% Significance Level						
3835	Data Not Lognormal at 10% Significance Level												
3836													
3837	Background Statistics assuming Lognormal Distribution												
3838	95% UTL with 95% Coverage					19.76	90% Percentile (z)					14.76	
3839	95% UPL (t)					17.96	95% Percentile (z)					17.85	
3840	95% USL					45.1	99% Percentile (z)					25.48	
3841													
3842	Nonparametric Distribution Free Background Statistics												
3843	Data do not follow a Discernible Distribution												
3844													
3845	Nonparametric Upper Limits for Background Threshold Values												
3846	Order of Statistic, order					188	95% UTL with 95% Coverage					31.6	
3847	Approx, f used to compute achieved CC					1.64	Approximate Actual Confidence Coefficient achieved by UTL					0.922	
3848							Approximate Sample Size needed to achieve specified CC					181	
3849	95% Percentile Bootstrap UTL with 95% Coverage					25.96	95% BCA Bootstrap UTL with 95% Coverage					25.96	
3850	95% UPL					19.84	90% Percentile					13.06	
3851	90% Chebyshev UPL					33.3	95% Percentile					19.69	
3852	95% Chebyshev UPL					44.32	99% Percentile					37.22	
3853	95% USL					90.4							
3854													
3855	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
3856	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
3857	and consists of observations collected from clean unimpacted locations.												
3858	The use of USL tends to provide a balance between false positives and false negatives provided the data												
3859	represents a background data set and when many onsite observations need to be compared with the BTV.												
3860													
3861	KY_As <39												
3862													
3863	General Statistics												
3864	Total Number of Observations					191	Number of Distinct Observations					97	
3865	Minimum					2.4	First Quartile					5.7	
3866	Second Largest					37.1	Median					7.4	
3867	Maximum					38.4	Third Quartile					9.45	
3868	Mean					8.55	SD					5.538	
3869	Coefficient of Variation					0.648	Skewness					2.963	

	A	B	C	D	E	F	G	H	I	J	K	L
3870	Mean of logged Data					2.01	SD of logged Data					0.491
3871												
3872	Critical Values for Background Threshold Values (BTVs)											
3873	Tolerance Factor K (For UTL)				1.841	d2max (for USL)					3.418	
3874												
3875	Normal GOF Test											
3876	Shapiro Wilk Test Statistic				0.705	Normal GOF Test						
3877	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level						
3878	Lilliefors Test Statistic				0.211	Lilliefors GOF Test						
3879	1% Lilliefors Critical Value				0.0746	Data Not Normal at 1% Significance Level						
3880	Data Not Normal at 1% Significance Level											
3881												
3882	Background Statistics Assuming Normal Distribution											
3883	95% UTL with	95% Coverage		18.74						90% Percentile (z)		15.65
3884		95% UPL (t)		17.73						95% Percentile (z)		17.66
3885		95% USL		27.48						99% Percentile (z)		21.43
3886												
3887	Gamma GOF Test											
3888	A-D Test Statistic				4.594	Anderson-Darling Gamma GOF Test						
3889	5% A-D Critical Value				0.757	Data Not Gamma Distributed at 5% Significance Level						
3890	K-S Test Statistic				0.129	Kolmogorov-Smirnov Gamma GOF Test						
3891	5% K-S Critical Value				0.0663	Data Not Gamma Distributed at 5% Significance Level						
3892	Data Not Gamma Distributed at 5% Significance Level											
3893												
3894	Gamma Statistics											
3895	k hat (MLE)				3.839	k star (bias corrected MLE)					3.782	
3896	Theta hat (MLE)				2.227	Theta star (bias corrected MLE)					2.26	
3897	nu hat (MLE)				1467	nu star (bias corrected)					1445	
3898	MLE Mean (bias corrected)				8.55	MLE Sd (bias corrected)					4.396	
3899												
3900	Background Statistics Assuming Gamma Distribution											
3901	95% Wilson Hilferty (WH) Approx. Gamma UPL				16.71	90% Percentile					14.44	
3902	95% Hawkins Wixley (HW) Approx. Gamma UPL				16.69	95% Percentile					16.82	
3903	95% WH Approx. Gamma UTL with	95% Coverage		17.99						99% Percentile		21.92
3904	95% HW Approx. Gamma UTL with	95% Coverage		18.03								
3905		95% WH USL		31.78						95% HW USL		33.13
3906												
3907	Lognormal GOF Test											
3908	Shapiro Wilk Test Statistic				0.953	Shapiro Wilk Lognormal GOF Test						
3909	10% Shapiro Wilk P Value				1.4590E-5	Data Not Lognormal at 10% Significance Level						
3910	Lilliefors Test Statistic				0.0952	Lilliefors Lognormal GOF Test						
3911	10% Lilliefors Critical Value				0.059	Data Not Lognormal at 10% Significance Level						
3912	Data Not Lognormal at 10% Significance Level											
3913												
3914	Background Statistics assuming Lognormal Distribution											
3915	95% UTL with	95% Coverage		18.44						90% Percentile (z)		14.01
3916		95% UPL (t)		16.85						95% Percentile (z)		16.75
3917		95% USL		40.04						99% Percentile (z)		23.41
3918												
3919	Nonparametric Distribution Free Background Statistics											
3920	Data do not follow a Discernible Distribution											
3921												
3922	Nonparametric Upper Limits for Background Threshold Values											

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	A	B	C	D	E	F	G	H	I	J	K	L
3923	Order of Statistic, order					187	95% UTL with 95% Coverage					28.1
3924	Approx, f used to compute achieved CC					1.632	Approximate Actual Confidence Coefficient achieved by UTL					0.919
3925							Approximate Sample Size needed to achieve specified CC					181
3926	95% Percentile Bootstrap UTL with 95% Coverage					23.6	95% BCA Bootstrap UTL with 95% Coverage					23.6
3927	95% UPL					19.68	90% Percentile					12.7
3928	90% Chebyshev UPL					25.21	95% Percentile					19.5
3929	95% Chebyshev UPL					32.75	99% Percentile					32.87
3930	95% USL					38.4						
3931												
3932	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
3933	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3934	and consists of observations collected from clean unimpacted locations.											
3935	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3936	represents a background data set and when many onsite observations need to be compared with the BTV.											
3937												
3938	KY_As <25											
3939												
3940	General Statistics											
3941	Total Number of Observations					186	Number of Distinct Observations					92
3942	Minimum					2.4	First Quartile					5.625
3943	Second Largest					23	Median					7.2
3944	Maximum					24.2	Third Quartile					9.375
3945	Mean					7.878	SD					3.717
3946	Coefficient of Variation					0.472	Skewness					1.775
3947	Mean of logged Data					1.97	SD of logged Data					0.431
3948												
3949	Critical Values for Background Threshold Values (BTVs)											
3950	Tolerance Factor K (For UTL)					1.843	d2max (for USL)					3.41
3951												
3952	Normal GOF Test											
3953	Shapiro Wilk Test Statistic					0.854	Normal GOF Test					
3954	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
3955	Lilliefors Test Statistic					0.118	Lilliefors GOF Test					
3956	1% Lilliefors Critical Value					0.0756	Data Not Normal at 1% Significance Level					
3957	Data Not Normal at 1% Significance Level											
3958												
3959	Background Statistics Assuming Normal Distribution											
3960	95% UTL with 95% Coverage					14.73	90% Percentile (z)					12.64
3961	95% UPL (t)					14.04	95% Percentile (z)					13.99
3962	95% USL					20.55	99% Percentile (z)					16.52
3963												
3964	Gamma GOF Test											
3965	A-D Test Statistic					1.373	Anderson-Darling Gamma GOF Test					
3966	5% A-D Critical Value					0.755	Data Not Gamma Distributed at 5% Significance Level					
3967	K-S Test Statistic					0.0719	Kolmogorov-Smirnov Gamma GOF Test					
3968	5% K-S Critical Value					0.0674	Data Not Gamma Distributed at 5% Significance Level					
3969	Data Not Gamma Distributed at 5% Significance Level											
3970												
3971	Gamma Statistics											
3972	k hat (MLE)					5.464	k star (bias corrected MLE)					5.379
3973	Theta hat (MLE)					1.442	Theta star (bias corrected MLE)					1.465
3974	nu hat (MLE)					2032	nu star (bias corrected)					2001
3975	MLE Mean (bias corrected)					7.878	MLE Sd (bias corrected)					3.397

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	A	B	C	D	E	F	G	H	I	J	K	L
3976												
3977	Background Statistics Assuming Gamma Distribution											
3978	95% Wilson Hilferty (WH) Approx. Gamma UPL					14.16	90% Percentile					12.42
3979	95% Hawkins Wixley (HW) Approx. Gamma UPL					14.24	95% Percentile					14.17
3980	95% WH Approx. Gamma UTL with 95% Coverage					15.1	99% Percentile					17.84
3981	95% HW Approx. Gamma UTL with 95% Coverage					15.24						
3982	95% WH USL					24.82	95% HW USL					25.92
3983												
3984	Lognormal GOF Test											
3985	Shapiro Wilk Test Statistic					0.975	Shapiro Wilk Lognormal GOF Test					
3986	10% Shapiro Wilk P Value					0.107	Data appear Lognormal at 10% Significance Level					
3987	Lilliefors Test Statistic					0.0633	Lilliefors Lognormal GOF Test					
3988	10% Lilliefors Critical Value					0.0598	Data Not Lognormal at 10% Significance Level					
3989	Data appear Approximate Lognormal at 10% Significance Level											
3990												
3991	Background Statistics assuming Lognormal Distribution											
3992	95% UTL with 95% Coverage					15.86	90% Percentile (z)					12.45
3993	95% UPL (t)					14.64	95% Percentile (z)					14.56
3994	95% USL					31.16	99% Percentile (z)					19.53
3995												
3996	Nonparametric Distribution Free Background Statistics											
3997	Data appear Approximate Lognormal at 10% Significance Level											
3998												
3999	Nonparametric Upper Limits for Background Threshold Values											
4000	Order of Statistic, order					182	95% UTL with 95% Coverage					19.6
4001	Approx, f used to compute achieved CC					1.588	Approximate Actual Confidence Coefficient achieved by UTL					0.907
4002							Approximate Sample Size needed to achieve specified CC					181
4003	95% Percentile Bootstrap UTL with 95% Coverage					19.35	95% BCA Bootstrap UTL with 95% Coverage					19.35
4004	95% UPL					16.4	90% Percentile					11.2
4005	90% Chebyshev UPL					19.06	95% Percentile					14.73
4006	95% Chebyshev UPL					24.12	99% Percentile					20.37
4007	95% USL					24.2						
4008												
4009	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4010	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4011	and consists of observations collected from clean unimpacted locations.											
4012	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4013	represents a background data set and when many onsite observations need to be compared with the BTV.											
4014												
4015	KY_As <20											
4016												
4017	General Statistics											
4018	Total Number of Observations					184	Number of Distinct Observations					90
4019	Minimum					2.4	First Quartile					5.575
4020	Second Largest					19.8	Median					7.1
4021	Maximum					19.9	Third Quartile					9.15
4022	Mean					7.708	SD					3.351
4023	Coefficient of Variation					0.435	Skewness					1.458
4024	Mean of logged Data					1.957	SD of logged Data					0.415
4025												
4026	Critical Values for Background Threshold Values (BTVs)											
4027	Tolerance Factor K (For UTL)					1.844	d2max (for USL)					3.407
4028												

	A	B	C	D	E	F	G	H	I	J	K	L
4029	Normal GOF Test											
4030	Shapiro Wilk Test Statistic					0.882	Normal GOF Test					
4031	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
4032	Lilliefors Test Statistic					0.0913	Lilliefors GOF Test					
4033	1% Lilliefors Critical Value					0.076	Data Not Normal at 1% Significance Level					
4034	Data Not Normal at 1% Significance Level											
4035												
4036	Background Statistics Assuming Normal Distribution											
4037	95% UTL with 95% Coverage					13.89	90% Percentile (z)					12
4038	95% UPL (t)					13.26	95% Percentile (z)					13.22
4039	95% USL					19.12	99% Percentile (z)					15.5
4040												
4041	Gamma GOF Test											
4042	A-D Test Statistic					0.832	Anderson-Darling Gamma GOF Test					
4043	5% A-D Critical Value					0.755	Data Not Gamma Distributed at 5% Significance Level					
4044	K-S Test Statistic					0.0585	Kolmogorov-Smirnov Gamma GOF Test					
4045	5% K-S Critical Value					0.0679	Detected data appear Gamma Distributed at 5% Significance Level					
4046	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
4047												
4048	Gamma Statistics											
4049	k hat (MLE)					6.022	k star (bias corrected MLE)					5.928
4050	Theta hat (MLE)					1.28	Theta star (bias corrected MLE)					1.3
4051	nu hat (MLE)					2216	nu star (bias corrected)					2181
4052	MLE Mean (bias corrected)					7.708	MLE Sd (bias corrected)					3.166
4053												
4054	Background Statistics Assuming Gamma Distribution											
4055	95% Wilson Hilferty (WH) Approx. Gamma UPL					13.55	90% Percentile					11.94
4056	95% Hawkins Wixley (HW) Approx. Gamma UPL					13.64	95% Percentile					13.54
4057	95% WH Approx. Gamma UTL with 95% Coverage					14.42	99% Percentile					16.91
4058	95% HW Approx. Gamma UTL with 95% Coverage					14.57						
4059	95% WH USL					23.24	95% HW USL					24.27
4060												
4061	Lognormal GOF Test											
4062	Shapiro Wilk Test Statistic					0.974	Shapiro Wilk Lognormal GOF Test					
4063	10% Shapiro Wilk P Value					0.0811	Data Not Lognormal at 10% Significance Level					
4064	Lilliefors Test Statistic					0.0562	Lilliefors Lognormal GOF Test					
4065	10% Lilliefors Critical Value					0.0602	Data appear Lognormal at 10% Significance Level					
4066	Data appear Approximate Lognormal at 10% Significance Level											
4067												
4068	Background Statistics assuming Lognormal Distribution											
4069	95% UTL with 95% Coverage					15.21	90% Percentile (z)					12.04
4070	95% UPL (t)					14.07	95% Percentile (z)					14
4071	95% USL					29.07	99% Percentile (z)					18.57
4072												
4073	Nonparametric Distribution Free Background Statistics											
4074	Data appear Approximate Gamma Distribution at 5% Significance Level											
4075												
4076	Nonparametric Upper Limits for Background Threshold Values											
4077	Order of Statistic, order					180	95% UTL with 95% Coverage					19.2
4078	Approx, f used to compute achieved CC					1.57	Approximate Actual Confidence Coefficient achieved by UTL					0.902
4079							Approximate Sample Size needed to achieve specified CC					181
4080	95% Percentile Bootstrap UTL with 95% Coverage					17.8	95% BCA Bootstrap UTL with 95% Coverage					17.8
4081	95% UPL					14.1	90% Percentile					10.8

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	A	B	C	D	E	F	G	H	I	J	K	L
4082	90% Chebyshev UPL					17.79	95% Percentile					13.77
4083	95% Chebyshev UPL					22.35	99% Percentile					19.63
4084	95% USL					19.9						
4085												
4086	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4087	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4088	and consists of observations collected from clean unimpacted locations.											
4089	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4090	represents a background data set and when many onsite observations need to be compared with the BTV.											
4091												
4092	KY_Pb											
4093												
4094	General Statistics											
4095	Total Number of Observations					192	Number of Distinct Observations					135
4096	Minimum					7.3	First Quartile					17.48
4097	Second Largest					111	Median					21.1
4098	Maximum					332	Third Quartile					26.35
4099	Mean					26.99	SD					27.26
4100	Coefficient of Variation					1.01	Skewness					7.929
4101	Mean of logged Data					3.125	SD of logged Data					0.496
4102												
4103	Critical Values for Background Threshold Values (BTVs)											
4104	Tolerance Factor K (For UTL)					1.84	d2max (for USL)					3.42
4105												
4106	Normal GOF Test											
4107	Shapiro Wilk Test Statistic					0.447	Normal GOF Test					
4108	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
4109	Lilliefors Test Statistic					0.275	Lilliefors GOF Test					
4110	1% Lilliefors Critical Value					0.0744	Data Not Normal at 1% Significance Level					
4111	Data Not Normal at 1% Significance Level											
4112												
4113	Background Statistics Assuming Normal Distribution											
4114	95% UTL with		95% Coverage		77.15	90% Percentile (z)					61.92	
4115			95% UPL (t)		72.16	95% Percentile (z)					71.83	
4116			95% USL		120.2	99% Percentile (z)					90.41	
4117												
4118	Gamma GOF Test											
4119	A-D Test Statistic					11.26	Anderson-Darling Gamma GOF Test					
4120	5% A-D Critical Value					0.76	Data Not Gamma Distributed at 5% Significance Level					
4121	K-S Test Statistic					0.198	Kolmogorov-Smirnov Gamma GOF Test					
4122	5% K-S Critical Value					0.0661	Data Not Gamma Distributed at 5% Significance Level					
4123	Data Not Gamma Distributed at 5% Significance Level											
4124												
4125	Gamma Statistics											
4126	k hat (MLE)					3.097	k star (bias corrected MLE)					3.052
4127	Theta hat (MLE)					8.715	Theta star (bias corrected MLE)					8.843
4128	nu hat (MLE)					1189	nu star (bias corrected)					1172
4129	MLE Mean (bias corrected)					26.99	MLE Sd (bias corrected)					15.45
4130												
4131	Background Statistics Assuming Gamma Distribution											
4132	95% Wilson Hiferty (WH) Approx. Gamma UPL					54.94	90% Percentile					47.7
4133	95% Hawkins Wixley (HW) Approx. Gamma UPL					53.87	95% Percentile					56.36
4134	95% WH Approx. Gamma UTL with		95% Coverage		59.48	99% Percentile					75.11	

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	A	B	C	D	E	F	G	H	I	J	K	L
4135	95% HW Approx. Gamma UTL with 95% Coverage					58.46						
4136	95% WH USL					109.6	95% HW USL					111.3
4137												
4138	Lognormal GOF Test											
4139	Shapiro Wilk Test Statistic					0.906	Shapiro Wilk Lognormal GOF Test					
4140	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
4141	Lilliefors Test Statistic					0.147	Lilliefors Lognormal GOF Test					
4142	10% Lilliefors Critical Value					0.0589	Data Not Lognormal at 10% Significance Level					
4143	Data Not Lognormal at 10% Significance Level											
4144												
4145	Background Statistics assuming Lognormal Distribution											
4146	95% UTL with	95% Coverage			56.73					90% Percentile (z)		43
4147			95% UPL (t)		51.81					95% Percentile (z)		51.5
4148			95% USL		124.2					99% Percentile (z)		72.22
4149												
4150	Nonparametric Distribution Free Background Statistics											
4151	Data do not follow a Discernible Distribution											
4152												
4153	Nonparametric Upper Limits for Background Threshold Values											
4154	Order of Statistic, order					188	95% UTL with 95% Coverage					86.8
4155	Approx, f used to compute achieved CC					1.64	Approximate Actual Confidence Coefficient achieved by UTL					0.922
4156							Approximate Sample Size needed to achieve specified CC					181
4157	95% Percentile Bootstrap UTL with	95% Coverage			83.48	95% BCA Bootstrap UTL with 95% Coverage					83.48	
4158		95% UPL			63.41	90% Percentile					41.37	
4159		90% Chebyshev UPL			109	95% Percentile					56.13	
4160		95% Chebyshev UPL			146.1	99% Percentile					96.26	
4161		95% USL			332							
4162												
4163	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4164	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4165	and consists of observations collected from clean unimpacted locations.											
4166	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4167	represents a background data set and when many onsite observations need to be compared with the BTV.											
4168												
4169	KY_Pb <112											
4170												
4171	General Statistics											
4172	Total Number of Observations					191	Number of Distinct Observations					134
4173	Minimum					7.3	First Quartile					17.45
4174	Second Largest					94.8	Median					21.1
4175	Maximum					111	Third Quartile					26.3
4176	Mean					25.39	SD					15.96
4177	Coefficient of Variation					0.629	Skewness					2.9
4178	Mean of logged Data					3.111	SD of logged Data					0.458
4179												
4180	Critical Values for Background Threshold Values (BTVs)											
4181	Tolerance Factor K (For UTL)					1.841	d2max (for USL)					3.418
4182												
4183	Normal GOF Test											
4184	Shapiro Wilk Test Statistic					0.686	Normal GOF Test					
4185	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
4186	Lilliefors Test Statistic					0.235	Lilliefors GOF Test					
4187	1% Lilliefors Critical Value					0.0746	Data Not Normal at 1% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L
4188	Data Not Normal at 1% Significance Level											
4189												
4190	Background Statistics Assuming Normal Distribution											
4191	95% UTL with 95% Coverage				54.77		90% Percentile (z)				45.85	
4192	95% UPL (t)				51.85		95% Percentile (z)				51.65	
4193	95% USL				79.96		99% Percentile (z)				62.53	
4194												
4195	Gamma GOF Test											
4196	A-D Test Statistic				7.848		Anderson-Darling Gamma GOF Test					
4197	5% A-D Critical Value				0.756		Data Not Gamma Distributed at 5% Significance Level					
4198	K-S Test Statistic				0.173		Kolmogorov-Smirnov Gamma GOF Test					
4199	5% K-S Critical Value				0.0662		Data Not Gamma Distributed at 5% Significance Level					
4200	Data Not Gamma Distributed at 5% Significance Level											
4201												
4202	Gamma Statistics											
4203	k hat (MLE)				4.222		k star (bias corrected MLE)				4.159	
4204	Theta hat (MLE)				6.015		Theta star (bias corrected MLE)				6.106	
4205	nu hat (MLE)				1613		nu star (bias corrected)				1589	
4206	MLE Mean (bias corrected)				25.39		MLE Sd (bias corrected)				12.45	
4207												
4208	Background Statistics Assuming Gamma Distribution											
4209	95% Wilson Hilferty (WH) Approx. Gamma UPL				48.39		90% Percentile				42.08	
4210	95% Hawkins Wixley (HW) Approx. Gamma UPL				48.17		95% Percentile				48.72	
4211	95% WH Approx. Gamma UTL with 95% Coverage				51.95		99% Percentile				62.87	
4212	95% HW Approx. Gamma UTL with 95% Coverage				51.86							
4213	95% WH USL				90.02		95% HW USL				92.97	
4214												
4215	Lognormal GOF Test											
4216	Shapiro Wilk Test Statistic				0.926		Shapiro Wilk Lognormal GOF Test					
4217	10% Shapiro Wilk P Value				9.235E-13		Data Not Lognormal at 10% Significance Level					
4218	Lilliefors Test Statistic				0.133		Lilliefors Lognormal GOF Test					
4219	10% Lilliefors Critical Value				0.059		Data Not Lognormal at 10% Significance Level					
4220	Data Not Lognormal at 10% Significance Level											
4221												
4222	Background Statistics assuming Lognormal Distribution											
4223	95% UTL with 95% Coverage				52.13		90% Percentile (z)				40.36	
4224	95% UPL (t)				47.94		95% Percentile (z)				47.66	
4225	95% USL				107.3		99% Percentile (z)				65.11	
4226												
4227	Nonparametric Distribution Free Background Statistics											
4228	Data do not follow a Discernible Distribution											
4229												
4230	Nonparametric Upper Limits for Background Threshold Values											
4231	Order of Statistic, order				187		95% UTL with 95% Coverage				85.9	
4232	Approx, f used to compute achieved CC				1.632		Approximate Actual Confidence Coefficient achieved by UTL				0.919	
4233							Approximate Sample Size needed to achieve specified CC				181	
4234	95% Percentile Bootstrap UTL with 95% Coverage				79		95% BCA Bootstrap UTL with 95% Coverage				76	
4235	95% UPL				55.82		90% Percentile				40.2	
4236	90% Chebyshev UPL				73.41		95% Percentile				53.3	
4237	95% Chebyshev UPL				95.16		99% Percentile				94.35	
4238	95% USL				111							
4239												
4240	Note: The use of USL tends to yield a conservative estimate of BTv, especially when the sample size starts exceeding 20.											

	A	B	C	D	E	F	G	H	I	J	K	L
4241	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4242	and consists of observations collected from clean unimpacted locations.											
4243	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4244	represents a background data set and when many onsite observations need to be compared with the BTV.											
4245												
4246	KY_Pb <77											
4247												
4248	General Statistics											
4249	Total Number of Observations					185	Number of Distinct Observations					128
4250	Minimum					7.3	First Quartile					17.1
4251	Second Largest					70.5	Median					20.9
4252	Maximum					76.5	Third Quartile					25.2
4253	Mean					23.22	SD					10.44
4254	Coefficient of Variation					0.45	Skewness					2.084
4255	Mean of logged Data					3.066	SD of logged Data					0.386
4256												
4257	Critical Values for Background Threshold Values (BTVs)											
4258	Tolerance Factor K (For UTL)					1.844	d2max (for USL)					3.409
4259												
4260	Normal GOF Test											
4261	Shapiro Wilk Test Statistic					0.826	Normal GOF Test					
4262	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
4263	Lilliefors Test Statistic					0.182	Lilliefors GOF Test					
4264	1% Lilliefors Critical Value					0.0758	Data Not Normal at 1% Significance Level					
4265	Data Not Normal at 1% Significance Level											
4266												
4267	Background Statistics Assuming Normal Distribution											
4268	95% UTL with		95% Coverage		42.48	90% Percentile (z)					36.6	
4269			95% UPL (t)		40.53	95% Percentile (z)					40.4	
4270			95% USL		58.82	99% Percentile (z)					47.51	
4271												
4272	Gamma GOF Test											
4273	A-D Test Statistic					3.433	Anderson-Darling Gamma GOF Test					
4274	5% A-D Critical Value					0.754	Data Not Gamma Distributed at 5% Significance Level					
4275	K-S Test Statistic					0.124	Kolmogorov-Smirnov Gamma GOF Test					
4276	5% K-S Critical Value					0.0676	Data Not Gamma Distributed at 5% Significance Level					
4277	Data Not Gamma Distributed at 5% Significance Level											
4278												
4279	Gamma Statistics											
4280	k hat (MLE)					6.463	k star (bias corrected MLE)					6.362
4281	Theta hat (MLE)					3.593	Theta star (bias corrected MLE)					3.65
4282	nu hat (MLE)					2391	nu star (bias corrected)					2354
4283	MLE Mean (bias corrected)					23.22	MLE Sd (bias corrected)					9.206
4284												
4285	Background Statistics Assuming Gamma Distribution											
4286	95% Wilson Hilferty (WH) Approx. Gamma UPL					40.09	90% Percentile					35.52
4287	95% Hawkins Wixley (HW) Approx. Gamma UPL					40.17	95% Percentile					40.14
4288	95% WH Approx. Gamma UTL with		95% Coverage		42.59	99% Percentile					49.79	
4289	95% HW Approx. Gamma UTL with		95% Coverage		42.78							
4290			95% WH USL		67.81	95% HW USL					70.03	
4291												
4292	Lognormal GOF Test											
4293	Shapiro Wilk Test Statistic					0.969	Shapiro Wilk Lognormal GOF Test					

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	A	B	C	D	E	F	G	H	I	J	K	L
4294	10% Shapiro Wilk P Value					0.0209	Data Not Lognormal at 10% Significance Level					
4295	Lilliefors Test Statistic					0.0955	Lilliefors Lognormal GOF Test					
4296	10% Lilliefors Critical Value					0.06	Data Not Lognormal at 10% Significance Level					
4297	Data Not Lognormal at 10% Significance Level											
4298												
4299	Background Statistics assuming Lognormal Distribution											
4300	95% UTL with 95% Coverage				43.71	90% Percentile (z)					35.18	
4301	95% UPL (t)				40.68	95% Percentile (z)					40.48	
4302	95% USL				79.99	99% Percentile (z)					52.67	
4303												
4304	Nonparametric Distribution Free Background Statistics											
4305	Data do not follow a Discernible Distribution											
4306												
4307	Nonparametric Upper Limits for Background Threshold Values											
4308	Order of Statistic, order					181	95% UTL with 95% Coverage				53.3	
4309	Approx, f used to compute achieved CC					1.579	Approximate Actual Confidence Coefficient achieved by UTL				0.904	
4310							Approximate Sample Size needed to achieve specified CC				181	
4311	95% Percentile Bootstrap UTL with 95% Coverage				49.46	95% BCA Bootstrap UTL with 95% Coverage					47.7	
4312	95% UPL				44.51	90% Percentile					36.82	
4313	90% Chebyshev UPL				54.63	95% Percentile					43.6	
4314	95% Chebyshev UPL				68.86	99% Percentile					61.34	
4315	95% USL				76.5							
4316												
4317	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4318	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4319	and consists of observations collected from clean unimpacted locations.											
4320	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4321	represents a background data set and when many onsite observations need to be compared with the BTV.											
4322												
4323	KY_Pb <48											
4324												
4325	General Statistics											
4326	Total Number of Observations					179	Number of Distinct Observations				123	
4327	Minimum					7.3	First Quartile				17.05	
4328	Second Largest					45.3	Median				20.8	
4329	Maximum					47.7	Third Quartile				24.55	
4330	Mean					21.97	SD				7.814	
4331	Coefficient of Variation					0.356	Skewness				1.127	
4332	Mean of logged Data					3.031	SD of logged Data				0.342	
4333												
4334	Critical Values for Background Threshold Values (BTVs)											
4335	Tolerance Factor K (For UTL)					1.847	d2max (for USL)				3.398	
4336												
4337	Normal GOF Test											
4338	Shapiro Wilk Test Statistic					0.908	Normal GOF Test					
4339	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
4340	Lilliefors Test Statistic					0.125	Lilliefors GOF Test					
4341	1% Lilliefors Critical Value					0.0771	Data Not Normal at 1% Significance Level					
4342	Data Not Normal at 1% Significance Level											
4343												
4344	Background Statistics Assuming Normal Distribution											
4345	95% UTL with 95% Coverage				36.41	90% Percentile (z)					31.98	
4346	95% UPL (t)				34.93	95% Percentile (z)					34.82	

	A	B	C	D	E	F	G	H	I	J	K	L
4347	95% USL					48.52	99% Percentile (z)					40.15
4348												
4349	Gamma GOF Test											
4350	A-D Test Statistic					1.532	Anderson-Darling Gamma GOF Test					
4351	5% A-D Critical Value					0.752	Data Not Gamma Distributed at 5% Significance Level					
4352	K-S Test Statistic					0.0831	Kolmogorov-Smirnov Gamma GOF Test					
4353	5% K-S Critical Value					0.069	Data Not Gamma Distributed at 5% Significance Level					
4354	Data Not Gamma Distributed at 5% Significance Level											
4355												
4356	Gamma Statistics											
4357	k hat (MLE)					8.731	k star (bias corrected MLE)					8.589
4358	Theta hat (MLE)					2.516	Theta star (bias corrected MLE)					2.558
4359	nu hat (MLE)					3126	nu star (bias corrected)					3075
4360	MLE Mean (bias corrected)					21.97	MLE Sd (bias corrected)					7.496
4361												
4362	Background Statistics Assuming Gamma Distribution											
4363	95% Wilson Hilferty (WH) Approx. Gamma UPL					35.6	90% Percentile					31.96
4364	95% Hawkins Wixley (HW) Approx. Gamma UPL					35.78	95% Percentile					35.57
4365	95% WH Approx. Gamma UTL with 95% Coverage					37.58	99% Percentile					43.05
4366	95% HW Approx. Gamma UTL with 95% Coverage					37.85						
4367	95% WH USL					56.65	95% HW USL					58.46
4368												
4369	Lognormal GOF Test											
4370	Shapiro Wilk Test Statistic					0.975	Shapiro Wilk Lognormal GOF Test					
4371	10% Shapiro Wilk P Value					0.134	Data appear Lognormal at 10% Significance Level					
4372	Lilliefors Test Statistic					0.0664	Lilliefors Lognormal GOF Test					
4373	10% Lilliefors Critical Value					0.061	Data Not Lognormal at 10% Significance Level					
4374	Data appear Approximate Lognormal at 10% Significance Level											
4375												
4376	Background Statistics assuming Lognormal Distribution											
4377	95% UTL with 95% Coverage					38.96	90% Percentile (z)					32.11
4378	95% UPL (t)					36.52	95% Percentile (z)					36.35
4379	95% USL					66.18	99% Percentile (z)					45.88
4380												
4381	Nonparametric Distribution Free Background Statistics											
4382	Data appear Approximate Lognormal at 10% Significance Level											
4383												
4384	Nonparametric Upper Limits for Background Threshold Values											
4385	Order of Statistic, order					176	95% UTL with 95% Coverage					43.6
4386	Approx, f used to compute achieved CC					1.842	Approximate Actual Confidence Coefficient achieved by UTL					0.948
4387							Approximate Sample Size needed to achieve specified CC					153
4388	95% Percentile Bootstrap UTL with 95% Coverage					43.1	95% BCA Bootstrap UTL with 95% Coverage					43.15
4389	95% UPL					39.8	90% Percentile					32.98
4390	90% Chebyshev UPL					45.48	95% Percentile					38.81
4391	95% Chebyshev UPL					56.13	99% Percentile					44.99
4392	95% USL					47.7						
4393												
4394	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4395	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4396	and consists of observations collected from clean unimpacted locations.											
4397	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4398	represents a background data set and when many onsite observations need to be compared with the BTV.											
4399												

	A	B	C	D	E	F	G	H	I	J	K	L
4400	KY_Pb <40											
4401												
4402	General Statistics											
4403	Total Number of Observations					171	Number of Distinct Observations					116
4404	Minimum					7.3	First Quartile					16.75
4405	Second Largest					38.7	Median					20.1
4406	Maximum					39.8	Third Quartile					24.2
4407	Mean					20.95	SD					6.354
4408	Coefficient of Variation					0.303	Skewness					0.716
4409	Mean of logged Data					2.996	SD of logged Data					0.308
4410												
4411	Critical Values for Background Threshold Values (BTVs)											
4412	Tolerance Factor K (For UTL)					1.853	d2max (for USL)					3.384
4413												
4414	Normal GOF Test											
4415	Shapiro Wilk Test Statistic					0.951	Normal GOF Test					
4416	1% Shapiro Wilk P Value					1.7985E-5	Data Not Normal at 1% Significance Level					
4417	Lilliefors Test Statistic					0.0759	Lilliefors GOF Test					
4418	1% Lilliefors Critical Value					0.0788	Data appear Normal at 1% Significance Level					
4419	Data appear Approximate Normal at 1% Significance Level											
4420												
4421	Background Statistics Assuming Normal Distribution											
4422	95% UTL with 95% Coverage					32.72	90% Percentile (z)					29.09
4423	95% UPL (t)					31.49	95% Percentile (z)					31.4
4424	95% USL					42.45	99% Percentile (z)					35.73
4425												
4426	Gamma GOF Test											
4427	A-D Test Statistic					0.539	Anderson-Darling Gamma GOF Test					
4428	5% A-D Critical Value					0.751	Detected data appear Gamma Distributed at 5% Significance Level					
4429	K-S Test Statistic					0.0518	Kolmogorov-Smirnov Gamma GOF Test					
4430	5% K-S Critical Value					0.071	Detected data appear Gamma Distributed at 5% Significance Level					
4431	Detected data appear Gamma Distributed at 5% Significance Level											
4432												
4433	Gamma Statistics											
4434	k hat (MLE)					11.09	k star (bias corrected MLE)					10.9
4435	Theta hat (MLE)					1.89	Theta star (bias corrected MLE)					1.923
4436	nu hat (MLE)					3792	nu star (bias corrected)					3726
4437	MLE Mean (bias corrected)					20.95	MLE Sd (bias corrected)					6.347
4438												
4439	Background Statistics Assuming Gamma Distribution											
4440	95% Wilson Hilferty (WH) Approx. Gamma UPL					32.4	90% Percentile					29.38
4441	95% Hawkins Wixley (HW) Approx. Gamma UPL					32.59	95% Percentile					32.36
4442	95% WH Approx. Gamma UTL with 95% Coverage					34.06	99% Percentile					38.46
4443	95% HW Approx. Gamma UTL with 95% Coverage					34.34						
4444	95% WH USL					49.24	95% HW USL					50.69
4445												
4446	Lognormal GOF Test											
4447	Shapiro Wilk Test Statistic					0.976	Shapiro Wilk Lognormal GOF Test					
4448	10% Shapiro Wilk P Value					0.168	Data appear Lognormal at 10% Significance Level					
4449	Lilliefors Test Statistic					0.0621	Lilliefors Lognormal GOF Test					
4450	10% Lilliefors Critical Value					0.0624	Data appear Lognormal at 10% Significance Level					
4451	Data appear Lognormal at 10% Significance Level											
4452												

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	A	B	C	D	E	F	G	H	I	J	K	L
4453	Background Statistics assuming Lognormal Distribution											
4454	95% UTL with			95% Coverage	35.39				90% Percentile (z)			29.69
4455				95% UPL (t)	33.34				95% Percentile (z)			33.2
4456				95% USL	56.71				99% Percentile (z)			40.95
4457												
4458	Nonparametric Distribution Free Background Statistics											
4459	Data appear Approximate Normal at 1% Significance Level											
4460												
4461	Nonparametric Upper Limits for Background Threshold Values											
4462	Order of Statistic, order				168				95% UTL with 95% Coverage			37.5
4463	Approx, f used to compute achieved CC				1.758	Approximate Actual Confidence Coefficient achieved by UTL						0.933
4464						Approximate Sample Size needed to achieve specified CC						153
4465	95% Percentile Bootstrap UTL with			95% Coverage	36.7	95% BCA Bootstrap UTL with			95% Coverage			36.7
4466				95% UPL	35				90% Percentile			28.9
4467				90% Chebyshev UPL	40.07				95% Percentile			34.25
4468				95% Chebyshev UPL	48.73				99% Percentile			38.21
4469				95% USL	39.8							
4470												
4471	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4472	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4473	and consists of observations collected from clean unimpacted locations.											
4474	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4475	represents a background data set and when many onsite observations need to be compared with the BTV.											

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.2 2/18/2024 11:56:11 AM								
4	From File			D:\Tramm\BACKGROUND EVAL\2013 USGS National Review\USGS_2013_Compiled_State_Data_Sorted.xls								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	MA_As											
12												
13	General Statistics											
14	Total Number of Observations				42		Number of Distinct Observations				32	
15	Minimum				0.8		First Quartile				2.525	
16	Second Largest				13.9		Median				4	
17	Maximum				16.2		Third Quartile				6.8	
18	Mean				5.29		SD				3.717	
19	Coefficient of Variation				0.703		Skewness				1.239	
20	Mean of logged Data				1.428		SD of logged Data				0.724	
21												
22	Critical Values for Background Threshold Values (BTVs)											
23	Tolerance Factor K (For UTL)				2.104		d2max (for USL)				2.887	
24												
25	Normal GOF Test											
26	Shapiro Wilk Test Statistic				0.842		Shapiro Wilk GOF Test					
27	1% Shapiro Wilk Critical Value				0.922		Data Not Normal at 1% Significance Level					
28	Lilliefors Test Statistic				0.2		Lilliefors GOF Test					
29	1% Lilliefors Critical Value				0.157		Data Not Normal at 1% Significance Level					
30	Data Not Normal at 1% Significance Level											
31												
32	Background Statistics Assuming Normal Distribution											
33	95% UTL with		95% Coverage		13.11		90% Percentile (z)				10.05	
34			95% UPL (t)		11.62		95% Percentile (z)				11.4	
35			95% USL		16.02		99% Percentile (z)				13.94	
36												
37	Gamma GOF Test											
38	A-D Test Statistic				0.412		Anderson-Darling Gamma GOF Test					
39	5% A-D Critical Value				0.758		Detected data appear Gamma Distributed at 5% Significance Level					
40	K-S Test Statistic				0.127		Kolmogorov-Smirnov Gamma GOF Test					
41	5% K-S Critical Value				0.138		Detected data appear Gamma Distributed at 5% Significance Level					
42	Detected data appear Gamma Distributed at 5% Significance Level											
43												
44	Gamma Statistics											
45	k hat (MLE)				2.252		k star (bias corrected MLE)				2.107	
46	Theta hat (MLE)				2.349		Theta star (bias corrected MLE)				2.511	
47	nu hat (MLE)				189.2		nu star (bias corrected)				177	
48	MLE Mean (bias corrected)				5.29		MLE Sd (bias corrected)				3.645	
49												
50	Background Statistics Assuming Gamma Distribution											
51	95% Wilson Hilferty (WH) Approx. Gamma UPL				12.49		90% Percentile				10.16	
52	95% Hawkins Wixley (HW) Approx. Gamma UPL				12.79		95% Percentile				12.34	
53	95% WH Approx. Gamma UTL with		95% Coverage		15.2		99% Percentile				17.17	
54	95% HW Approx. Gamma UTL with		95% Coverage		15.83							
55			95% WH USL		21.57		95% HW USL				23.29	
56												
57	Lognormal GOF Test											
58	Shapiro Wilk Test Statistic				0.934		Shapiro Wilk Lognormal GOF Test					
59	10% Shapiro Wilk Critical Value				0.951		Data Not Lognormal at 10% Significance Level					
60	Lilliefors Test Statistic				0.103		Lilliefors Lognormal GOF Test					
61	10% Lilliefors Critical Value				0.124		Data appear Lognormal at 10% Significance Level					
62	Data appear Approximate Lognormal at 10% Significance Level											
63												
64	Background Statistics assuming Lognormal Distribution											
65	95% UTL with		95% Coverage		19.1		90% Percentile (z)				10.54	
66			95% UPL (t)		14.29		95% Percentile (z)				13.71	
67			95% USL		33.68		99% Percentile (z)				22.44	
68												
69	Nonparametric Distribution Free Background Statistics											
70	Data appear Gamma Distributed at 5% Significance Level											
71												

	A	B	C	D	E	F	G	H	I	J	K	L	
72	Nonparametric Upper Limits for Background Threshold Values												
73	Order of Statistic, order					42	95% UTL with 95% Coverage					16.2	
74	Approx, f used to compute achieved CC					2.211	Approximate Actual Confidence Coefficient achieved by UTL					0.884	
75							Approximate Sample Size needed to achieve specified CC					59	
76	95% Percentile Bootstrap UTL with 95% Coverage					16.09	95% BCA Bootstrap UTL with 95% Coverage					16.09	
77	95% UPL					13.65	90% Percentile					11.09	
78	90% Chebyshev UPL					16.57	95% Percentile					12.19	
79	95% Chebyshev UPL					21.68	99% Percentile					15.26	
80	95% USL					16.2							
81													
82	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
83	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
84	and consists of observations collected from clean unimpacted locations.												
85	The use of USL tends to provide a balance between false positives and false negatives provided the data												
86	represents a background data set and when many onsite observations need to be compared with the BTV.												
87													
88	MA_As <14												
89													
90	General Statistics												
91	Total Number of Observations					41	Number of Distinct Observations					31	
92	Minimum					0.8	First Quartile					2.5	
93	Second Largest					12.2	Median					4	
94	Maximum					13.9	Third Quartile					6.5	
95	Mean					5.024	SD					3.333	
96	Coefficient of Variation					0.663	Skewness					1.094	
97	Mean of logged Data					1.395	SD of logged Data					0.7	
98													
99	Critical Values for Background Threshold Values (BTVs)												
100	Tolerance Factor K (For UTL)					2.11	d2max (for USL)					2.878	
101													
102	Normal GOF Test												
103	Shapiro Wilk Test Statistic					0.885	Shapiro Wilk GOF Test						
104	1% Shapiro Wilk Critical Value					0.92	Data Not Normal at 1% Significance Level						
105	Lilliefors Test Statistic					0.196	Lilliefors GOF Test						
106	1% Lilliefors Critical Value					0.16	Data Not Normal at 1% Significance Level						
107	Data Not Normal at 1% Significance Level												
108													
109	Background Statistics Assuming Normal Distribution												
110	95% UTL with 95% Coverage					12.06	90% Percentile (z)					9.296	
111	95% UPL (t)					10.71	95% Percentile (z)					10.51	
112	95% USL					14.62	99% Percentile (z)					12.78	
113													
114	Gamma GOF Test												
115	A-D Test Statistic					0.37	Anderson-Darling Gamma GOF Test						
116	5% A-D Critical Value					0.757	Detected data appear Gamma Distributed at 5% Significance Level						
117	K-S Test Statistic					0.12	Kolmogorov-Smirnov Gamma GOF Test						
118	5% K-S Critical Value					0.139	Detected data appear Gamma Distributed at 5% Significance Level						
119	Detected data appear Gamma Distributed at 5% Significance Level												
120													
121	Gamma Statistics												
122	k hat (MLE)					2.43	k star (bias corrected MLE)					2.268	
123	Theta hat (MLE)					2.068	Theta star (bias corrected MLE)					2.215	
124	nu hat (MLE)					199.2	nu star (bias corrected)					186	
125	MLE Mean (bias corrected)					5.024	MLE Sd (bias corrected)					3.336	
126													
127	Background Statistics Assuming Gamma Distribution												
128	95% Wilson Hilferty (WH) Approx. Gamma UPL					11.61	90% Percentile					9.49	
129	95% Hawkins Wixley (HW) Approx. Gamma UPL					11.89	95% Percentile					11.46	
130	95% WH Approx. Gamma UTL with 95% Coverage					14.08	99% Percentile					15.79	
131	95% HW Approx. Gamma UTL with 95% Coverage					14.66							
132	95% WH USL					19.65	95% HW USL					21.18	
133													
134	Lognormal GOF Test												
135	Shapiro Wilk Test Statistic					0.967	Shapiro Wilk Lognormal GOF Test						
136	10% Shapiro Wilk Critical Value					0.95	Data appear Lognormal at 10% Significance Level						
137	Lilliefors Test Statistic					0.111	Lilliefors Lognormal GOF Test						
138	10% Lilliefors Critical Value					0.126	Data appear Lognormal at 10% Significance Level						
139	Data appear Lognormal at 10% Significance Level												
140													
141	Background Statistics assuming Lognormal Distribution												
142	95% UTL with 95% Coverage					17.65	90% Percentile (z)					9.887	

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	A	B	C	D	E	F	G	H	I	J	K	L
143					95% UPL (t)	13.29				95% Percentile (z)		12.75
144					95% USL	30.2				99% Percentile (z)		20.54
145												
146					Nonparametric Distribution Free Background Statistics							
147					Data appear Gamma Distributed at 5% Significance Level							
148												
149					Nonparametric Upper Limits for Background Threshold Values							
150					Order of Statistic, order	41				95% UTL with 95% Coverage		13.9
151					Approx, f used to compute achieved CC	2.158				Approximate Actual Confidence Coefficient achieved by UTL		0.878
152										Approximate Sample Size needed to achieve specified CC		59
153					95% Percentile Bootstrap UTL with 95% Coverage	13.9				95% BCA Bootstrap UTL with 95% Coverage		12.2
154					95% UPL	12.17				90% Percentile		11
155					90% Chebyshev UPL	15.15				95% Percentile		11.9
156					95% Chebyshev UPL	19.73				99% Percentile		13.22
157					95% USL	13.9						
158												
159					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
160					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
161					and consists of observations collected from clean unimpacted locations.							
162					The use of USL tends to provide a balance between false positives and false negatives provided the data							
163					represents a background data set and when many onsite observations need to be compared with the BTV.							
164												
165	MA_As <9.4											
166												
167	General Statistics											
168					Total Number of Observations	36				Number of Distinct Observations		26
169					Minimum	0.8				First Quartile		2.5
170					Second Largest	8.5				Median		3.75
171					Maximum	9.3				Third Quartile		5.625
172					Mean	4.053				SD		2.14
173					Coefficient of Variation	0.528				Skewness		0.651
174					Mean of logged Data	1.243				SD of logged Data		0.605
175												
176					Critical Values for Background Threshold Values (BTVs)							
177					Tolerance Factor K (For UTL)	2.148				d2max (for USL)		2.824
178												
179					Normal GOF Test							
180					Shapiro Wilk Test Statistic	0.947				Shapiro Wilk GOF Test		
181					1% Shapiro Wilk Critical Value	0.912				Data appear Normal at 1% Significance Level		
182					Lilliefors Test Statistic	0.158				Lilliefors GOF Test		
183					1% Lilliefors Critical Value	0.17				Data appear Normal at 1% Significance Level		
184					Data appear Normal at 1% Significance Level							
185												
186					Background Statistics Assuming Normal Distribution							
187					95% UTL with 95% Coverage	8.651				90% Percentile (z)		6.796
188					95% UPL (t)	7.719				95% Percentile (z)		7.573
189					95% USL	10.1				99% Percentile (z)		9.032
190												
191					Gamma GOF Test							
192					A-D Test Statistic	0.298				Anderson-Darling Gamma GOF Test		
193					5% A-D Critical Value	0.753				Detected data appear Gamma Distributed at 5% Significance Level		
194					K-S Test Statistic	0.116				Kolmogorov-Smirnov Gamma GOF Test		
195					5% K-S Critical Value	0.148				Detected data appear Gamma Distributed at 5% Significance Level		
196					Detected data appear Gamma Distributed at 5% Significance Level							
197												
198					Gamma Statistics							
199					k hat (MLE)	3.364				k star (bias corrected MLE)		3.102
200					Theta hat (MLE)	1.205				Theta star (bias corrected MLE)		1.306
201					nu hat (MLE)	242.2				nu star (bias corrected)		223.4
202					MLE Mean (bias corrected)	4.053				MLE Sd (bias corrected)		2.301
203												
204					Background Statistics Assuming Gamma Distribution							
205					95% Wilson Hilferty (WH) Approx. Gamma UPL	8.552				90% Percentile		7.138
206					95% Hawkins Wixley (HW) Approx. Gamma UPL	8.769				95% Percentile		8.424
207					95% WH Approx. Gamma UTL with 95% Coverage	10.26				99% Percentile		11.21
208					95% HW Approx. Gamma UTL with 95% Coverage	10.68						
209					95% WH USL	13.33				95% HW USL		14.23
210												
211					Lognormal GOF Test							
212					Shapiro Wilk Test Statistic	0.948				Shapiro Wilk Lognormal GOF Test		
213					10% Shapiro Wilk Critical Value	0.945				Data appear Lognormal at 10% Significance Level		

	A	B	C	D	E	F	G	H	I	J	K	L	
214	Lilliefors Test Statistic					0.154	Lilliefors Lognormal GOF Test						
215	10% Lilliefors Critical Value					0.134	Data Not Lognormal at 10% Significance Level						
216	Data appear Approximate Lognormal at 10% Significance Level												
217													
218	Background Statistics assuming Lognormal Distribution												
219	95% UTL with		95% Coverage		12.71	90% Percentile (z)					7.526		
220			95% UPL (t)		9.769	95% Percentile (z)					9.375		
221			95% USL		19.12	99% Percentile (z)					14.16		
222													
223	Nonparametric Distribution Free Background Statistics												
224	Data appear Normal at 1% Significance Level												
225													
226	Nonparametric Upper Limits for Background Threshold Values												
227	Order of Statistic, order				36	95% UTL with				95% Coverage	9.3		
228	Approx, f used to compute achieved CC				1.895	Approximate Actual Confidence Coefficient achieved by UTL				0.842			
229						Approximate Sample Size needed to achieve specified CC				59			
230	95% Percentile Bootstrap UTL with		95% Coverage		9.3	95% BCA Bootstrap UTL with				95% Coverage	9.3		
231			95% UPL		8.62					90% Percentile	7.1		
232			90% Chebyshev UPL		10.56					95% Percentile	7.825		
233			95% Chebyshev UPL		13.51					99% Percentile	9.02		
234			95% USL		9.3								
235													
236	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
237	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
238	and consists of observations collected from clean unimpacted locations.												
239	The use of USL tends to provide a balance between false positives and false negatives provided the data												
240	represents a background data set and when many onsite observations need to be compared with the BTV.												
241													
242	MA_As <7												
243													
244	General Statistics												
245	Total Number of Observations				32	Number of Distinct Observations				22			
246	Minimum				0.8	First Quartile				2.45			
247	Second Largest				6.5	Median				3.55			
248	Maximum				6.9	Third Quartile				4.15			
249	Mean				3.538	SD				1.62			
250	Coefficient of Variation				0.458	Skewness				0.241			
251	Mean of logged Data				1.137	SD of logged Data				0.553			
252													
253	Critical Values for Background Threshold Values (BTVs)												
254	Tolerance Factor K (For UTL)				2.186	d2max (for USL)				2.773			
255													
256	Normal GOF Test												
257	Shapiro Wilk Test Statistic				0.96	Shapiro Wilk GOF Test							
258	1% Shapiro Wilk Critical Value				0.904	Data appear Normal at 1% Significance Level							
259	Lilliefors Test Statistic				0.114	Lilliefors GOF Test							
260	1% Lilliefors Critical Value				0.18	Data appear Normal at 1% Significance Level							
261	Data appear Normal at 1% Significance Level												
262													
263	Background Statistics Assuming Normal Distribution												
264	95% UTL with		95% Coverage		7.08	90% Percentile (z)					5.614		
265			95% UPL (t)		6.327	95% Percentile (z)					6.203		
266			95% USL		8.031	99% Percentile (z)					7.307		
267													
268	Gamma GOF Test												
269	A-D Test Statistic				0.505	Anderson-Darling Gamma GOF Test							
270	5% A-D Critical Value				0.75	Detected data appear Gamma Distributed at 5% Significance Level							
271	K-S Test Statistic				0.159	Kolmogorov-Smirnov Gamma GOF Test							
272	5% K-S Critical Value				0.156	Data Not Gamma Distributed at 5% Significance Level							
273	Detected data follow Appr. Gamma Distribution at 5% Significance Level												
274													
275	Gamma Statistics												
276	k hat (MLE)				4.109	k star (bias corrected MLE)				3.745			
277	Theta hat (MLE)				0.861	Theta star (bias corrected MLE)				0.945			
278	nu hat (MLE)				263	nu star (bias corrected)				239.7			
279	MLE Mean (bias corrected)				3.538	MLE Sd (bias corrected)				1.828			
280													
281	Background Statistics Assuming Gamma Distribution												
282	95% Wilson Hilferty (WH) Approx. Gamma UPL				7.092	90% Percentile					5.988		
283	95% Hawkins Wixley (HW) Approx. Gamma UPL				7.275	95% Percentile					6.979		
284	95% WH Approx. Gamma UTL with		95% Coverage		8.481	99% Percentile					9.102		

	A	B	C	D	E	F	G	H	I	J	K	L	
285	95% HW Approx. Gamma UTL with 95% Coverage					8.827							
286	95% WH USL					10.48						95% HW USL	11.13
287													
288	Lognormal GOF Test												
289	Shapiro Wilk Test Statistic					0.919	Shapiro Wilk Lognormal GOF Test						
290	10% Shapiro Wilk Critical Value					0.941	Data Not Lognormal at 10% Significance Level						
291	Lilliefors Test Statistic					0.187	Lilliefors Lognormal GOF Test						
292	10% Lilliefors Critical Value					0.142	Data Not Lognormal at 10% Significance Level						
293	Data Not Lognormal at 10% Significance Level												
294													
295	Background Statistics assuming Lognormal Distribution												
296	95% UTL with	95% Coverage	10.45						90% Percentile (z)	6.333			
297		95% UPL (t)	8.079						95% Percentile (z)	7.743			
298		95% USL	14.45						99% Percentile (z)	11.29			
299													
300	Nonparametric Distribution Free Background Statistics												
301	Data appear Normal at 1% Significance Level												
302													
303	Nonparametric Upper Limits for Background Threshold Values												
304	Order of Statistic, order					32	95% UTL with 95% Coverage					6.9	
305	Approx, f used to compute achieved CC					1.684	Approximate Actual Confidence Coefficient achieved by UTL					0.806	
306							Approximate Sample Size needed to achieve specified CC					59	
307	95% Percentile Bootstrap UTL with	95% Coverage	6.9	95% BCA Bootstrap UTL with 95% Coverage					6.9				
308		95% UPL	6.64						90% Percentile	5.7			
309		90% Chebyshev UPL	8.474						95% Percentile	6.115			
310		95% Chebyshev UPL	10.71						99% Percentile	6.776			
311		95% USL	6.9										
312													
313	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
314	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
315	and consists of observations collected from clean unimpacted locations.												
316	The use of USL tends to provide a balance between false positives and false negatives provided the data												
317	represents a background data set and when many onsite observations need to be compared with the BTV.												
318													
319	MA_Pb												
320													
321	General Statistics												
322	Total Number of Observations					42	Number of Distinct Observations					42	
323	Minimum					8.2	First Quartile					24.6	
324	Second Largest					219	Median					34.15	
325	Maximum					327	Third Quartile					64.48	
326	Mean					58.14	SD					62.6	
327	Coefficient of Variation					1.077	Skewness					2.771	
328	Mean of logged Data					3.707	SD of logged Data					0.8	
329													
330	Critical Values for Background Threshold Values (BTVs)												
331	Tolerance Factor K (For UTL)					2.104	d2max (for USL)					2.887	
332													
333	Normal GOF Test												
334	Shapiro Wilk Test Statistic					0.652	Shapiro Wilk GOF Test						
335	1% Shapiro Wilk Critical Value					0.922	Data Not Normal at 1% Significance Level						
336	Lilliefors Test Statistic					0.228	Lilliefors GOF Test						
337	1% Lilliefors Critical Value					0.157	Data Not Normal at 1% Significance Level						
338	Data Not Normal at 1% Significance Level												
339													
340	Background Statistics Assuming Normal Distribution												
341	95% UTL with	95% Coverage	189.8	90% Percentile (z)					138.4				
342		95% UPL (t)	164.7	95% Percentile (z)					161.1				
343		95% USL	238.9	99% Percentile (z)					203.8				
344													
345	Gamma GOF Test												
346	A-D Test Statistic					1.53	Anderson-Darling Gamma GOF Test						
347	5% A-D Critical Value					0.766	Data Not Gamma Distributed at 5% Significance Level						
348	K-S Test Statistic					0.193	Kolmogorov-Smirnov Gamma GOF Test						
349	5% K-S Critical Value					0.139	Data Not Gamma Distributed at 5% Significance Level						
350	Data Not Gamma Distributed at 5% Significance Level												
351													
352	Gamma Statistics												
353	k hat (MLE)					1.552	k star (bias corrected MLE)					1.457	
354	Theta hat (MLE)					37.46	Theta star (bias corrected MLE)					39.9	
355	nu hat (MLE)					130.4	nu star (bias corrected)					122.4	

	A	B	C	D	E	F	G	H	I	J	K	L
356	MLE Mean (bias corrected)					58.14	MLE Sd (bias corrected)					48.16
357												
358	Background Statistics Assuming Gamma Distribution											
359	95% Wilson Hilferty (WH) Approx. Gamma UPL					152.1	90% Percentile					122
360	95% Hawkins Wixley (HW) Approx. Gamma UPL					152.5	95% Percentile					152.9
361	95% WH Approx. Gamma UTL with 95% Coverage					190.6	99% Percentile					222.9
362	95% HW Approx. Gamma UTL with 95% Coverage					194.5						
363	95% WH USL					283.6	95% HW USL					301
364												
365	Lognormal GOF Test											
366	Shapiro Wilk Test Statistic					0.925	Shapiro Wilk Lognormal GOF Test					
367	10% Shapiro Wilk Critical Value					0.951	Data Not Lognormal at 10% Significance Level					
368	Lilliefors Test Statistic					0.145	Lilliefors Lognormal GOF Test					
369	10% Lilliefors Critical Value					0.124	Data Not Lognormal at 10% Significance Level					
370	Data Not Lognormal at 10% Significance Level											
371												
372	Background Statistics assuming Lognormal Distribution											
373	95% UTL with 95% Coverage					219.2	90% Percentile (z)					113.6
374	95% UPL (t)					159.1	95% Percentile (z)					151.9
375	95% USL					410.3	99% Percentile (z)					261.9
376												
377	Nonparametric Distribution Free Background Statistics											
378	Data do not follow a Discernible Distribution											
379												
380	Nonparametric Upper Limits for Background Threshold Values											
381	Order of Statistic, order					42	95% UTL with 95% Coverage					327
382	Approx, f used to compute achieved CC					2.211	Approximate Actual Confidence Coefficient achieved by UTL					0.884
383							Approximate Sample Size needed to achieve specified CC					59
384	95% Percentile Bootstrap UTL with 95% Coverage					321.6	95% BCA Bootstrap UTL with 95% Coverage					219
385	95% UPL					217.2	90% Percentile					107.3
386	90% Chebyshev UPL					248.2	95% Percentile					203.5
387	95% Chebyshev UPL					334.2	99% Percentile					282.7
388	95% USL					327						
389												
390	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
391	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
392	and consists of observations collected from clean unimpacted locations.											
393	The use of USL tends to provide a balance between false positives and false negatives provided the data											
394	represents a background data set and when many onsite observations need to be compared with the BTV.											
395												
396	MA_Pb <93											
397												
398	General Statistics											
399	Total Number of Observations					37	Number of Distinct Observations					37
400	Minimum					8.2	First Quartile					23.8
401	Second Largest					85.8	Median					32.7
402	Maximum					92.2	Third Quartile					59.2
403	Mean					39	SD					22.36
404	Coefficient of Variation					0.573	Skewness					0.855
405	Mean of logged Data					3.502	SD of logged Data					0.588
406												
407	Critical Values for Background Threshold Values (BTVs)											
408	Tolerance Factor K (For UTL)					2.14	d2max (for USL)					2.835
409												
410	Normal GOF Test											
411	Shapiro Wilk Test Statistic					0.892	Shapiro Wilk GOF Test					
412	1% Shapiro Wilk Critical Value					0.814	Data appear Normal at 1% Significance Level					
413	Lilliefors Test Statistic					0.218	Lilliefors GOF Test					
414	1% Lilliefors Critical Value					0.168	Data Not Normal at 1% Significance Level					
415	Data appear Approximate Normal at 1% Significance Level											
416												
417	Background Statistics Assuming Normal Distribution											
418	95% UTL with 95% Coverage					86.85	90% Percentile (z)					67.65
419	95% UPL (t)					77.25	95% Percentile (z)					75.77
420	95% USL					102.4	99% Percentile (z)					91.01
421												
422	Gamma GOF Test											
423	A-D Test Statistic					0.673	Anderson-Darling Gamma GOF Test					
424	5% A-D Critical Value					0.754	Detected data appear Gamma Distributed at 5% Significance Level					
425	K-S Test Statistic					0.148	Kolmogorov-Smirnov Gamma GOF Test					
426	5% K-S Critical Value					0.146	Data Not Gamma Distributed at 5% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L	
427	Detected data follow Appr. Gamma Distribution at 5% Significance Level												
428													
429	Gamma Statistics												
430	k hat (MLE)				3.26				k star (bias corrected MLE)				3.014
431	Theta hat (MLE)				11.96				Theta star (bias corrected MLE)				12.94
432	nu hat (MLE)				241.3				nu star (bias corrected)				223
433	MLE Mean (bias corrected)				39				MLE Sd (bias corrected)				22.46
434													
435	Background Statistics Assuming Gamma Distribution												
436	95% Wilson Hilferty (WH) Approx. Gamma UPL				82.87				90% Percentile				69.12
437	95% Hawkins Wixley (HW) Approx. Gamma UPL				84.31				95% Percentile				81.73
438	95% WH Approx. Gamma UTL with 95% Coverage				99.39				99% Percentile				109.1
439	95% HW Approx. Gamma UTL with 95% Coverage				102.5								
440	95% WH USL				130.6				95% HW USL				138
441													
442	Lognormal GOF Test												
443	Shapiro Wilk Test Statistic				0.965				Shapiro Wilk Lognormal GOF Test				
444	10% Shapiro Wilk Critical Value				0.946				Data appear Lognormal at 10% Significance Level				
445	Lilliefors Test Statistic				0.111				Lilliefors Lognormal GOF Test				
446	10% Lilliefors Critical Value				0.132				Data appear Lognormal at 10% Significance Level				
447	Data appear Lognormal at 10% Significance Level												
448													
449	Background Statistics assuming Lognormal Distribution												
450	95% UTL with 95% Coverage				116.7				90% Percentile (z)				70.48
451	95% UPL (t)				90.71				95% Percentile (z)				87.26
452	95% USL				175.6				99% Percentile (z)				130.2
453													
454	Nonparametric Distribution Free Background Statistics												
455	Data appear Approximate Normal at 1% Significance Level												
456													
457	Nonparametric Upper Limits for Background Threshold Values												
458	Order of Statistic, order				37				95% UTL with 95% Coverage				92.2
459	Approx, f used to compute achieved CC				1.947				Approximate Actual Confidence Coefficient achieved by UTL				0.85
460									Approximate Sample Size needed to achieve specified CC				59
461	95% Percentile Bootstrap UTL with 95% Coverage				92.2				95% BCA Bootstrap UTL with 95% Coverage				92.2
462	95% UPL				86.44				90% Percentile				73.28
463	90% Chebyshev UPL				107				95% Percentile				78.28
464	95% Chebyshev UPL				137.8				99% Percentile				89.9
465	95% USL				92.2								
466													
467	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
468	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
469	and consists of observations collected from clean unimpacted locations.												
470	The use of USL tends to provide a balance between false positives and false negatives provided the data												
471	represents a background data set and when many onsite observations need to be compared with the BTV.												
472													
473	MA_Pb <65												
474	See Rerun - This did not correctly censor and is struck through for that reason												
475	General Statistics												
476	Total Number of Observations				41				Number of Distinct Observations				41
477	Minimum				8.2				First Quartile				24.2
478	Second Largest				207				Median				34.1
479	Maximum				219				Third Quartile				63.2
480	Mean				51.58				SD				46.54
481	Coefficient of Variation				0.902				Skewness				2.303
482	Mean of logged Data				3.657				SD of logged Data				0.738
483													
484	Critical Values for Background Threshold Values (BTVs)												
485	Tolerance Factor K (For UTL)				2.11				d2max (for USL)				2.878
486													
487	Normal GOF Test												
488	Shapiro Wilk Test Statistic				0.732				Shapiro Wilk GOF Test				
489	1% Shapiro Wilk Critical Value				0.92				Data Not Normal at 1% Significance Level				
490	Lilliefors Test Statistic				0.234				Lilliefors GOF Test				
491	1% Lilliefors Critical Value				0.16				Data Not Normal at 1% Significance Level				
492	Data Not Normal at 1% Significance Level												
493													
494	Background Statistics Assuming Normal Distribution												
495	95% UTL with 95% Coverage				149.8				90% Percentile (z)				111.2
496	95% UPL (t)				130.9				95% Percentile (z)				128.1
497	95% USL				185.5				99% Percentile (z)				159.8

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.2 2/24/2024 3:56:45 PM								
4	From File			D:\Tramm\BACKGROUND EVAL\2013 USGS National Review\USGS_2013_Compiled_State_Data_Sorted.xls								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	MA_Pb <65											
12												
13	General Statistics											
14	Total Number of Observations				32		Number of Distinct Observations				32	
15	Minimum				8.2		First Quartile				22.8	
16	Second Largest				63.2		Median				28.4	
17	Maximum				64.9		Third Quartile				35.55	
18	Mean				32.53		SD				15.89	
19	Coefficient of Variation				0.488		Skewness				0.824	
20	Mean of logged Data				3.365		SD of logged Data				0.505	
21												
22	Critical Values for Background Threshold Values (BTVs)											
23	Tolerance Factor K (For UTL)				2.186		d2max (for USL)				2.773	
24												
25	Normal GOF Test											
26	Shapiro Wilk Test Statistic				0.895		Shapiro Wilk GOF Test					
27	1% Shapiro Wilk Critical Value				0.904		Data Not Normal at 1% Significance Level					
28	Lilliefors Test Statistic				0.186		Lilliefors GOF Test					
29	1% Lilliefors Critical Value				0.18		Data Not Normal at 1% Significance Level					
30	Data Not Normal at 1% Significance Level											
31												
32	Background Statistics Assuming Normal Distribution											
33	95% UTL with		95% Coverage		67.26		90% Percentile (z)				52.89	
34			95% UPL (t)		59.89		95% Percentile (z)				58.66	
35			95% USL		76.59		99% Percentile (z)				69.49	
36												
37	Gamma GOF Test											
38	A-D Test Statistic				0.504		Anderson-Darling Gamma GOF Test					
39	5% A-D Critical Value				0.75		Detected data appear Gamma Distributed at 5% Significance Level					
40	K-S Test Statistic				0.125		Kolmogorov-Smirnov Gamma GOF Test					
41	5% K-S Critical Value				0.156		Detected data appear Gamma Distributed at 5% Significance Level					
42	Detected data appear Gamma Distributed at 5% Significance Level											
43												
44	Gamma Statistics											
45	k hat (MLE)				4.418		k star (bias corrected MLE)				4.025	
46	Theta hat (MLE)				7.364		Theta star (bias corrected MLE)				8.084	
47	nu hat (MLE)				282.8		nu star (bias corrected)				257.6	
48	MLE Mean (bias corrected)				32.53		MLE Sd (bias corrected)				16.22	
49												
50	Background Statistics Assuming Gamma Distribution											
51	95% Wilson Hilferty (WH) Approx. Gamma UPL				63.85		90% Percentile				54.27	
52	95% Hawkins Wixley (HW) Approx. Gamma UPL				64.82		95% Percentile				62.96	
53	95% WH Approx. Gamma UTL with		95% Coverage		75.99		99% Percentile				81.52	
54	95% HW Approx. Gamma UTL with		95% Coverage		78.07							
55			95% WH USL		93.42		95% HW USL				97.61	
56												
57	Lognormal GOF Test											
58	Shapiro Wilk Test Statistic				0.959		Shapiro Wilk Lognormal GOF Test					
59	10% Shapiro Wilk Critical Value				0.941		Data appear Lognormal at 10% Significance Level					
60	Lilliefors Test Statistic				0.109		Lilliefors Lognormal GOF Test					
61	10% Lilliefors Critical Value				0.142		Data appear Lognormal at 10% Significance Level					
62	Data appear Lognormal at 10% Significance Level											
63												
64	Background Statistics assuming Lognormal Distribution											
65	95% UTL with		95% Coverage		87.3		90% Percentile (z)				55.27	
66			95% UPL (t)		69.04		95% Percentile (z)				66.41	
67			95% USL		117.4		99% Percentile (z)				93.7	
68												
69	Nonparametric Distribution Free Background Statistics											
70	Data appear Gamma Distributed at 5% Significance Level											
71												

	A	B	C	D	E	F	G	H	I	J	K	L	
72	Nonparametric Upper Limits for Background Threshold Values												
73	Order of Statistic, order					32	95% UTL with 95% Coverage					64.9	
74	Approx, f used to compute achieved CC					1.684	Approximate Actual Confidence Coefficient achieved by UTL					0.806	
75							Approximate Sample Size needed to achieve specified CC					59	
76	95% Percentile Bootstrap UTL with 95% Coverage					64.9	95% BCA Bootstrap UTL with 95% Coverage					63.97	
77	95% UPL					63.8	90% Percentile					61.72	
78	90% Chebyshev UPL					80.93	95% Percentile					62.76	
79	95% Chebyshev UPL					102.9	99% Percentile					64.37	
80	95% USL					64.9							
81													
82	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
83	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
84	and consists of observations collected from clean unimpacted locations.												
85	The use of USL tends to provide a balance between false positives and false negatives provided the data												
86	represents a background data set and when many onsite observations need to be compared with the BTV.												
87													

	A	B	C	D	E	F	G	H	I	J	K	L	
498													
499	Gamma GOF Test												
500	A-D Test Statistic					1.105	Anderson-Darling Gamma GOF Test						
501	5% A-D Critical Value					0.761	Data Not Gamma Distributed at 5% Significance Level						
502	K-S Test Statistic					0.184	Kolmogorov-Smirnov Gamma GOF Test						
503	5% K-S Critical Value					0.14	Data Not Gamma Distributed at 5% Significance Level						
504	Data Not Gamma Distributed at 5% Significance Level												
505													
506	Gamma Statistics												
507	k hat (MLE)					1.894	k star (bias corrected MLE)					1.772	
508	Theta hat (MLE)					27.23	Theta star (bias corrected MLE)					29.11	
509	nu hat (MLE)					155.3	nu star (bias corrected)					145.3	
510	MLE Mean (bias corrected)					51.58	MLE Sd (bias corrected)					38.75	
511													
512	Background Statistics Assuming Gamma Distribution												
513	95% Wilson Hilferty (WH) Approx. Gamma UPL					127.7	90% Percentile					103.2	
514	95% Hawkins Wixley (HW) Approx. Gamma UPL					128.8	95% Percentile					127.2	
515	95% WH Approx. Gamma UTL with 95% Coverage					157.8	99% Percentile					180.7	
516	95% HW Approx. Gamma UTL with 95% Coverage					161.8							
517	95% WH USL					227.1	95% HW USL					241.2	
518													
519	Lognormal GOF Test												
520	Shapiro Wilk Test Statistic					0.971	Shapiro Wilk Lognormal GOF Test						
521	10% Shapiro Wilk Critical Value					0.95	Data appear Lognormal at 10% Significance Level						
522	Lilliefors Test Statistic					0.138	Lilliefors Lognormal GOF Test						
523	10% Lilliefors Critical Value					0.126	Data Not Lognormal at 10% Significance Level						
524	Data appear Approximate Lognormal at 10% Significance Level												
525													
526	Background Statistics assuming Lognormal Distribution												
527	95% UTL with 95% Coverage					183.8	90% Percentile (z)					99.73	
528						95% UPL (t)	136.2	95% Percentile (z)					130.4
529						95% USL	323.9	99% Percentile (z)					215.6
530													
531	Nonparametric Distribution Free Background Statistics												
532	Data appear Approximate Lognormal at 10% Significance Level												
533													
534	Nonparametric Upper Limits for Background Threshold Values												
535	Order of Statistic, order					41	95% UTL with 95% Coverage					219	
536	Approx, f used to compute achieved CC					2.158	Approximate Actual Confidence Coefficient achieved by UTL					0.878	
537							Approximate Sample Size needed to achieve specified CC					59	
538	95% Percentile Bootstrap UTL with 95% Coverage					219	95% BCA Bootstrap UTL with 95% Coverage					207	
539						95% UPL	200	90% Percentile					92.2
540						90% Chebyshev UPL	192.9	95% Percentile					137
541						95% Chebyshev UPL	256.9	99% Percentile					214.2
542						95% USL	219						
543													
544	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
545	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
546	and consists of observations collected from clean unimpacted locations.												
547	The use of USL tends to provide a balance between false positives and false negatives provided the data												
548	represents a background data set and when many onsite observations need to be compared with the BTV.												
549													
550	MA_Pb <45												
551													
552	General Statistics												
553	Total Number of Observations					26	Number of Distinct Observations					26	
554	Minimum					8.2	First Quartile					22.13	
555	Second Largest					36.9	Median					26.45	
556	Maximum					44.3	Third Quartile					32.85	
557	Mean					26.03	SD					8.629	
558	Coefficient of Variation					0.331	Skewness					-0.173	
559	Mean of logged Data					3.194	SD of logged Data					0.392	
560													
561	Critical Values for Background Threshold Values (BTVs)												
562	Tolerance Factor K (For UTL)					2.275	d2max (for USL)					2.681	
563													
564	Normal GOF Test												
565	Shapiro Wilk Test Statistic					0.98	Shapiro Wilk GOF Test						
566	1% Shapiro Wilk Critical Value					0.891	Data appear Normal at 1% Significance Level						
567	Lilliefors Test Statistic					0.0936	Lilliefors GOF Test						
568	1% Lilliefors Critical Value					0.199	Data appear Normal at 1% Significance Level						

	A	B	C	D	E	F	G	H	I	J	K	L
569	Data appear Normal at 1% Significance Level											
570												
571	Background Statistics Assuming Normal Distribution											
572	95% UTL with	95% Coverage	45.66						90% Percentile (z)		37.09	
573		95% UPL (t)	41.05						95% Percentile (z)		40.22	
574		95% USL	49.16						99% Percentile (z)		46.11	
575												
576	Gamma GOF Test											
577	A-D Test Statistic	0.537					Anderson-Darling Gamma GOF Test					
578	5% A-D Critical Value	0.745					Detected data appear Gamma Distributed at 5% Significance Level					
579	K-S Test Statistic	0.141					Kolmogorov-Smirnov Gamma GOF Test					
580	5% K-S Critical Value	0.171					Detected data appear Gamma Distributed at 5% Significance Level					
581	Detected data appear Gamma Distributed at 5% Significance Level											
582												
583	Gamma Statistics											
584	k hat (MLE)	7.861							k star (bias corrected MLE)		6.98	
585	Theta hat (MLE)	3.311							Theta star (bias corrected MLE)		3.729	
586	nu hat (MLE)	408.8							nu star (bias corrected)		362.9	
587	MLE Mean (bias corrected)	26.03							MLE Sd (bias corrected)		9.853	
588												
589	Background Statistics Assuming Gamma Distribution											
590	95% Wilson Hilferty (WH) Approx. Gamma UPL	44.66							90% Percentile		39.18	
591	95% Hawkins Wixley (HW) Approx. Gamma UPL	45.39							95% Percentile		44.07	
592	95% WH Approx. Gamma UTL with	95% Coverage	52.3						99% Percentile		54.23	
593	95% HW Approx. Gamma UTL with	95% Coverage	53.71									
594		95% WH USL	58.65						95% HW USL		60.76	
595												
596	Lognormal GOF Test											
597	Shapiro Wilk Test Statistic	0.917					Shapiro Wilk Lognormal GOF Test					
598	10% Shapiro Wilk Critical Value	0.933					Data Not Lognormal at 10% Significance Level					
599	Lilliefors Test Statistic	0.17					Lilliefors Lognormal GOF Test					
600	10% Lilliefors Critical Value	0.156					Data Not Lognormal at 10% Significance Level					
601	Data Not Lognormal at 10% Significance Level											
602												
603	Background Statistics assuming Lognormal Distribution											
604	95% UTL with	95% Coverage	59.57						90% Percentile (z)		40.34	
605		95% UPL (t)	48.3						95% Percentile (z)		46.52	
606		95% USL	69.85						99% Percentile (z)		60.78	
607												
608	Nonparametric Distribution Free Background Statistics											
609	Data appear Normal at 1% Significance Level											
610												
611	Nonparametric Upper Limits for Background Threshold Values											
612	Order of Statistic, order	26							95% UTL with	95% Coverage	44.3	
613	Approx, f used to compute achieved CC	1.368					Approximate Actual Confidence Coefficient achieved by UTL				0.736	
614							Approximate Sample Size needed to achieve specified CC				59	
615	95% Percentile Bootstrap UTL with	95% Coverage	44.3						95% BCA Bootstrap UTL with	95% Coverage	42.45	
616		95% UPL	41.71						90% Percentile		34.85	
617		90% Chebyshev UPL	52.41						95% Percentile		36.45	
618		95% Chebyshev UPL	64.36						99% Percentile		42.45	
619		95% USL	44.3									
620												
621	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
622	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
623	and consists of observations collected from clean unimpacted locations.											
624	The use of USL tends to provide a balance between false positives and false negatives provided the data											
625	represents a background data set and when many onsite observations need to be compared with the BTV.											
626												
627	MD_As											
628												
629	General Statistics											
630	Total Number of Observations	52							Number of Distinct Observations		41	
631	Minimum	0.8							First Quartile		3.675	
632	Second Largest	15.7							Median		5.55	
633	Maximum	29.3							Third Quartile		9	
634	Mean	6.76							SD		4.855	
635	Coefficient of Variation	0.718							Skewness		2.232	
636	Mean of logged Data	1.688							SD of logged Data		0.695	
637												
638	Critical Values for Background Threshold Values (BTVs)											
639	Tolerance Factor K (For UTL)	2.049							d2max (for USL)		2.972	

	A	B	C	D	E	F	G	H	I	J	K	L
640												
641	Normal GOF Test											
642	Shapiro Wilk Test Statistic					0.833	Normal GOF Test					
643	1% Shapiro Wilk P Value					1.1939E-7	Data Not Normal at 1% Significance Level					
644	Lilliefors Test Statistic					0.131	Lilliefors GOF Test					
645	1% Lilliefors Critical Value					0.141	Data appear Normal at 1% Significance Level					
646	Data appear Approximate Normal at 1% Significance Level											
647												
648	Background Statistics Assuming Normal Distribution											
649	95% UTL with	95% Coverage		16.71	90% Percentile (z)							12.98
650		95% UPL (t)		14.97	95% Percentile (z)							14.75
651		95% USL		21.19	99% Percentile (z)							18.05
652												
653	Gamma GOF Test											
654	A-D Test Statistic					0.206	Anderson-Darling Gamma GOF Test					
655	5% A-D Critical Value					0.761	Detected data appear Gamma Distributed at 5% Significance Level					
656	K-S Test Statistic					0.0613	Kolmogorov-Smirnov Gamma GOF Test					
657	5% K-S Critical Value					0.124	Detected data appear Gamma Distributed at 5% Significance Level					
658	Detected data appear Gamma Distributed at 5% Significance Level											
659												
660	Gamma Statistics											
661	k hat (MLE)					2.401	k star (bias corrected MLE)					2.275
662	Theta hat (MLE)					2.816	Theta star (bias corrected MLE)					2.971
663	nu hat (MLE)					249.7	nu star (bias corrected)					236.6
664	MLE Mean (bias corrected)					6.76	MLE Sd (bias corrected)					4.482
665												
666	Background Statistics Assuming Gamma Distribution											
667	95% Wilson Hiferty (WH) Approx.	Gamma UPL		15.49	90% Percentile							12.76
668	95% Hawkins Wixley (HW) Approx.	Gamma UPL		15.81	95% Percentile							15.4
669	95% WH Approx.	Gamma UTL with	95% Coverage	18.38	99% Percentile							21.22
670	95% HW Approx.	Gamma UTL with	95% Coverage	19.03								
671		95% WH USL		27.45	95% HW USL							29.59
672												
673	Lognormal GOF Test											
674	Shapiro Wilk Test Statistic					0.988	Shapiro Wilk Lognormal GOF Test					
675	10% Shapiro Wilk P Value					0.955	Data appear Lognormal at 10% Significance Level					
676	Lilliefors Test Statistic					0.0735	Lilliefors Lognormal GOF Test					
677	10% Lilliefors Critical Value					0.112	Data appear Lognormal at 10% Significance Level					
678	Data appear Lognormal at 10% Significance Level											
679												
680	Background Statistics assuming Lognormal Distribution											
681	95% UTL with	95% Coverage		22.49	90% Percentile (z)							13.19
682		95% UPL (t)		17.54	95% Percentile (z)							16.98
683		95% USL		42.73	99% Percentile (z)							27.27
684												
685	Nonparametric Distribution Free Background Statistics											
686	Data appear Approximate Normal at 1% Significance Level											
687												
688	Nonparametric Upper Limits for Background Threshold Values											
689	Order of Statistic, order					52	95% UTL with 95% Coverage					29.3
690	Approx, f used to compute achieved CC					2.737	Approximate Actual Confidence Coefficient achieved by UTL					0.931
691							Approximate Sample Size needed to achieve specified CC					59
692	95% Percentile Bootstrap UTL with	95% Coverage		21.82	95% BCA Bootstrap UTL with 95% Coverage					21.49		
693		95% UPL		15.31	90% Percentile					12.02		
694		90% Chebyshev UPL		21.47	95% Percentile					14.66		
695		95% Chebyshev UPL		28.13	99% Percentile					22.36		
696		95% USL		29.3								
697												
698	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
699	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
700	and consists of observations collected from clean unimpacted locations.											
701	The use of USL tends to provide a balance between false positives and false negatives provided the data											
702	represents a background data set and when many onsite observations need to be compared with the BTV.											
703												
704	MD_As <16											
705												
706	General Statistics											
707	Total Number of Observations					51	Number of Distinct Observations					40
708	Minimum					0.8	First Quartile					3.65
709	Second Largest					15.1	Median					5.5
710	Maximum					15.7	Third Quartile					8.95

	A	B	C	D	E	F	G	H	I	J	K	L	
711					Mean	6.318					SD	3.699	
712					Coefficient of Variation	0.586					Skewness	0.818	
713					Mean of logged Data	1.655					SD of logged Data	0.659	
714													
715					Critical Values for Background Threshold Values (BTVs)								
716					Tolerance Factor K (For UTL)	2.054					d2max (for USL)	2.965	
717													
718					Normal GOF Test								
719					Shapiro Wilk Test Statistic	0.928					Normal GOF Test		
720					1% Shapiro Wilk P Value	0.00479					Data Not Normal at 1% Significance Level		
721					Lilliefors Test Statistic	0.115					Lilliefors GOF Test		
722					1% Lilliefors Critical Value	0.143					Data appear Normal at 1% Significance Level		
723					Data appear Approximate Normal at 1% Significance Level								
724													
725					Background Statistics Assuming Normal Distribution								
726					95% UTL with	95% Coverage	13.92				90% Percentile (z)	11.06	
727						95% UPL (t)	12.58				95% Percentile (z)	12.4	
728						95% USL	17.29				99% Percentile (z)	14.92	
729													
730					Gamma GOF Test								
731					A-D Test Statistic	0.169					Anderson-Darling Gamma GOF Test		
732					5% A-D Critical Value	0.758					Detected data appear Gamma Distributed at 5% Significance Level		
733					K-S Test Statistic	0.0638					Kolmogorov-Smirnov Gamma GOF Test		
734					5% K-S Critical Value	0.125					Detected data appear Gamma Distributed at 5% Significance Level		
735					Detected data appear Gamma Distributed at 5% Significance Level								
736													
737					Gamma Statistics								
738					k hat (MLE)	2.815					k star (bias corrected MLE)	2.663	
739					Theta hat (MLE)	2.244					Theta star (bias corrected MLE)	2.373	
740					nu hat (MLE)	287.1					nu star (bias corrected)	271.6	
741					MLE Mean (bias corrected)	6.318					MLE Sd (bias corrected)	3.872	
742													
743					Background Statistics Assuming Gamma Distribution								
744					95% Wilson Hilferty (WH) Approx. Gamma UPL	13.87					90% Percentile	11.51	
745					95% Hawkins Wixley (HW) Approx. Gamma UPL	14.23					95% Percentile	13.73	
746					95% WH Approx. Gamma UTL with	95% Coverage	16.32				99% Percentile	18.57	
747					95% HW Approx. Gamma UTL with	95% Coverage	16.98						
748						95% WH USL	23.73				95% HW USL	25.66	
749													
750					Lognormal GOF Test								
751					Shapiro Wilk Test Statistic	0.966					Shapiro Wilk Lognormal GOF Test		
752					10% Shapiro Wilk P Value	0.265					Data appear Lognormal at 10% Significance Level		
753					Lilliefors Test Statistic	0.0821					Lilliefors Lognormal GOF Test		
754					10% Lilliefors Critical Value	0.113					Data appear Lognormal at 10% Significance Level		
755					Data appear Lognormal at 10% Significance Level								
756													
757					Background Statistics assuming Lognormal Distribution								
758					95% UTL with	95% Coverage	20.28				90% Percentile (z)	12.19	
759						95% UPL (t)	15.98				95% Percentile (z)	15.49	
760						95% USL	36.98				99% Percentile (z)	24.28	
761													
762					Nonparametric Distribution Free Background Statistics								
763					Data appear Approximate Normal at 1% Significance Level								
764													
765					Nonparametric Upper Limits for Background Threshold Values								
766					Order of Statistic, order	51					95% UTL with	95% Coverage	15.7
767					Approx, f used to compute achieved CC	2.684					Approximate Actual Confidence Coefficient achieved by UTL		0.927
768											Approximate Sample Size needed to achieve specified CC		59
769					95% Percentile Bootstrap UTL with	95% Coverage	15.4				95% BCA Bootstrap UTL with	95% Coverage	15.4
770						95% UPL	14.62					90% Percentile	10.4
771						90% Chebyshev UPL	17.52					95% Percentile	14.1
772						95% Chebyshev UPL	22.6					99% Percentile	15.4
773						95% USL	15.7						
774													
775					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.								
776					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers								
777					and consists of observations collected from clean unimpacted locations.								
778					The use of USL tends to provide a balance between false positives and false negatives provided the data								
779					represents a background data set and when many onsite observations need to be compared with the BTV.								
780													
781					MD As <10								

	A	B	C	D	E	F	G	H	I	J	K	L
782												
783	General Statistics											
784	Total Number of Observations					44	Number of Distinct Observations					33
785	Minimum					0.8	First Quartile					3.425
786	Second Largest					9.8	Median					5.1
787	Maximum					9.8	Third Quartile					6.9
788	Mean					5.239	SD					2.557
789	Coefficient of Variation					0.488	Skewness					0.264
790	Mean of logged Data					1.512	SD of logged Data					0.589
791												
792	Critical Values for Background Threshold Values (BTVs)											
793	Tolerance Factor K (For UTL)					2.091	d2max (for USL)					2.906
794												
795	Normal GOF Test											
796	Shapiro Wilk Test Statistic					0.947	Shapiro Wilk GOF Test					
797	1% Shapiro Wilk Critical Value					0.924	Data appear Normal at 1% Significance Level					
798	Lilliefors Test Statistic					0.0995	Lilliefors GOF Test					
799	1% Lilliefors Critical Value					0.154	Data appear Normal at 1% Significance Level					
800	Data appear Normal at 1% Significance Level											
801												
802	Background Statistics Assuming Normal Distribution											
803	95% UTL with	95% Coverage	10.58						90% Percentile (z)	8.515		
804		95% UPL (t)	9.585						95% Percentile (z)	9.444		
805		95% USL	12.67						99% Percentile (z)	11.19		
806												
807	Gamma GOF Test											
808	A-D Test Statistic					0.36	Anderson-Darling Gamma GOF Test					
809	5% A-D Critical Value					0.754	Detected data appear Gamma Distributed at 5% Significance Level					
810	K-S Test Statistic					0.081	Kolmogorov-Smirnov Gamma GOF Test					
811	5% K-S Critical Value					0.134	Detected data appear Gamma Distributed at 5% Significance Level					
812	Detected data appear Gamma Distributed at 5% Significance Level											
813												
814	Gamma Statistics											
815	k hat (MLE)					3.617	k star (bias corrected MLE)					3.386
816	Theta hat (MLE)					1.448	Theta star (bias corrected MLE)					1.547
817	nu hat (MLE)					318.3	nu star (bias corrected)					297.9
818	MLE Mean (bias corrected)					5.239	MLE Sd (bias corrected)					2.847
819												
820	Background Statistics Assuming Gamma Distribution											
821	95% Wilson Hilferty (WH) Approx. Gamma UPL	10.75						90% Percentile	9.056			
822	95% Hawkins Wixley (HW) Approx. Gamma UPL	11.04						95% Percentile	10.62			
823	95% WH Approx. Gamma UTL with	95% Coverage	12.61						99% Percentile	14		
824	95% HW Approx. Gamma UTL with	95% Coverage	13.12									
825		95% WH USL	17.13						95% HW USL	18.37		
826												
827	Lognormal GOF Test											
828	Shapiro Wilk Test Statistic					0.934	Shapiro Wilk Lognormal GOF Test					
829	10% Shapiro Wilk Critical Value					0.952	Data Not Lognormal at 10% Significance Level					
830	Lilliefors Test Statistic					0.115	Lilliefors Lognormal GOF Test					
831	10% Lilliefors Critical Value					0.122	Data appear Lognormal at 10% Significance Level					
832	Data appear Approximate Lognormal at 10% Significance Level											
833												
834	Background Statistics assuming Lognormal Distribution											
835	95% UTL with	95% Coverage	15.54						90% Percentile (z)	9.645		
836		95% UPL (t)	12.34						95% Percentile (z)	11.95		
837		95% USL	25.12						99% Percentile (z)	17.85		
838												
839	Nonparametric Distribution Free Background Statistics											
840	Data appear Normal at 1% Significance Level											
841												
842	Nonparametric Upper Limits for Background Threshold Values											
843	Order of Statistic, order					44	95% UTL with 95% Coverage					9.8
844	Approx, f used to compute achieved CC					2.316	Approximate Actual Confidence Coefficient achieved by UTL					0.895
845							Approximate Sample Size needed to achieve specified CC					59
846	95% Percentile Bootstrap UTL with	95% Coverage	9.8	95% BCA Bootstrap UTL with					95% Coverage	9.8		
847		95% UPL	9.75						90% Percentile	9		
848		90% Chebyshev UPL	13						95% Percentile	9.555		
849		95% Chebyshev UPL	16.51						99% Percentile	9.8		
850		95% USL	9.8									
851												
852	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											

	A	B	C	D	E	F	G	H	I	J	K	L
853	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
854	and consists of observations collected from clean unimpacted locations.											
855	The use of USL tends to provide a balance between false positives and false negatives provided the data											
856	represents a background data set and when many onsite observations need to be compared with the BTV.											
857												
858	MD_As <9											
859												
860	General Statistics											
861	Total Number of Observations					38	Number of Distinct Observations					29
862	Minimum					0.8	First Quartile					2.9
863	Second Largest					8.3	Median					4.7
864	Maximum					8.9	Third Quartile					5.85
865	Mean					4.579	SD					2.074
866	Coefficient of Variation					0.453	Skewness					0.193
867	Mean of logged Data					1.396	SD of logged Data					0.55
868												
869	Critical Values for Background Threshold Values (BTVs)											
870	Tolerance Factor K (For UTL)					2.132	d2max (for USL)					2.846
871												
872	Normal GOF Test											
873	Shapiro Wilk Test Statistic					0.974	Shapiro Wilk GOF Test					
874	1% Shapiro Wilk Critical Value					0.916	Data appear Normal at 1% Significance Level					
875	Lilliefors Test Statistic					0.0938	Lilliefors GOF Test					
876	1% Lilliefors Critical Value					0.165	Data appear Normal at 1% Significance Level					
877	Data appear Normal at 1% Significance Level											
878												
879	Background Statistics Assuming Normal Distribution											
880	95% UTL with		95% Coverage		9.001	90% Percentile (z)					7.237	
881			95% UPL (t)		8.124	95% Percentile (z)					7.99	
882			95% USL		10.48	99% Percentile (z)					9.404	
883												
884	Gamma GOF Test											
885	A-D Test Statistic					0.352	Anderson-Darling Gamma GOF Test					
886	5% A-D Critical Value					0.752	Detected data appear Gamma Distributed at 5% Significance Level					
887	K-S Test Statistic					0.112	Kolmogorov-Smirnov Gamma GOF Test					
888	5% K-S Critical Value					0.144	Detected data appear Gamma Distributed at 5% Significance Level					
889	Detected data appear Gamma Distributed at 5% Significance Level											
890												
891	Gamma Statistics											
892	k hat (MLE)					4.151	k star (bias corrected MLE)					3.841
893	Theta hat (MLE)					1.103	Theta star (bias corrected MLE)					1.192
894	nu hat (MLE)					315.5	nu star (bias corrected)					291.9
895	MLE Mean (bias corrected)					4.579	MLE Sd (bias corrected)					2.337
896												
897	Background Statistics Assuming Gamma Distribution											
898	95% Wilson Hilferty (WH) Approx. Gamma UPL					9.092	90% Percentile					7.711
899	95% Hawkins Wixley (HW) Approx. Gamma UPL					9.323	95% Percentile					8.973
900	95% WH Approx. Gamma UTL with		95% Coverage		10.7	99% Percentile					11.67	
901	95% HW Approx. Gamma UTL with		95% Coverage		11.11							
902			95% WH USL		13.82	95% HW USL					14.71	
903												
904	Lognormal GOF Test											
905	Shapiro Wilk Test Statistic					0.935	Shapiro Wilk Lognormal GOF Test					
906	10% Shapiro Wilk Critical Value					0.947	Data Not Lognormal at 10% Significance Level					
907	Lilliefors Test Statistic					0.135	Lilliefors Lognormal GOF Test					
908	10% Lilliefors Critical Value					0.13	Data Not Lognormal at 10% Significance Level					
909	Data Not Lognormal at 10% Significance Level											
910												
911	Background Statistics assuming Lognormal Distribution											
912	95% UTL with		95% Coverage		13.06	90% Percentile (z)					8.179	
913			95% UPL (t)		10.35	95% Percentile (z)					9.989	
914			95% USL		19.35	99% Percentile (z)					14.54	
915												
916	Nonparametric Distribution Free Background Statistics											
917	Data appear Normal at 1% Significance Level											
918												
919	Nonparametric Upper Limits for Background Threshold Values											
920	Order of Statistic, order					38	95% UTL with 95% Coverage					8.9
921	Approx, f used to compute achieved CC					2	Approximate Actual Confidence Coefficient achieved by UTL					0.858
922							Approximate Sample Size needed to achieve specified CC					59
923	95% Percentile Bootstrap UTL with		95% Coverage		8.9	95% BCA Bootstrap UTL with 95% Coverage					8.9	

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	A	B	C	D	E	F	G	H	I	J	K	L
924					95% UPL	8.33					90% Percentile	7.35
925					90% Chebyshev UPL	10.88					95% Percentile	8.13
926					95% Chebyshev UPL	13.74					99% Percentile	8.678
927					95% USL	8.9						
928												
929					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
930					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
931					and consists of observations collected from clean unimpacted locations.							
932					The use of USL tends to provide a balance between false positives and false negatives provided the data							
933					represents a background data set and when many onsite observations need to be compared with the BTV.							
934												
935	MD_Pb											
936												
937	General Statistics											
938					Total Number of Observations	52				Number of Distinct Observations	47	
939					Minimum	4.7				First Quartile	15.1	
940					Second Largest	150				Median	21.1	
941					Maximum	164				Third Quartile	36.45	
942					Mean	32.53				SD	33.26	
943					Coefficient of Variation	1.022				Skewness	2.639	
944					Mean of logged Data	3.161				SD of logged Data	0.756	
945												
946					Critical Values for Background Threshold Values (BTVs)							
947					Tolerance Factor K (For UTL)	2.049				d2max (for USL)	2.972	
948												
949					Normal GOF Test							
950					Shapiro Wilk Test Statistic	0.665				Normal GOF Test		
951					1% Shapiro Wilk P Value	1.854E-14				Data Not Normal at 1% Significance Level		
952					Lilliefors Test Statistic	0.233				Lilliefors GOF Test		
953					1% Lilliefors Critical Value	0.141				Data Not Normal at 1% Significance Level		
954					Data Not Normal at 1% Significance Level							
955												
956					Background Statistics Assuming Normal Distribution							
957					95% UTL with 95% Coverage	100.7				90% Percentile (z)	75.16	
958					95% UPL (t)	88.79				95% Percentile (z)	87.24	
959					95% USL	131.4				99% Percentile (z)	109.9	
960												
961					Gamma GOF Test							
962					A-D Test Statistic	1.849				Anderson-Darling Gamma GOF Test		
963					5% A-D Critical Value	0.766				Data Not Gamma Distributed at 5% Significance Level		
964					K-S Test Statistic	0.171				Kolmogorov-Smirnov Gamma GOF Test		
965					5% K-S Critical Value	0.125				Data Not Gamma Distributed at 5% Significance Level		
966					Data Not Gamma Distributed at 5% Significance Level							
967												
968					Gamma Statistics							
969					k hat (MLE)	1.705				k star (bias corrected MLE)	1.62	
970					Theta hat (MLE)	19.08				Theta star (bias corrected MLE)	20.08	
971					nu hat (MLE)	177.4				nu star (bias corrected)	168.5	
972					MLE Mean (bias corrected)	32.53				MLE Sd (bias corrected)	25.56	
973												
974					Background Statistics Assuming Gamma Distribution							
975					95% Wilson Hilferty (WH) Approx. Gamma UPL	81.93				90% Percentile	66.54	
976					95% Hawkins Wixley (HW) Approx. Gamma UPL	81.99				95% Percentile	82.61	
977					95% WH Approx. Gamma UTL with 95% Coverage	99.58				99% Percentile	118.7	
978					95% HW Approx. Gamma UTL with 95% Coverage	101.1						
979					95% WH USL	156.4				95% HW USL	165.8	
980												
981					Lognormal GOF Test							
982					Shapiro Wilk Test Statistic	0.963				Shapiro Wilk Lognormal GOF Test		
983					10% Shapiro Wilk P Value	0.201				Data appear Lognormal at 10% Significance Level		
984					Lilliefors Test Statistic	0.115				Lilliefors Lognormal GOF Test		
985					10% Lilliefors Critical Value	0.112				Data Not Lognormal at 10% Significance Level		
986					Data appear Approximate Lognormal at 10% Significance Level							
987												
988					Background Statistics assuming Lognormal Distribution							
989					95% UTL with 95% Coverage	111.1				90% Percentile (z)	62.2	
990					95% UPL (t)	84.78				95% Percentile (z)	81.86	
991					95% USL	223.3				99% Percentile (z)	137	
992												
993					Nonparametric Distribution Free Background Statistics							
994					Data appear Approximate Lognormal at 10% Significance Level							

	A	B	C	D	E	F	G	H	I	J	K	L	
995													
996	Nonparametric Upper Limits for Background Threshold Values												
997	Order of Statistic, order					52	95% UTL with 95% Coverage					164	
998	Approx, f used to compute achieved CC					2.737	Approximate Actual Confidence Coefficient achieved by UTL					0.931	
999							Approximate Sample Size needed to achieve specified CC					59	
1000	95% Percentile Bootstrap UTL with 95% Coverage					156.3	95% BCA Bootstrap UTL with 95% Coverage					156.3	
1001						95% UPL	128.6	90% Percentile					59.23
1002						90% Chebyshev UPL	133.3	95% Percentile					110.4
1003						95% Chebyshev UPL	178.9	99% Percentile					156.9
1004						95% USL	164						
1005													
1006	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1007	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1008	and consists of observations collected from clean unimpacted locations.												
1009	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1010	represents a background data set and when many onsite observations need to be compared with the BTV.												
1011													
1012	MD_Pb <106												
1013													
1014	General Statistics												
1015	Total Number of Observations					49	Number of Distinct Observations					44	
1016						Minimum	4.7	First Quartile					14.8
1017						Second Largest	67.6	Median					21
1018						Maximum	105	Third Quartile					31.8
1019						Mean	25.73	SD					18.22
1020						Coefficient of Variation	0.708	Skewness					2.18
1021						Mean of logged Data	3.051	SD of logged Data					0.626
1022													
1023	Critical Values for Background Threshold Values (BTVs)												
1024	Tolerance Factor K (For UTL)					2.063	d2max (for USL)					2.949	
1025													
1026	Normal GOF Test												
1027	Shapiro Wilk Test Statistic					0.814	Shapiro Wilk GOF Test						
1028	1% Shapiro Wilk Critical Value					0.929	Data Not Normal at 1% Significance Level						
1029	Lilliefors Test Statistic					0.2	Lilliefors GOF Test						
1030	1% Lilliefors Critical Value					0.146	Data Not Normal at 1% Significance Level						
1031	Data Not Normal at 1% Significance Level												
1032													
1033	Background Statistics Assuming Normal Distribution												
1034	95% UTL with 95% Coverage					63.33	90% Percentile (z)					49.08	
1035						95% UPL (t)	56.6	95% Percentile (z)					55.7
1036						95% USL	79.47	99% Percentile (z)					68.12
1037													
1038	Gamma GOF Test												
1039	A-D Test Statistic					0.538	Anderson-Darling Gamma GOF Test						
1040	5% A-D Critical Value					0.758	Detected data appear Gamma Distributed at 5% Significance Level						
1041	K-S Test Statistic					0.124	Kolmogorov-Smirnov Gamma GOF Test						
1042	5% K-S Critical Value					0.128	Detected data appear Gamma Distributed at 5% Significance Level						
1043	Detected data appear Gamma Distributed at 5% Significance Level												
1044													
1045	Gamma Statistics												
1046	k hat (MLE)					2.702	k star (bias corrected MLE)					2.55	
1047	Theta hat (MLE)					9.522	Theta star (bias corrected MLE)					10.09	
1048	nu hat (MLE)					264.8	nu star (bias corrected)					249.9	
1049	MLE Mean (bias corrected)					25.73	MLE Sd (bias corrected)					16.11	
1050													
1051	Background Statistics Assuming Gamma Distribution												
1052	95% Wilson Hiferty (WH) Approx. Gamma UPL					56.93	90% Percentile					47.31	
1053	95% Hawkins Wixley (HW) Approx. Gamma UPL					57.57	95% Percentile					56.63	
1054	95% WH Approx. Gamma UTL with 95% Coverage					67.39	99% Percentile					76.99	
1055	95% HW Approx. Gamma UTL with 95% Coverage					68.97							
1056						95% WH USL	97.56	95% HW USL					103.2
1057													
1058	Lognormal GOF Test												
1059	Shapiro Wilk Test Statistic					0.993	Shapiro Wilk Lognormal GOF Test						
1060	10% Shapiro Wilk Critical Value					0.955	Data appear Lognormal at 10% Significance Level						
1061	Lilliefors Test Statistic					0.0804	Lilliefors Lognormal GOF Test						
1062	10% Lilliefors Critical Value					0.115	Data appear Lognormal at 10% Significance Level						
1063	Data appear Lognormal at 10% Significance Level												
1064													
1065	Background Statistics assuming Lognormal Distribution												

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	A	B	C	D	E	F	G	H	I	J	K	L
1066	95% UTL with 95% Coverage					76.97	90% Percentile (z)					47.17
1067	95% UPL (t)					61.09	95% Percentile (z)					59.23
1068	95% USL					134	99% Percentile (z)					90.75
1069												
1070	Nonparametric Distribution Free Background Statistics											
1071	Data appear Gamma Distributed at 5% Significance Level											
1072												
1073	Nonparametric Upper Limits for Background Threshold Values											
1074	Order of Statistic, order					49	95% UTL with 95% Coverage					105
1075	Approx, f used to compute achieved CC					2.579	Approximate Actual Confidence Coefficient achieved by UTL					0.919
1076							Approximate Sample Size needed to achieve specified CC					59
1077	95% Percentile Bootstrap UTL with 95% Coverage					90.04	95% BCA Bootstrap UTL with 95% Coverage					87
1078	95% UPL					63.8	90% Percentile					46.1
1079	90% Chebyshev UPL					80.95	95% Percentile					56.92
1080	95% Chebyshev UPL					106	99% Percentile					87.05
1081	95% USL					105						
1082												
1083	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1084	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1085	and consists of observations collected from clean unimpacted locations.											
1086	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1087	represents a background data set and when many onsite observations need to be compared with the BTV.											
1088												
1089	MD_Pb <68											
1090												
1091	General Statistics											
1092	Total Number of Observations					48	Number of Distinct Observations					43
1093	Minimum					4.7	First Quartile					14.43
1094	Second Largest					60	Median					20.9
1095	Maximum					67.6	Third Quartile					29.93
1096	Mean					24.08	SD					14.24
1097	Coefficient of Variation					0.591	Skewness					1.206
1098	Mean of logged Data					3.018	SD of logged Data					0.587
1099												
1100	Critical Values for Background Threshold Values (BTVs)											
1101	Tolerance Factor K (For UTL)					2.069	d2max (for USL)					2.941
1102												
1103	Normal GOF Test											
1104	Shapiro Wilk Test Statistic					0.894	Shapiro Wilk GOF Test					
1105	1% Shapiro Wilk Critical Value					0.929	Data Not Normal at 1% Significance Level					
1106	Lilliefors Test Statistic					0.176	Lilliefors GOF Test					
1107	1% Lilliefors Critical Value					0.148	Data Not Normal at 1% Significance Level					
1108	Data Not Normal at 1% Significance Level											
1109												
1110	Background Statistics Assuming Normal Distribution											
1111	95% UTL with 95% Coverage					53.52	90% Percentile (z)					42.32
1112	95% UPL (t)					48.21	95% Percentile (z)					47.49
1113	95% USL					65.94	99% Percentile (z)					57.19
1114												
1115	Gamma GOF Test											
1116	A-D Test Statistic					0.352	Anderson-Darling Gamma GOF Test					
1117	5% A-D Critical Value					0.756	Detected data appear Gamma Distributed at 5% Significance Level					
1118	K-S Test Statistic					0.101	Kolmogorov-Smirnov Gamma GOF Test					
1119	5% K-S Critical Value					0.129	Detected data appear Gamma Distributed at 5% Significance Level					
1120	Detected data appear Gamma Distributed at 5% Significance Level											
1121												
1122	Gamma Statistics											
1123	k hat (MLE)					3.218	k star (bias corrected MLE)					3.031
1124	Theta hat (MLE)					7.482	Theta star (bias corrected MLE)					7.944
1125	nu hat (MLE)					308.9	nu star (bias corrected)					290.9
1126	MLE Mean (bias corrected)					24.08	MLE Sd (bias corrected)					13.83
1127												
1128	Background Statistics Assuming Gamma Distribution											
1129	95% Wilson Hilferty (WH) Approx. Gamma UPL					50.83	90% Percentile					42.62
1130	95% Hawkins Wixley (HW) Approx. Gamma UPL					51.63	95% Percentile					50.38
1131	95% WH Approx. Gamma UTL with 95% Coverage					59.62	99% Percentile					67.19
1132	95% HW Approx. Gamma UTL with 95% Coverage					61.25						
1133	95% WH USL					83.98	95% HW USL					88.96
1134												
1135	Lognormal GOF Test											
1136	Shapiro Wilk Test Statistic					0.986	Shapiro Wilk Lognormal GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L
1137	10% Shapiro Wilk Critical Value					0.954	Data appear Lognormal at 10% Significance Level					
1138	Lilliefors Test Statistic					0.0666	Lilliefors Lognormal GOF Test					
1139	10% Lilliefors Critical Value					0.117	Data appear Lognormal at 10% Significance Level					
1140	Data appear Lognormal at 10% Significance Level											
1141												
1142	Background Statistics assuming Lognormal Distribution											
1143	95% UTL with		95% Coverage		68.88						90% Percentile (z)	43.39
1144			95% UPL (t)		55.33						95% Percentile (z)	53.71
1145			95% USL		115						99% Percentile (z)	80.14
1146												
1147	Nonparametric Distribution Free Background Statistics											
1148	Data appear Gamma Distributed at 5% Significance Level											
1149												
1150	Nonparametric Upper Limits for Background Threshold Values											
1151	Order of Statistic, order				48			95% UTL with		95% Coverage		67.6
1152	Approx, f used to compute achieved CC				2.526	Approximate Actual Confidence Coefficient achieved by UTL						0.915
1153						Approximate Sample Size needed to achieve specified CC						59
1154	95% Percentile Bootstrap UTL with		95% Coverage		64.94	95% BCA Bootstrap UTL with		95% Coverage				62.25
1155			95% UPL		56.54			90% Percentile				45.2
1156			90% Chebyshev UPL		67.23			95% Percentile				50.41
1157			95% Chebyshev UPL		86.77			99% Percentile				64.03
1158			95% USL		67.6							
1159												
1160	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1161	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1162	and consists of observations collected from clean unimpacted locations.											
1163	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1164	represents a background data set and when many onsite observations need to be compared with the BTV.											
1165												
1166	MD_Pb <41											
1167												
1168	General Statistics											
1169	Total Number of Observations				41	Number of Distinct Observations						36
1170	Minimum				4.7	First Quartile						12.4
1171	Second Largest				37.2	Median						18.1
1172	Maximum				40.5	Third Quartile						23.6
1173	Mean				19.43	SD						8.562
1174	Coefficient of Variation				0.441	Skewness						0.587
1175	Mean of logged Data				2.863	SD of logged Data						0.482
1176												
1177	Critical Values for Background Threshold Values (BTVs)											
1178	Tolerance Factor K (For UTL)				2.11	d2max (for USL)						2.878
1179												
1180	Normal GOF Test											
1181	Shapiro Wilk Test Statistic				0.962	Shapiro Wilk GOF Test						
1182	1% Shapiro Wilk Critical Value				0.92	Data appear Normal at 1% Significance Level						
1183	Lilliefors Test Statistic				0.0819	Lilliefors GOF Test						
1184	1% Lilliefors Critical Value				0.16	Data appear Normal at 1% Significance Level						
1185	Data appear Normal at 1% Significance Level											
1186												
1187	Background Statistics Assuming Normal Distribution											
1188	95% UTL with		95% Coverage		37.5	90% Percentile (z)					30.41	
1189			95% UPL (t)		34.03	95% Percentile (z)					33.52	
1190			95% USL		44.07	99% Percentile (z)					39.35	
1191												
1192	Gamma GOF Test											
1193	A-D Test Statistic				0.161	Anderson-Darling Gamma GOF Test						
1194	5% A-D Critical Value				0.752	Detected data appear Gamma Distributed at 5% Significance Level						
1195	K-S Test Statistic				0.0679	Kolmogorov-Smirnov Gamma GOF Test						
1196	5% K-S Critical Value				0.138	Detected data appear Gamma Distributed at 5% Significance Level						
1197	Detected data appear Gamma Distributed at 5% Significance Level											
1198												
1199	Gamma Statistics											
1200	k hat (MLE)				4.98	k star (bias corrected MLE)						4.632
1201	Theta hat (MLE)				3.902	Theta star (bias corrected MLE)						4.195
1202	nu hat (MLE)				408.4	nu star (bias corrected)						379.8
1203	MLE Mean (bias corrected)				19.43	MLE Sd (bias corrected)						9.03
1204												
1205	Background Statistics Assuming Gamma Distribution											
1206	95% Wilson Hilferty (WH) Approx. Gamma UPL				36.64	90% Percentile					31.53	
1207	95% Hawkins Wixlev (HW) Approx. Gamma UPL				37.26	95% Percentile					36.27	

	A	B	C	D	E	F	G	H	I	J	K	L
1208	95% WH Approx. Gamma UTL with 95% Coverage					42.38	99% Percentile					46.31
1209	95% HW Approx. Gamma UTL with 95% Coverage					43.52						
1210	95% WH USL					54.8	95% HW USL					57.46
1211												
1212	Lognormal GOF Test											
1213	Shapiro Wilk Test Statistic					0.97	Shapiro Wilk Lognormal GOF Test					
1214	10% Shapiro Wilk Critical Value					0.95	Data appear Lognormal at 10% Significance Level					
1215	Lilliefors Test Statistic					0.0991	Lilliefors Lognormal GOF Test					
1216	10% Lilliefors Critical Value					0.126	Data appear Lognormal at 10% Significance Level					
1217	Data appear Lognormal at 10% Significance Level											
1218												
1219	Background Statistics assuming Lognormal Distribution											
1220	95% UTL with 95% Coverage					48.45	90% Percentile (z)					32.49
1221	95% UPL (t)					39.84	95% Percentile (z)					38.71
1222	95% USL					70.14	99% Percentile (z)					53.77
1223												
1224	Nonparametric Distribution Free Background Statistics											
1225	Data appear Normal at 1% Significance Level											
1226												
1227	Nonparametric Upper Limits for Background Threshold Values											
1228	Order of Statistic, order					41	95% UTL with 95% Coverage					40.5
1229	Approx, f used to compute achieved CC					2.158	Approximate Actual Confidence Coefficient achieved by UTL					0.878
1230							Approximate Sample Size needed to achieve specified CC					59
1231	95% Percentile Bootstrap UTL with 95% Coverage					40.5	95% BCA Bootstrap UTL with 95% Coverage					37.2
1232	95% UPL					37.1	90% Percentile					31.8
1233	90% Chebyshev UPL					45.43	95% Percentile					36.2
1234	95% Chebyshev UPL					57.21	99% Percentile					39.18
1235	95% USL					40.5						
1236												
1237	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1238	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1239	and consists of observations collected from clean unimpacted locations.											
1240	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1241	represents a background data set and when many onsite observations need to be compared with the BTV.											
1242												
1243	ME_As											
1244												
1245	General Statistics											
1246	Total Number of Observations					150	Number of Distinct Observations					104
1247	Minimum					1.1	First Quartile					4.55
1248	Second Largest					36.2	Median					8
1249	Maximum					39.4	Third Quartile					11.35
1250	Mean					8.956	SD					6.062
1251	Coefficient of Variation					0.677	Skewness					2.042
1252	Mean of logged Data					1.981	SD of logged Data					0.681
1253												
1254	Critical Values for Background Threshold Values (BTVs)											
1255	Tolerance Factor K (For UTL)					1.868	d2max (for USL)					3.343
1256												
1257	Normal GOF Test											
1258	Shapiro Wilk Test Statistic					0.846	Normal GOF Test					
1259	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1260	Lilliefors Test Statistic					0.116	Lilliefors GOF Test					
1261	1% Lilliefors Critical Value					0.0841	Data Not Normal at 1% Significance Level					
1262	Data Not Normal at 1% Significance Level											
1263												
1264	Background Statistics Assuming Normal Distribution											
1265	95% UTL with 95% Coverage					20.28	90% Percentile (z)					16.72
1266	95% UPL (t)					19.02	95% Percentile (z)					18.93
1267	95% USL					29.22	99% Percentile (z)					23.06
1268												
1269	Gamma GOF Test											
1270	A-D Test Statistic					0.568	Anderson-Darling Gamma GOF Test					
1271	5% A-D Critical Value					0.762	Detected data appear Gamma Distributed at 5% Significance Level					
1272	K-S Test Statistic					0.0628	Kolmogorov-Smirnov Gamma GOF Test					
1273	5% K-S Critical Value					0.0773	Detected data appear Gamma Distributed at 5% Significance Level					
1274	Detected data appear Gamma Distributed at 5% Significance Level											
1275												
1276	Gamma Statistics											
1277	k hat (MLE)					2.523	k star (bias corrected MLE)					2.477
1278	Theta hat (MLE)					3.549	Theta star (bias corrected MLE)					3.615

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	A	B	C	D	E	F	G	H	I	J	K	L
1279	nu hat (MLE)					757	nu star (bias corrected)					743.2
1280	MLE Mean (bias corrected)					8.956	MLE Sd (bias corrected)					5.69
1281												
1282	Background Statistics Assuming Gamma Distribution											
1283	95% Wilson Hilferty (WH) Approx. Gamma UPL					19.84	90% Percentile					16.58
1284	95% Hawkins Wixley (HW) Approx. Gamma UPL					20.26	95% Percentile					19.88
1285	95% WH Approx. Gamma UTL with 95% Coverage					21.89	99% Percentile					27.12
1286	95% HW Approx. Gamma UTL with 95% Coverage					22.53						
1287	95% WH USL					40.69	95% HW USL					44.65
1288												
1289	Lognormal GOF Test											
1290	Shapiro Wilk Test Statistic					0.967	Shapiro Wilk Lognormal GOF Test					
1291	10% Shapiro Wilk P Value					0.0268	Data Not Lognormal at 10% Significance Level					
1292	Lilliefors Test Statistic					0.0808	Lilliefors Lognormal GOF Test					
1293	10% Lilliefors Critical Value					0.0666	Data Not Lognormal at 10% Significance Level					
1294	Data Not Lognormal at 10% Significance Level											
1295												
1296	Background Statistics assuming Lognormal Distribution											
1297	95% UTL with 95% Coverage					25.88	90% Percentile (z)					17.36
1298	95% UPL (t)					22.48	95% Percentile (z)					22.23
1299	95% USL					70.69	99% Percentile (z)					35.37
1300												
1301	Nonparametric Distribution Free Background Statistics											
1302	Data appear Gamma Distributed at 5% Significance Level											
1303												
1304	Nonparametric Upper Limits for Background Threshold Values											
1305	Order of Statistic, order					148	95% UTL with 95% Coverage					30.2
1306	Approx, f used to compute achieved CC					1.934	Approximate Actual Confidence Coefficient achieved by UTL					0.945
1307							Approximate Sample Size needed to achieve specified CC					124
1308	95% Percentile Bootstrap UTL with 95% Coverage					23.6	95% BCA Bootstrap UTL with 95% Coverage					23.6
1309	95% UPL					19.88	90% Percentile					14.54
1310	90% Chebyshev UPL					27.2	95% Percentile					19.61
1311	95% Chebyshev UPL					35.47	99% Percentile					33.26
1312	95% USL					39.4						
1313												
1314	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1315	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1316	and consists of observations collected from clean unimpacted locations.											
1317	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1318	represents a background data set and when many onsite observations need to be compared with the BTV.											
1319												
1320	ME_As <31											
1321												
1322	General Statistics											
1323	Total Number of Observations					148	Number of Distinct Observations					102
1324	Minimum					1.1	First Quartile					4.5
1325	Second Largest					25.5	Median					7.95
1326	Maximum					30.2	Third Quartile					11.13
1327	Mean					8.566	SD					5.073
1328	Coefficient of Variation					0.592	Skewness					1.207
1329	Mean of logged Data					1.959	SD of logged Data					0.658
1330												
1331	Critical Values for Background Threshold Values (BTVs)											
1332	Tolerance Factor K (For UTL)					1.869	d2max (for USL)					3.339
1333												
1334	Normal GOF Test											
1335	Shapiro Wilk Test Statistic					0.921	Normal GOF Test					
1336	1% Shapiro Wilk P Value					2.369E-10	Data Not Normal at 1% Significance Level					
1337	Lilliefors Test Statistic					0.0706	Lilliefors GOF Test					
1338	1% Lilliefors Critical Value					0.0847	Data appear Normal at 1% Significance Level					
1339	Data appear Approximate Normal at 1% Significance Level											
1340												
1341	Background Statistics Assuming Normal Distribution											
1342	95% UTL with 95% Coverage					18.05	90% Percentile (z)					15.07
1343	95% UPL (t)					16.99	95% Percentile (z)					16.91
1344	95% USL					25.5	99% Percentile (z)					20.37
1345												
1346	Gamma GOF Test											
1347	A-D Test Statistic					0.513	Anderson-Darling Gamma GOF Test					
1348	5% A-D Critical Value					0.761	Detected data appear Gamma Distributed at 5% Significance Level					
1349	K-S Test Statistic					0.0516	Kolmogorov-Smirnov Gamma GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L	
1350	5% K-S Critical Value					0.0777	Detected data appear Gamma Distributed at 5% Significance Level						
1351	Detected data appear Gamma Distributed at 5% Significance Level												
1352													
1353	Gamma Statistics												
1354	k hat (MLE)					2.803	k star (bias corrected MLE)					2.751	
1355	Theta hat (MLE)					3.056	Theta star (bias corrected MLE)					3.114	
1356	nu hat (MLE)					829.8	nu star (bias corrected)					814.3	
1357	MLE Mean (bias corrected)					8.566	MLE Sd (bias corrected)					5.165	
1358													
1359	Background Statistics Assuming Gamma Distribution												
1360	95% Wilson Hilferty (WH) Approx. Gamma UPL					18.45	90% Percentile					15.49	
1361	95% Hawkins Wixley (HW) Approx. Gamma UPL					18.92	95% Percentile					18.44	
1362	95% WH Approx. Gamma UTL with 95% Coverage					20.29	99% Percentile					24.85	
1363	95% HW Approx. Gamma UTL with 95% Coverage					20.96							
1364	95% WH USL					36.81	95% HW USL					40.46	
1365													
1366	Lognormal GOF Test												
1367	Shapiro Wilk Test Statistic					0.957	Shapiro Wilk Lognormal GOF Test						
1368	10% Shapiro Wilk P Value					0.00116	Data Not Lognormal at 10% Significance Level						
1369	Lilliefors Test Statistic					0.0892	Lilliefors Lognormal GOF Test						
1370	10% Lilliefors Critical Value					0.067	Data Not Lognormal at 10% Significance Level						
1371	Data Not Lognormal at 10% Significance Level												
1372													
1373	Background Statistics assuming Lognormal Distribution												
1374	95% UTL with		95% Coverage		24.26	90% Percentile (z)					16.48		
1375			95% UPL (t)		21.15	95% Percentile (z)					20.93		
1376			95% USL		63.76	99% Percentile (z)					32.76		
1377													
1378	Nonparametric Distribution Free Background Statistics												
1379	Data appear Approximate Normal at 1% Significance Level												
1380													
1381	Nonparametric Upper Limits for Background Threshold Values												
1382	Order of Statistic, order				146	95% UTL with 95% Coverage					23.6		
1383	Approx, f used to compute achieved CC				1.908	Approximate Actual Confidence Coefficient achieved by UTL					0.941		
1384						Approximate Sample Size needed to achieve specified CC					124		
1385	95% Percentile Bootstrap UTL with		95% Coverage		20.42	95% BCA Bootstrap UTL with 95% Coverage					20.1		
1386			95% UPL		18.87	90% Percentile					14.13		
1387			90% Chebyshev UPL		23.84	95% Percentile					17.65		
1388			95% Chebyshev UPL		30.76	99% Percentile					24.61		
1389			95% USL		30.2								
1390													
1391	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1392	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1393	and consists of observations collected from clean unimpacted locations.												
1394	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1395	represents a background data set and when many onsite observations need to be compared with the BTV.												
1396													
1397	ME_As <20												
1398													
1399	General Statistics												
1400	Total Number of Observations				143	Number of Distinct Observations					97		
1401	Minimum				1.1	First Quartile					4.5		
1402	Second Largest				19.5	Median					7.7		
1403	Maximum				19.7	Third Quartile					10.9		
1404	Mean				8.011	SD					4.131		
1405	Coefficient of Variation				0.516	Skewness					0.418		
1406	Mean of logged Data				1.916	SD of logged Data					0.626		
1407													
1408	Critical Values for Background Threshold Values (BTVs)												
1409	Tolerance Factor K (For UTL)				1.874	d2max (for USL)					3.328		
1410													
1411	Normal GOF Test												
1412	Shapiro Wilk Test Statistic				0.957	Normal GOF Test							
1413	1% Shapiro Wilk P Value				0.00168	Data Not Normal at 1% Significance Level							
1414	Lilliefors Test Statistic				0.0681	Lilliefors GOF Test							
1415	1% Lilliefors Critical Value				0.0861	Data appear Normal at 1% Significance Level							
1416	Data appear Approximate Normal at 1% Significance Level												
1417													
1418	Background Statistics Assuming Normal Distribution												
1419	95% UTL with		95% Coverage		15.75	90% Percentile (z)					13.31		
1420			95% UPL (t)		14.87	95% Percentile (z)					14.81		

	A	B	C	D	E	F	G	H	I	J	K	L
1421	95% USL					21.76	99% Percentile (z)					17.62
1422												
1423	Gamma GOF Test											
1424	A-D Test Statistic					1.05	Anderson-Darling Gamma GOF Test					
1425	5% A-D Critical Value					0.759	Data Not Gamma Distributed at 5% Significance Level					
1426	K-S Test Statistic					0.0756	Kolmogorov-Smirnov Gamma GOF Test					
1427	5% K-S Critical Value					0.0788	Detected data appear Gamma Distributed at 5% Significance Level					
1428	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
1429												
1430	Gamma Statistics											
1431	k hat (MLE)					3.191	k star (bias corrected MLE)					3.129
1432	Theta hat (MLE)					2.511	Theta star (bias corrected MLE)					2.56
1433	nu hat (MLE)					912.6	nu star (bias corrected)					894.8
1434	MLE Mean (bias corrected)					8.011	MLE Sd (bias corrected)					4.529
1435												
1436	Background Statistics Assuming Gamma Distribution											
1437	95% Wilson Hilferty (WH) Approx. Gamma UPL					16.67	90% Percentile					14.08
1438	95% Hawkins Wixley (HW) Approx. Gamma UPL					17.13	95% Percentile					16.61
1439	95% WH Approx. Gamma UTL with 95% Coverage					18.27	99% Percentile					22.08
1440	95% HW Approx. Gamma UTL with 95% Coverage					18.92						
1441	95% WH USL					32.08	95% HW USL					35.23
1442												
1443	Lognormal GOF Test											
1444	Shapiro Wilk Test Statistic					0.932	Shapiro Wilk Lognormal GOF Test					
1445	10% Shapiro Wilk P Value					8.9995E-8	Data Not Lognormal at 10% Significance Level					
1446	Lilliefors Test Statistic					0.102	Lilliefors Lognormal GOF Test					
1447	10% Lilliefors Critical Value					0.0681	Data Not Lognormal at 10% Significance Level					
1448	Data Not Lognormal at 10% Significance Level											
1449												
1450	Background Statistics assuming Lognormal Distribution											
1451	95% UTL with 95% Coverage					21.97	90% Percentile (z)					15.16
1452	95% UPL (t)					19.23	95% Percentile (z)					19.04
1453	95% USL					54.62	99% Percentile (z)					29.17
1454												
1455	Nonparametric Distribution Free Background Statistics											
1456	Data appear Approximate Normal at 1% Significance Level											
1457												
1458	Nonparametric Upper Limits for Background Threshold Values											
1459	Order of Statistic, order					141	95% UTL with 95% Coverage					18.1
1460	Approx, f used to compute achieved CC					1.842	Approximate Actual Confidence Coefficient achieved by UTL					0.931
1461							Approximate Sample Size needed to achieve specified CC					124
1462	95% Percentile Bootstrap UTL with 95% Coverage					16.3	95% BCA Bootstrap UTL with 95% Coverage					16.3
1463	95% UPL					15.06	90% Percentile					13.36
1464	90% Chebyshev UPL					20.45	95% Percentile					14.86
1465	95% Chebyshev UPL					26.08	99% Percentile					18.91
1466	95% USL					19.7						
1467												
1468	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1469	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1470	and consists of observations collected from clean unimpacted locations.											
1471	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1472	represents a background data set and when many onsite observations need to be compared with the BTV.											
1473												
1474	ME_As <15											
1475												
1476	General Statistics											
1477	Total Number of Observations					136	Number of Distinct Observations					90
1478	Minimum					1.1	First Quartile					4.4
1479	Second Largest					14.5	Median					7.6
1480	Maximum					14.9	Third Quartile					10.4
1481	Mean					7.53	SD					3.612
1482	Coefficient of Variation					0.48	Skewness					0.0675
1483	Mean of logged Data					1.868	SD of logged Data					0.604
1484												
1485	Critical Values for Background Threshold Values (BTVs)											
1486	Tolerance Factor K (For UTL)					1.88	d2max (for USL)					3.311
1487												
1488	Normal GOF Test											
1489	Shapiro Wilk Test Statistic					0.948	Normal GOF Test					
1490	1% Shapiro Wilk P Value					9.3218E-5	Data Not Normal at 1% Significance Level					
1491	Lilliefors Test Statistic					0.0787	Lilliefors GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L	
1492	1% Lilliefors Critical Value					0.0883	Data appear Normal at 1% Significance Level						
1493	Data appear Approximate Normal at 1% Significance Level												
1494													
1495	Background Statistics Assuming Normal Distribution												
1496	95% UTL with		95% Coverage		14.32						90% Percentile (z)	12.16	
1497			95% UPL (t)		13.53						95% Percentile (z)	13.47	
1498			95% USL		19.49						99% Percentile (z)	15.93	
1499													
1500	Gamma GOF Test												
1501	A-D Test Statistic				1.74	Anderson-Darling Gamma GOF Test							
1502	5% A-D Critical Value				0.758	Data Not Gamma Distributed at 5% Significance Level							
1503	K-S Test Statistic				0.0881	Kolmogorov-Smirnov Gamma GOF Test							
1504	5% K-S Critical Value				0.0806	Data Not Gamma Distributed at 5% Significance Level							
1505	Data Not Gamma Distributed at 5% Significance Level												
1506													
1507	Gamma Statistics												
1508	k hat (MLE)				3.471						k star (bias corrected MLE)	3.399	
1509	Theta hat (MLE)				2.17						Theta star (bias corrected MLE)	2.215	
1510	nu hat (MLE)				944.1						nu star (bias corrected)	924.6	
1511	MLE Mean (bias corrected)				7.53						MLE Sd (bias corrected)	4.084	
1512													
1513	Background Statistics Assuming Gamma Distribution												
1514	95% Wilson Hilferty (WH) Approx. Gamma UPL				15.32						90% Percentile	13.01	
1515	95% Hawkins Wixley (HW) Approx. Gamma UPL				15.75						95% Percentile	15.26	
1516	95% WH Approx. Gamma UTL with		95% Coverage		16.78						99% Percentile	20.1	
1517	95% HW Approx. Gamma UTL with		95% Coverage		17.38								
1518			95% WH USL		28.74						95% HW USL	31.48	
1519													
1520	Lognormal GOF Test												
1521	Shapiro Wilk Test Statistic				0.909	Shapiro Wilk Lognormal GOF Test							
1522	10% Shapiro Wilk P Value				1.580E-11	Data Not Lognormal at 10% Significance Level							
1523	Lilliefors Test Statistic				0.112	Lilliefors Lognormal GOF Test							
1524	10% Lilliefors Critical Value				0.0699	Data Not Lognormal at 10% Significance Level							
1525	Data Not Lognormal at 10% Significance Level												
1526													
1527	Background Statistics assuming Lognormal Distribution												
1528	95% UTL with		95% Coverage		20.15						90% Percentile (z)	14.04	
1529			95% UPL (t)		17.67						95% Percentile (z)	17.48	
1530			95% USL		47.84						99% Percentile (z)	26.39	
1531													
1532	Nonparametric Distribution Free Background Statistics												
1533	Data appear Approximate Normal at 1% Significance Level												
1534													
1535	Nonparametric Upper Limits for Background Threshold Values												
1536	Order of Statistic, order				134						95% UTL with 95% Coverage	14.2	
1537	Approx, f used to compute achieved CC				1.75	Approximate Actual Confidence Coefficient achieved by UTL					0.913		
1538						Approximate Sample Size needed to achieve specified CC					124		
1539	95% Percentile Bootstrap UTL with		95% Coverage		14.1	95% BCA Bootstrap UTL with 95% Coverage					14.03		
1540			95% UPL		13.62						90% Percentile	12.35	
1541			90% Chebyshev UPL		18.41						95% Percentile	13.53	
1542			95% Chebyshev UPL		23.33						99% Percentile	14.4	
1543			95% USL		14.9								
1544													
1545	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1546	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1547	and consists of observations collected from clean unimpacted locations.												
1548	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1549	represents a background data set and when many onsite observations need to be compared with the BTV.												
1550													
1551	ME_Pb												
1552													
1553	General Statistics												
1554	Total Number of Observations				150	Number of Distinct Observations					123		
1555	Minimum				4.7	First Quartile					17.8		
1556	Second Largest				233	Median					22.35		
1557	Maximum				364	Third Quartile					28.68		
1558	Mean				31.15	SD					38.48		
1559	Coefficient of Variation				1.235	Skewness					6.164		
1560	Mean of logged Data				3.205	SD of logged Data					0.559		
1561													
1562	Critical Values for Background Threshold Values (BTVs)												

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	A	B	C	D	E	F	G	H	I	J	K	L
1563	Tolerance Factor K (For UTL)					1.868	d2max (for USL)					3.343
1564												
1565	Normal GOF Test											
1566	Shapiro Wilk Test Statistic					0.412	Normal GOF Test					
1567	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1568	Lilliefors Test Statistic					0.31	Lilliefors GOF Test					
1569	1% Lilliefors Critical Value					0.0841	Data Not Normal at 1% Significance Level					
1570	Data Not Normal at 1% Significance Level											
1571												
1572	Background Statistics Assuming Normal Distribution											
1573	95% UTL with		95% Coverage		103	90% Percentile (z)					80.46	
1574			95% UPL (t)		95.04	95% Percentile (z)					94.44	
1575			95% USL		159.8	99% Percentile (z)					120.7	
1576												
1577	Gamma GOF Test											
1578	A-D Test Statistic					12.71	Anderson-Darling Gamma GOF Test					
1579	5% A-D Critical Value					0.764	Data Not Gamma Distributed at 5% Significance Level					
1580	K-S Test Statistic					0.224	Kolmogorov-Smirnov Gamma GOF Test					
1581	5% K-S Critical Value					0.0774	Data Not Gamma Distributed at 5% Significance Level					
1582	Data Not Gamma Distributed at 5% Significance Level											
1583												
1584	Gamma Statistics											
1585	k hat (MLE)					2.292	k star (bias corrected MLE)					2.25
1586	Theta hat (MLE)					13.59	Theta star (bias corrected MLE)					13.84
1587	nu hat (MLE)					687.5	nu star (bias corrected)					675.1
1588	MLE Mean (bias corrected)					31.15	MLE Sd (bias corrected)					20.76
1589												
1590	Background Statistics Assuming Gamma Distribution											
1591	95% Wilson Hilferty (WH) Approx. Gamma UPL					68.49	90% Percentile					58.94
1592	95% Hawkins Wixley (HW) Approx. Gamma UPL					66.51	95% Percentile					71.21
1593	95% WH Approx. Gamma UTL with		95% Coverage		75.78	99% Percentile					98.25	
1594	95% HW Approx. Gamma UTL with		95% Coverage		73.8							
1595			95% WH USL		143.1	95% HW USL					144.5	
1596												
1597	Lognormal GOF Test											
1598	Shapiro Wilk Test Statistic					0.864	Shapiro Wilk Lognormal GOF Test					
1599	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
1600	Lilliefors Test Statistic					0.157	Lilliefors Lognormal GOF Test					
1601	10% Lilliefors Critical Value					0.0666	Data Not Lognormal at 10% Significance Level					
1602	Data Not Lognormal at 10% Significance Level											
1603												
1604	Background Statistics assuming Lognormal Distribution											
1605	95% UTL with		95% Coverage		70.09	90% Percentile (z)					50.5	
1606			95% UPL (t)		62.42	95% Percentile (z)					61.87	
1607			95% USL		160	99% Percentile (z)					90.59	
1608												
1609	Nonparametric Distribution Free Background Statistics											
1610	Data do not follow a Discernible Distribution											
1611												
1612	Nonparametric Upper Limits for Background Threshold Values											
1613	Order of Statistic, order					148	95% UTL with 95% Coverage					210
1614	Approx, f used to compute achieved CC					1.934	Approximate Actual Confidence Coefficient achieved by UTL					0.945
1615							Approximate Sample Size needed to achieve specified CC					124
1616	95% Percentile Bootstrap UTL with		95% Coverage		91.7	95% BCA Bootstrap UTL with 95% Coverage					91.7	
1617			95% UPL		74.18	90% Percentile					47.46	
1618			90% Chebyshev UPL		147	95% Percentile					70.27	
1619			95% Chebyshev UPL		199.4	99% Percentile					221.7	
1620			95% USL		364							
1621												
1622	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1623	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1624	and consists of observations collected from clean unimpacted locations.											
1625	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1626	represents a background data set and when many onsite observations need to be compared with the BTV.											
1627												
1628	ME_Pb <100											
1629												
1630	General Statistics											
1631	Total Number of Observations					147	Number of Distinct Observations					120
1632	Minimum					4.7	First Quartile					17.75
1633	Second Largest					91.7	Median					22.2

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	A	B	C	D	E	F	G	H	I	J	K	L
1634					Maximum	99.2					Third Quartile	27.95
1635					Mean	26.3					SD	15.17
1636					Coefficient of Variation	0.577					Skewness	2.582
1637					Mean of logged Data	3.157					SD of logged Data	0.449
1638												
1639					Critical Values for Background Threshold Values (BTVs)							
1640					Tolerance Factor K (For UTL)	1.87					d2max (for USL)	3.336
1641												
1642					Normal GOF Test							
1643					Shapiro Wilk Test Statistic	0.723					Normal GOF Test	
1644					1% Shapiro Wilk P Value	0					Data Not Normal at 1% Significance Level	
1645					Lilliefors Test Statistic	0.217					Lilliefors GOF Test	
1646					1% Lilliefors Critical Value	0.085					Data Not Normal at 1% Significance Level	
1647					Data Not Normal at 1% Significance Level							
1648												
1649					Background Statistics Assuming Normal Distribution							
1650					95% UTL with 95% Coverage	54.66					90% Percentile (z)	45.73
1651					95% UPL (t)	51.49					95% Percentile (z)	51.24
1652					95% USL	76.9					99% Percentile (z)	61.58
1653												
1654					Gamma GOF Test							
1655					A-D Test Statistic	5.688					Anderson-Darling Gamma GOF Test	
1656					5% A-D Critical Value	0.756					Data Not Gamma Distributed at 5% Significance Level	
1657					K-S Test Statistic	0.155					Kolmogorov-Smirnov Gamma GOF Test	
1658					5% K-S Critical Value	0.0775					Data Not Gamma Distributed at 5% Significance Level	
1659					Data Not Gamma Distributed at 5% Significance Level							
1660												
1661					Gamma Statistics							
1662					k hat (MLE)	4.604					k star (bias corrected MLE)	4.514
1663					Theta hat (MLE)	5.712					Theta star (bias corrected MLE)	5.825
1664					nu hat (MLE)	1353					nu star (bias corrected)	1327
1665					MLE Mean (bias corrected)	26.3					MLE Sd (bias corrected)	12.38
1666												
1667					Background Statistics Assuming Gamma Distribution							
1668					95% Wilson Hilferty (WH) Approx. Gamma UPL	49.19					90% Percentile	42.88
1669					95% Hawkins Wixley (HW) Approx. Gamma UPL	49.13					95% Percentile	49.39
1670					95% WH Approx. Gamma UTL with 95% Coverage	53.18					99% Percentile	63.23
1671					95% HW Approx. Gamma UTL with 95% Coverage	53.3						
1672					95% WH USL	87.36					95% HW USL	90.34
1673												
1674					Lognormal GOF Test							
1675					Shapiro Wilk Test Statistic	0.936					Shapiro Wilk Lognormal GOF Test	
1676					10% Shapiro Wilk P Value	3.9891E-7					Data Not Lognormal at 10% Significance Level	
1677					Lilliefors Test Statistic	0.118					Lilliefors Lognormal GOF Test	
1678					10% Lilliefors Critical Value	0.0672					Data Not Lognormal at 10% Significance Level	
1679					Data Not Lognormal at 10% Significance Level							
1680												
1681					Background Statistics assuming Lognormal Distribution							
1682					95% UTL with 95% Coverage	54.39					90% Percentile (z)	41.76
1683					95% UPL (t)	49.51					95% Percentile (z)	49.15
1684					95% USL	105					99% Percentile (z)	66.74
1685												
1686					Nonparametric Distribution Free Background Statistics							
1687					Data do not follow a Discernible Distribution							
1688												
1689					Nonparametric Upper Limits for Background Threshold Values							
1690					Order of Statistic, order	145					95% UTL with 95% Coverage	83.4
1691					Approx, f used to compute achieved CC	1.895					Approximate Actual Confidence Coefficient achieved by UTL	0.939
1692											Approximate Sample Size needed to achieve specified CC	124
1693					95% Percentile Bootstrap UTL with 95% Coverage	71.8					95% BCA Bootstrap UTL with 95% Coverage	73.98
1694					95% UPL	65.66					90% Percentile	39.78
1695					90% Chebyshev UPL	71.95					95% Percentile	62.69
1696					95% Chebyshev UPL	92.64					99% Percentile	87.88
1697					95% USL	99.2						
1698												
1699					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
1700					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
1701					and consists of observations collected from clean unimpacted locations.							
1702					The use of USL tends to provide a balance between false positives and false negatives provided the data							
1703					represents a background data set and when many onsite observations need to be compared with the BTV.							
1704												

	A	B	C	D	E	F	G	H	I	J	K	L
1705	ME_Pb <72											
1706												
1707	General Statistics											
1708	Total Number of Observations					143	Number of Distinct Observations					116
1709	Minimum					4.7	First Quartile					17.65
1710	Second Largest					68.4	Median					21.9
1711	Maximum					71.8	Third Quartile					27.05
1712	Mean					24.57	SD					11.17
1713	Coefficient of Variation					0.455	Skewness					2.076
1714	Mean of logged Data					3.12	SD of logged Data					0.396
1715												
1716	Critical Values for Background Threshold Values (BTVs)											
1717	Tolerance Factor K (For UTL)					1.874	d2max (for USL)					3.328
1718												
1719	Normal GOF Test											
1720	Shapiro Wilk Test Statistic					0.809	Normal GOF Test					
1721	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1722	Lilliefors Test Statistic					0.176	Lilliefors GOF Test					
1723	1% Lilliefors Critical Value					0.0861	Data Not Normal at 1% Significance Level					
1724	Data Not Normal at 1% Significance Level											
1725												
1726	Background Statistics Assuming Normal Distribution											
1727	95% UTL with	95% Coverage	45.51	90% Percentile (z)					38.89			
1728		95% UPL (t)	43.14	95% Percentile (z)					42.95			
1729		95% USL	61.76	99% Percentile (z)					50.57			
1730												
1731	Gamma GOF Test											
1732	A-D Test Statistic					3.084	Anderson-Darling Gamma GOF Test					
1733	5% A-D Critical Value					0.754	Data Not Gamma Distributed at 5% Significance Level					
1734	K-S Test Statistic					0.118	Kolmogorov-Smirnov Gamma GOF Test					
1735	5% K-S Critical Value					0.0784	Data Not Gamma Distributed at 5% Significance Level					
1736	Data Not Gamma Distributed at 5% Significance Level											
1737												
1738	Gamma Statistics											
1739	k hat (MLE)					6.292	k star (bias corrected MLE)					6.165
1740	Theta hat (MLE)					3.906	Theta star (bias corrected MLE)					3.986
1741	nu hat (MLE)					1800	nu star (bias corrected)					1763
1742	MLE Mean (bias corrected)					24.57	MLE Sd (bias corrected)					9.897
1743												
1744	Background Statistics Assuming Gamma Distribution											
1745	95% Wilson Hilferty (WH) Approx. Gamma UPL					42.74	90% Percentile					37.8
1746	95% Hawkins Wixley (HW) Approx. Gamma UPL					42.88	95% Percentile					42.79
1747	95% WH Approx. Gamma UTL with	95% Coverage	45.83	99% Percentile					53.22			
1748	95% HW Approx. Gamma UTL with	95% Coverage	46.11									
1749		95% WH USL	70.99	95% HW USL					73.37			
1750												
1751	Lognormal GOF Test											
1752	Shapiro Wilk Test Statistic					0.958	Shapiro Wilk Lognormal GOF Test					
1753	10% Shapiro Wilk P Value					0.00231	Data Not Lognormal at 10% Significance Level					
1754	Lilliefors Test Statistic					0.0908	Lilliefors Lognormal GOF Test					
1755	10% Lilliefors Critical Value					0.0681	Data Not Lognormal at 10% Significance Level					
1756	Data Not Lognormal at 10% Significance Level											
1757												
1758	Background Statistics assuming Lognormal Distribution											
1759	95% UTL with	95% Coverage	47.56	90% Percentile (z)					37.62			
1760		95% UPL (t)	43.72	95% Percentile (z)					43.44			
1761		95% USL	84.57	99% Percentile (z)					56.89			
1762												
1763	Nonparametric Distribution Free Background Statistics											
1764	Data do not follow a Discernible Distribution											
1765												
1766	Nonparametric Upper Limits for Background Threshold Values											
1767	Order of Statistic, order					141	95% UTL with 95% Coverage					66.7
1768	Approx, f used to compute achieved CC					1.842	Approximate Actual Confidence Coefficient achieved by UTL					0.931
1769							Approximate Sample Size needed to achieve specified CC					124
1770	95% Percentile Bootstrap UTL with	95% Coverage	59.4	95% BCA Bootstrap UTL with 95% Coverage					62.72			
1771		95% UPL	48.24	90% Percentile					36.34			
1772		90% Chebyshev UPL	58.21	95% Percentile					47.94			
1773		95% Chebyshev UPL	73.45	99% Percentile					67.69			
1774		95% USL	71.8									
1775												

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	A	B	C	D	E	F	G	H	I	J	K	L
1776	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1777	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1778	and consists of observations collected from clean unimpacted locations.											
1779	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1780	represents a background data set and when many onsite observations need to be compared with the BTV.											
1781												
1782	ME_Pb 48											
1783												
1784	General Statistics											
1785	Total Number of Observations					135	Number of Distinct Observations					108
1786	Minimum					4.7	First Quartile					17.5
1787	Second Largest					43.2	Median					21.7
1788	Maximum					47.4	Third Quartile					25.85
1789	Mean					22.5	SD					7.058
1790	Coefficient of Variation					0.314	Skewness					0.793
1791	Mean of logged Data					3.063	SD of logged Data					0.327
1792												
1793	Critical Values for Background Threshold Values (BTVs)											
1794	Tolerance Factor K (For UTL)					1.881	d2max (for USL)					3.309
1795												
1796	Normal GOF Test											
1797	Shapiro Wilk Test Statistic					0.958	Normal GOF Test					
1798	1% Shapiro Wilk P Value					0.00338	Data Not Normal at 1% Significance Level					
1799	Lilliefors Test Statistic					0.101	Lilliefors GOF Test					
1800	1% Lilliefors Critical Value					0.0886	Data Not Normal at 1% Significance Level					
1801	Data Not Normal at 1% Significance Level											
1802												
1803	Background Statistics Assuming Normal Distribution											
1804	95% UTL with		95% Coverage		35.77	90% Percentile (z)					31.54	
1805			95% UPL (t)		34.23	95% Percentile (z)					34.11	
1806			95% USL		45.85	99% Percentile (z)					38.92	
1807												
1808	Gamma GOF Test											
1809	A-D Test Statistic					0.594	Anderson-Darling Gamma GOF Test					
1810	5% A-D Critical Value					0.752	Detected data appear Gamma Distributed at 5% Significance Level					
1811	K-S Test Statistic					0.0617	Kolmogorov-Smirnov Gamma GOF Test					
1812	5% K-S Critical Value					0.0804	Detected data appear Gamma Distributed at 5% Significance Level					
1813	Detected data appear Gamma Distributed at 5% Significance Level											
1814												
1815	Gamma Statistics											
1816	k hat (MLE)					10.18	k star (bias corrected MLE)					9.959
1817	Theta hat (MLE)					2.21	Theta star (bias corrected MLE)					2.259
1818	nu hat (MLE)					2749	nu star (bias corrected)					2689
1819	MLE Mean (bias corrected)					22.5	MLE Sd (bias corrected)					7.129
1820												
1821	Background Statistics Assuming Gamma Distribution											
1822	95% Wilson Hilferty (WH) Approx. Gamma UPL				35.4	90% Percentile					31.98	
1823	95% Hawkins Wixley (HW) Approx. Gamma UPL				35.68	95% Percentile					35.36	
1824	95% WH Approx. Gamma UTL with		95% Coverage		37.53	99% Percentile					42.3	
1825	95% HW Approx. Gamma UTL with		95% Coverage		37.93							
1826			95% WH USL		53.58	95% HW USL					55.35	
1827												
1828	Lognormal GOF Test											
1829	Shapiro Wilk Test Statistic					0.966	Shapiro Wilk Lognormal GOF Test					
1830	10% Shapiro Wilk P Value					0.0263	Data Not Lognormal at 10% Significance Level					
1831	Lilliefors Test Statistic					0.0521	Lilliefors Lognormal GOF Test					
1832	10% Lilliefors Critical Value					0.0701	Data appear Lognormal at 10% Significance Level					
1833	Data appear Approximate Lognormal at 10% Significance Level											
1834												
1835	Background Statistics assuming Lognormal Distribution											
1836	95% UTL with		95% Coverage		39.58	90% Percentile (z)					32.54	
1837			95% UPL (t)		36.85	95% Percentile (z)					36.64	
1838			95% USL		63.13	99% Percentile (z)					45.78	
1839												
1840	Nonparametric Distribution Free Background Statistics											
1841	Data appear Gamma Distributed at 5% Significance Level											
1842												
1843	Nonparametric Upper Limits for Background Threshold Values											
1844	Order of Statistic, order					133	95% UTL with 95% Coverage					41.7
1845	Approx, f used to compute achieved CC					1.737	Approximate Actual Confidence Coefficient achieved by UTL					0.91
1846							Approximate Sample Size needed to achieve specified CC					124

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	A	B	C	D	E	F	G	H	I	J	K	L
1847	95% Percentile Bootstrap UTL with 95% Coverage				38.5	95% BCA Bootstrap UTL with 95% Coverage				37.87		
1848	95% UPL				36.44	90% Percentile				31.98		
1849	90% Chebyshev UPL				43.75	95% Percentile				36.19		
1850	95% Chebyshev UPL				53.37	99% Percentile				42.69		
1851	95% USL				47.4							
1852												
1853	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1854	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1855	and consists of observations collected from clean unimpacted locations.											
1856	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1857	represents a background data set and when many onsite observations need to be compared with the BTV.											
1858												
1859	ME_Pb 40											
1860												
1861	General Statistics											
1862	Total Number of Observations				132	Number of Distinct Observations				105		
1863	Minimum				4.7	First Quartile				17.43		
1864	Second Largest				37.6	Median				21.45		
1865	Maximum				38.5	Third Quartile				25.53		
1866	Mean				22.01	SD				6.316		
1867	Coefficient of Variation				0.287	Skewness				0.404		
1868	Mean of logged Data				3.047	SD of logged Data				0.312		
1869												
1870	Critical Values for Background Threshold Values (BTVs)											
1871	Tolerance Factor K (For UTL)				1.884	d2max (for USL)				3.302		
1872												
1873	Normal GOF Test											
1874	Shapiro Wilk Test Statistic				0.97	Normal GOF Test						
1875	1% Shapiro Wilk P Value				0.0819	Data appear Normal at 1% Significance Level						
1876	Lilliefors Test Statistic				0.0776	Lilliefors GOF Test						
1877	1% Lilliefors Critical Value				0.0896	Data appear Normal at 1% Significance Level						
1878	Data appear Normal at 1% Significance Level											
1879												
1880	Background Statistics Assuming Normal Distribution											
1881	95% UTL with 95% Coverage		33.9	90% Percentile (z)		30.1						
1882	95% UPL (t)		32.51	95% Percentile (z)		32.39						
1883	95% USL		42.86	99% Percentile (z)		36.7						
1884												
1885	Gamma GOF Test											
1886	A-D Test Statistic		0.427	Anderson-Darling Gamma GOF Test								
1887	5% A-D Critical Value		0.752	Detected data appear Gamma Distributed at 5% Significance Level								
1888	K-S Test Statistic		0.0463	Kolmogorov-Smirnov Gamma GOF Test								
1889	5% K-S Critical Value		0.0811	Detected data appear Gamma Distributed at 5% Significance Level								
1890	Detected data appear Gamma Distributed at 5% Significance Level											
1891												
1892	Gamma Statistics											
1893	k hat (MLE)		11.46	k star (bias corrected MLE)		11.21						
1894	Theta hat (MLE)		1.92	Theta star (bias corrected MLE)		1.964						
1895	nu hat (MLE)		3026	nu star (bias corrected)		2959						
1896	MLE Mean (bias corrected)		22.01	MLE Sd (bias corrected)		6.573						
1897												
1898	Background Statistics Assuming Gamma Distribution											
1899	95% Wilson Hilferty (WH) Approx. Gamma UPL		33.86	90% Percentile		30.74						
1900	95% Hawkins Wixley (HW) Approx. Gamma UPL		34.15	95% Percentile		33.81						
1901	95% WH Approx. Gamma UTL with 95% Coverage		35.81	99% Percentile		40.1						
1902	95% HW Approx. Gamma UTL with 95% Coverage		36.22									
1903	95% WH USL		50.17	95% HW USL		51.8						
1904												
1905	Lognormal GOF Test											
1906	Shapiro Wilk Test Statistic		0.95	Shapiro Wilk Lognormal GOF Test								
1907	10% Shapiro Wilk P Value		2.7704E-4	Data Not Lognormal at 10% Significance Level								
1908	Lilliefors Test Statistic		0.0617	Lilliefors Lognormal GOF Test								
1909	10% Lilliefors Critical Value		0.0709	Data appear Lognormal at 10% Significance Level								
1910	Data appear Approximate Lognormal at 10% Significance Level											
1911												
1912	Background Statistics assuming Lognormal Distribution											
1913	95% UTL with 95% Coverage		37.86	90% Percentile (z)		31.38						
1914	95% UPL (t)		35.34	95% Percentile (z)		35.14						
1915	95% USL		58.89	99% Percentile (z)		43.46						
1916												
1917	Nonparametric Distribution Free Background Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L		
1918	Data appear Normal at 1% Significance Level													
1919														
1920	Nonparametric Upper Limits for Background Threshold Values													
1921	Order of Statistic, order					130	95% UTL with 95% Coverage					36.6		
1922	Approx, f used to compute achieved CC					1.697	Approximate Actual Confidence Coefficient achieved by UTL					0.901		
1923							Approximate Sample Size needed to achieve specified CC					124		
1924	95% Percentile Bootstrap UTL with 95% Coverage					36.33	95% BCA Bootstrap UTL with 95% Coverage					36.4		
1925						95% UPL	34.66						90% Percentile	30.98
1926						90% Chebyshev UPL	41.02						95% Percentile	34.05
1927						95% Chebyshev UPL	49.64						99% Percentile	37.29
1928						95% USL	38.5							
1929														
1930	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.													
1931	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers													
1932	and consists of observations collected from clean unpacted locations.													
1933	The use of USL tends to provide a balance between false positives and false negatives provided the data													
1934	represents a background data set and when many onsite observations need to be compared with the BTV.													
1935														
1936	MI_As													
1937														
1938	General Statistics													
1939	Total Number of Observations					285	Number of Distinct Observations					80		
1940	Minimum					0.3	First Quartile					1.6		
1941	Second Largest					15.7	Median					2.8		
1942	Maximum					25.5	Third Quartile					4.6		
1943	Mean					3.612	SD					3.021		
1944	Coefficient of Variation					0.837	Skewness					2.452		
1945	Mean of logged Data					0.997	SD of logged Data					0.77		
1946														
1947	Critical Values for Background Threshold Values (BTVs)													
1948	Tolerance Factor K (For UTL)					1.803	d2max (for USL)					3.538		
1949														
1950	Normal GOF Test													
1951	Shapiro Wilk Test Statistic					0.803	Normal GOF Test							
1952	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level							
1953	Lilliefors Test Statistic					0.157	Lilliefors GOF Test							
1954	1% Lilliefors Critical Value					0.0612	Data Not Normal at 1% Significance Level							
1955	Data Not Normal at 1% Significance Level													
1956														
1957	Background Statistics Assuming Normal Distribution													
1958	95% UTL with 95% Coverage					9.058	90% Percentile (z)					7.483		
1959						95% UPL (t)	8.606	95% Percentile (z)					8.581	
1960						95% USL	14.3	99% Percentile (z)					10.64	
1961														
1962	Gamma GOF Test													
1963	A-D Test Statistic					2.072	Anderson-Darling Gamma GOF Test							
1964	5% A-D Critical Value					0.767	Data Not Gamma Distributed at 5% Significance Level							
1965	K-S Test Statistic					0.0749	Kolmogorov-Smirnov Gamma GOF Test							
1966	5% K-S Critical Value					0.0546	Data Not Gamma Distributed at 5% Significance Level							
1967	Data Not Gamma Distributed at 5% Significance Level													
1968														
1969	Gamma Statistics													
1970	k hat (MLE)					1.893	k star (bias corrected MLE)					1.875		
1971	Theta hat (MLE)					1.908	Theta star (bias corrected MLE)					1.926		
1972	nu hat (MLE)					1079	nu star (bias corrected)					1069		
1973	MLE Mean (bias corrected)					3.612	MLE Sd (bias corrected)					2.638		
1974														
1975	Background Statistics Assuming Gamma Distribution													
1976	95% Wilson Hiferty (WH) Approx. Gamma UPL					8.65	90% Percentile					7.132		
1977	95% Hawkins Wixley (HW) Approx. Gamma UPL					8.798	95% Percentile					8.744		
1978	95% WH Approx. Gamma UTL with 95% Coverage					9.37	99% Percentile					12.33		
1979	95% HW Approx. Gamma UTL with 95% Coverage					9.592								
1980						95% WH USL	20.81						95% HW USL	23.24
1981														
1982	Lognormal GOF Test													
1983	Shapiro Wilk Test Statistic					0.981	Shapiro Wilk Lognormal GOF Test							
1984	10% Shapiro Wilk P Value					0.269	Data appear Lognormal at 10% Significance Level							
1985	Lilliefors Test Statistic					0.0329	Lilliefors Lognormal GOF Test							
1986	10% Lilliefors Critical Value					0.0484	Data appear Lognormal at 10% Significance Level							
1987	Data appear Lognormal at 10% Significance Level													
1988														

	A	B	C	D	E	F	G	H	I	J	K	L
1989	Background Statistics assuming Lognormal Distribution											
1990	95% UTL with		95% Coverage		10.87					90% Percentile (z)		7.276
1991			95% UPL (t)		9.688					95% Percentile (z)		9.627
1992			95% USL		41.38					99% Percentile (z)		16.27
1993												
1994	Nonparametric Distribution Free Background Statistics											
1995	Data appear Lognormal at 10% Significance Level											
1996												
1997	Nonparametric Upper Limits for Background Threshold Values											
1998	Order of Statistic, order				278					95% UTL with 95% Coverage		11
1999	Approx, f used to compute achieved CC				1.62	Approximate Actual Confidence Coefficient achieved by UTL				0.949		
2000						Approximate Sample Size needed to achieve specified CC				260		
2001	95% Percentile Bootstrap UTL with		95% Coverage		10.6	95% BCA Bootstrap UTL with 95% Coverage				10.06		
2002			95% UPL		9.47					90% Percentile		7.82
2003			90% Chebyshev UPL		12.69					95% Percentile		9.4
2004			95% Chebyshev UPL		16.8					99% Percentile		13.03
2005			95% USL		25.5							
2006												
2007	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2008	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2009	and consists of observations collected from clean unpacted locations.											
2010	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2011	represents a background data set and when many onsite observations need to be compared with the BTV.											
2012												
2013	MI_As <16											
2014												
2015	General Statistics											
2016	Total Number of Observations				284	Number of Distinct Observations				79		
2017	Minimum				0.3	First Quartile				1.575		
2018	Second Largest				13.2	Median				2.8		
2019	Maximum				15.7	Third Quartile				4.6		
2020	Mean				3.535	SD				2.731		
2021	Coefficient of Variation				0.773	Skewness				1.583		
2022	Mean of logged Data				0.989	SD of logged Data				0.76		
2023												
2024	Critical Values for Background Threshold Values (BTVs)											
2025	Tolerance Factor K (For UTL)				1.803	d2max (for USL)				3.537		
2026												
2027	Normal GOF Test											
2028	Shapiro Wilk Test Statistic				0.839	Normal GOF Test						
2029	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level						
2030	Lilliefors Test Statistic				0.152	Lilliefors GOF Test						
2031	1% Lilliefors Critical Value				0.0613	Data Not Normal at 1% Significance Level						
2032	Data Not Normal at 1% Significance Level											
2033												
2034	Background Statistics Assuming Normal Distribution											
2035	95% UTL with		95% Coverage		8.46					90% Percentile (z)		7.035
2036			95% UPL (t)		8.05					95% Percentile (z)		8.027
2037			95% USL		13.19					99% Percentile (z)		9.889
2038												
2039	Gamma GOF Test											
2040	A-D Test Statistic				1.862	Anderson-Darling Gamma GOF Test						
2041	5% A-D Critical Value				0.766	Data Not Gamma Distributed at 5% Significance Level						
2042	K-S Test Statistic				0.0707	Kolmogorov-Smirnov Gamma GOF Test						
2043	5% K-S Critical Value				0.0546	Data Not Gamma Distributed at 5% Significance Level						
2044	Data Not Gamma Distributed at 5% Significance Level											
2045												
2046	Gamma Statistics											
2047	k hat (MLE)				1.981	k star (bias corrected MLE)				1.962		
2048	Theta hat (MLE)				1.785	Theta star (bias corrected MLE)				1.801		
2049	nu hat (MLE)				1125	nu star (bias corrected)				1114		
2050	MLE Mean (bias corrected)				3.535	MLE Sd (bias corrected)				2.523		
2051												
2052	Background Statistics Assuming Gamma Distribution											
2053	95% Wilson Hilferty (WH) Approx. Gamma UPL				8.371					90% Percentile		6.905
2054	95% Hawkins Wixley (HW) Approx. Gamma UPL				8.535					95% Percentile		8.435
2055	95% WH Approx. Gamma UTL with		95% Coverage		9.057					99% Percentile		11.83
2056	95% HW Approx. Gamma UTL with		95% Coverage		9.295							
2057			95% WH USL		19.87					95% HW USL		22.23
2058												
2059	Lognormal GOF Test											

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L	
2060	Shapiro Wilk Test Statistic					0.974	Shapiro Wilk Lognormal GOF Test						
2061	10% Shapiro Wilk P Value					0.0207	Data Not Lognormal at 10% Significance Level						
2062	Lilliefors Test Statistic					0.0332	Lilliefors Lognormal GOF Test						
2063	10% Lilliefors Critical Value					0.0485	Data appear Lognormal at 10% Significance Level						
2064	Data appear Approximate Lognormal at 10% Significance Level												
2065													
2066	Background Statistics assuming Lognormal Distribution												
2067	95% UTL with		95% Coverage		10.59						90% Percentile (z)	7.125	
2068			95% UPL (t)		9.451						95% Percentile (z)	9.391	
2069			95% USL		39.56						99% Percentile (z)	15.77	
2070													
2071	Nonparametric Distribution Free Background Statistics												
2072	Data appear Approximate Lognormal at 10% Significance Level												
2073													
2074	Nonparametric Upper Limits for Background Threshold Values												
2075	Order of Statistic, order				277	95% UTL with 95% Coverage				11			
2076	Approx, f used to compute achieved CC				1.614	Approximate Actual Confidence Coefficient achieved by UTL				0.948			
2077						Approximate Sample Size needed to achieve specified CC				260			
2078	95% Percentile Bootstrap UTL with		95% Coverage		10.2	95% BCA Bootstrap UTL with 95% Coverage				10.2			
2079			95% UPL		9.4	90% Percentile				7.67			
2080			90% Chebyshev UPL		11.74	95% Percentile				9.4			
2081			95% Chebyshev UPL		15.46	99% Percentile				12.75			
2082			95% USL		15.7								
2083													
2084	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
2085	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
2086	and consists of observations collected from clean unimpacted locations.												
2087	The use of USL tends to provide a balance between false positives and false negatives provided the data												
2088	represents a background data set and when many onsite observations need to be compared with the BTV.												
2089													
2090	MI_As <14												
2091													
2092	General Statistics												
2093	Total Number of Observations				283	Number of Distinct Observations				78			
2094	Minimum				0.3	First Quartile				1.55			
2095	Second Largest				13	Median				2.8			
2096	Maximum				13.2	Third Quartile				4.5			
2097	Mean				3.492	SD				2.638			
2098	Coefficient of Variation				0.756	Skewness				1.462			
2099	Mean of logged Data				0.983	SD of logged Data				0.754			
2100													
2101	Critical Values for Background Threshold Values (BTVs)												
2102	Tolerance Factor K (For UTL)				1.803	d2max (for USL)				3.536			
2103													
2104	Normal GOF Test												
2105	Shapiro Wilk Test Statistic				0.842	Normal GOF Test							
2106	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level							
2107	Lilliefors Test Statistic				0.151	Lilliefors GOF Test							
2108	1% Lilliefors Critical Value				0.0614	Data Not Normal at 1% Significance Level							
2109	Data Not Normal at 1% Significance Level												
2110													
2111	Background Statistics Assuming Normal Distribution												
2112	95% UTL with		95% Coverage		8.25	90% Percentile (z)					6.873		
2113			95% UPL (t)		7.853	95% Percentile (z)					7.831		
2114			95% USL		12.82	99% Percentile (z)					9.629		
2115													
2116	Gamma GOF Test												
2117	A-D Test Statistic				1.753	Anderson-Darling Gamma GOF Test							
2118	5% A-D Critical Value				0.766	Data Not Gamma Distributed at 5% Significance Level							
2119	K-S Test Statistic				0.0683	Kolmogorov-Smirnov Gamma GOF Test							
2120	5% K-S Critical Value				0.0547	Data Not Gamma Distributed at 5% Significance Level							
2121	Data Not Gamma Distributed at 5% Significance Level												
2122													
2123	Gamma Statistics												
2124	k hat (MLE)				2.022	k star (bias corrected MLE)				2.003			
2125	Theta hat (MLE)				1.727	Theta star (bias corrected MLE)				1.743			
2126	nu hat (MLE)				1145	nu star (bias corrected)				1134			
2127	MLE Mean (bias corrected)				3.492	MLE Sd (bias corrected)				2.467			
2128													
2129	Background Statistics Assuming Gamma Distribution												
2130	95% Wilson Hilferty (WH) Approx. Gamma UPL				8.222	90% Percentile				6.788			

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	A	B	C	D	E	F	G	H	I	J	K	L	
2131	95% Hawkins Wixley (HW) Approx. Gamma UPL					8.389						95% Percentile	8.278
2132	95% WH Approx. Gamma UTL with 95% Coverage					8.891						99% Percentile	11.58
2133	95% HW Approx. Gamma UTL with 95% Coverage					9.13							
2134	95% WH USL					19.39						95% HW USL	21.69
2135													
2136	Lognormal GOF Test												
2137	Shapiro Wilk Test Statistic					0.971						Shapiro Wilk Lognormal GOF Test	
2138	10% Shapiro Wilk P Value					0.00456						Data Not Lognormal at 10% Significance Level	
2139	Lilliefors Test Statistic					0.0332						Lilliefors Lognormal GOF Test	
2140	10% Lilliefors Critical Value					0.0486						Data appear Lognormal at 10% Significance Level	
2141	Data appear Approximate Lognormal at 10% Significance Level												
2142													
2143	Background Statistics assuming Lognormal Distribution												
2144	95% UTL with 95% Coverage					10.42						90% Percentile (z)	7.027
2145	95% UPL (t)					9.3						95% Percentile (z)	9.242
2146	95% USL					38.46						99% Percentile (z)	15.45
2147													
2148	Nonparametric Distribution Free Background Statistics												
2149	Data appear Approximate Lognormal at 10% Significance Level												
2150													
2151	Nonparametric Upper Limits for Background Threshold Values												
2152	Order of Statistic, order					276						95% UTL with 95% Coverage	10.7
2153	Approx, f used to compute achieved CC					1.608						Approximate Actual Confidence Coefficient achieved by UTL	
2154												Approximate Sample Size needed to achieve specified CC	
2155	95% Percentile Bootstrap UTL with 95% Coverage					10.13						95% BCA Bootstrap UTL with 95% Coverage	10.13
2156	95% UPL					9.4						90% Percentile	7.54
2157	90% Chebyshev UPL					11.42						95% Percentile	9.38
2158	95% Chebyshev UPL					15.01						99% Percentile	12.21
2159	95% USL					13.2							
2160													
2161	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
2162	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
2163	and consists of observations collected from clean unimpacted locations.												
2164	The use of USL tends to provide a balance between false positives and false negatives provided the data												
2165	represents a background data set and when many onsite observations need to be compared with the BTV.												
2166													
2167	MI_As <11												
2168													
2169	General Statistics												
2170	Total Number of Observations					276						Number of Distinct Observations	72
2171	Minimum					0.3						First Quartile	1.5
2172	Second Largest					10.2						Median	2.7
2173	Maximum					10.7						Third Quartile	4.3
2174	Mean					3.275						SD	2.285
2175	Coefficient of Variation					0.698						Skewness	1.22
2176	Mean of logged Data					0.945						SD of logged Data	0.724
2177													
2178	Critical Values for Background Threshold Values (BTVs)												
2179	Tolerance Factor K (For UTL)					1.806						d2max (for USL)	3.528
2180													
2181	Normal GOF Test												
2182	Shapiro Wilk Test Statistic					0.867						Normal GOF Test	
2183	1% Shapiro Wilk P Value					0						Data Not Normal at 1% Significance Level	
2184	Lilliefors Test Statistic					0.141						Lilliefors GOF Test	
2185	1% Lilliefors Critical Value					0.0622						Data Not Normal at 1% Significance Level	
2186	Data Not Normal at 1% Significance Level												
2187													
2188	Background Statistics Assuming Normal Distribution												
2189	95% UTL with 95% Coverage					7.401						90% Percentile (z)	6.204
2190	95% UPL (t)					7.053						95% Percentile (z)	7.034
2191	95% USL					11.34						99% Percentile (z)	8.591
2192													
2193	Gamma GOF Test												
2194	A-D Test Statistic					1.238						Anderson-Darling Gamma GOF Test	
2195	5% A-D Critical Value					0.765						Data Not Gamma Distributed at 5% Significance Level	
2196	K-S Test Statistic					0.0563						Kolmogorov-Smirnov Gamma GOF Test	
2197	5% K-S Critical Value					0.0555						Data Not Gamma Distributed at 5% Significance Level	
2198	Data Not Gamma Distributed at 5% Significance Level												
2199													
2200	Gamma Statistics												
2201	k hat (MLE)					2.224						k star (bias corrected MLE)	2.202

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	A	B	C	D	E	F	G	H	I	J	K	L	
2202	Theta hat (MLE)					1.473	Theta star (bias corrected MLE)					1.487	
2203	nu hat (MLE)					1228	nu star (bias corrected)					1216	
2204	MLE Mean (bias corrected)					3.275	MLE Sd (bias corrected)					2.207	
2205													
2206	Background Statistics Assuming Gamma Distribution												
2207	95% Wilson Hilferty (WH) Approx. Gamma UPL					7.506	90% Percentile					6.228	
2208	95% Hawkins Wixley (HW) Approx. Gamma UPL					7.669	95% Percentile					7.538	
2209	95% WH Approx. Gamma UTL with 95% Coverage					8.102	99% Percentile					10.43	
2210	95% HW Approx. Gamma UTL with 95% Coverage					8.33							
2211	95% WH USL					17.17	95% HW USL					19.15	
2212													
2213	Lognormal GOF Test												
2214	Shapiro Wilk Test Statistic					0.966	Shapiro Wilk Lognormal GOF Test						
2215	10% Shapiro Wilk P Value					3.1844E-4	Data Not Lognormal at 10% Significance Level						
2216	Lilliefors Test Statistic					0.0385	Lilliefors Lognormal GOF Test						
2217	10% Lilliefors Critical Value					0.0492	Data appear Lognormal at 10% Significance Level						
2218	Data appear Approximate Lognormal at 10% Significance Level												
2219													
2220	Background Statistics assuming Lognormal Distribution												
2221	95% UTL with 95% Coverage					9.513	90% Percentile (z)					6.509	
2222	95% UPL (t)					8.52	95% Percentile (z)					8.468	
2223	95% USL					33.12	99% Percentile (z)					13.87	
2224													
2225	Nonparametric Distribution Free Background Statistics												
2226	Data appear Approximate Lognormal at 10% Significance Level												
2227													
2228	Nonparametric Upper Limits for Background Threshold Values												
2229	Order of Statistic, order					269	95% UTL with 95% Coverage					9.4	
2230	Approx, f used to compute achieved CC					1.567	Approximate Actual Confidence Coefficient achieved by UTL					0.936	
2231							Approximate Sample Size needed to achieve specified CC					260	
2232	95% Percentile Bootstrap UTL with 95% Coverage					9.2	95% BCA Bootstrap UTL with 95% Coverage					9.2	
2233	95% UPL					8.53	90% Percentile					6.55	
2234	90% Chebyshev UPL					10.14	95% Percentile					8.35	
2235	95% Chebyshev UPL					13.25	99% Percentile					9.675	
2236	95% USL					10.7							
2237													
2238	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
2239	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
2240	and consists of observations collected from clean unimpacted locations.												
2241	The use of USL tends to provide a balance between false positives and false negatives provided the data												
2242	represents a background data set and when many onsite observations need to be compared with the BTV.												
2243													
2244	MI_Pb												
2245													
2246	General Statistics												
2247	Total Number of Observations					285	Number of Distinct Observations					163	
2248	Minimum					3.8	First Quartile					9.3	
2249	Second Largest					56.6	Median					12.5	
2250	Maximum					59.5	Third Quartile					16.6	
2251	Mean					13.86	SD					7.539	
2252	Coefficient of Variation					0.544	Skewness					2.17	
2253	Mean of logged Data					2.505	SD of logged Data					0.497	
2254													
2255	Critical Values for Background Threshold Values (BTVs)												
2256	Tolerance Factor K (For UTL)					1.803	d2max (for USL)					3.538	
2257													
2258	Normal GOF Test												
2259	Shapiro Wilk Test Statistic					0.847	Normal GOF Test						
2260	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
2261	Lilliefors Test Statistic					0.118	Lilliefors GOF Test						
2262	1% Lilliefors Critical Value					0.0612	Data Not Normal at 1% Significance Level						
2263	Data Not Normal at 1% Significance Level												
2264													
2265	Background Statistics Assuming Normal Distribution												
2266	95% UTL with 95% Coverage					27.45	90% Percentile (z)					23.52	
2267	95% UPL (t)					26.32	95% Percentile (z)					26.26	
2268	95% USL					40.52	99% Percentile (z)					31.39	
2269													
2270	Gamma GOF Test												
2271	A-D Test Statistic					1.26	Anderson-Darling Gamma GOF Test						
2272	5% A-D Critical Value					0.758	Data Not Gamma Distributed at 5% Significance Level						

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	A	B	C	D	E	F	G	H	I	J	K	L	
2273	K-S Test Statistic					0.0606	Kolmogorov-Smirnov Gamma GOF Test						
2274	5% K-S Critical Value					0.0541	Data Not Gamma Distributed at 5% Significance Level						
2275	Data Not Gamma Distributed at 5% Significance Level												
2276													
2277	Gamma Statistics												
2278	k hat (MLE)					4.195	k star (bias corrected MLE)					4.153	
2279	Theta hat (MLE)					3.303	Theta star (bias corrected MLE)					3.336	
2280	nu hat (MLE)					2391	nu star (bias corrected)					2367	
2281	MLE Mean (bias corrected)					13.86	MLE Sd (bias corrected)					6.799	
2282													
2283	Background Statistics Assuming Gamma Distribution												
2284	95% Wilson Hilferty (WH) Approx. Gamma UPL					26.53	90% Percentile					22.97	
2285	95% Hawkins Wixley (HW) Approx. Gamma UPL					26.75	95% Percentile					26.6	
2286	95% WH Approx. Gamma UTL with 95% Coverage					28.12	99% Percentile					34.33	
2287	95% HW Approx. Gamma UTL with 95% Coverage					28.45							
2288	95% WH USL					51.43	95% HW USL					54.57	
2289													
2290	Lognormal GOF Test												
2291	Shapiro Wilk Test Statistic					0.976	Shapiro Wilk Lognormal GOF Test						
2292	10% Shapiro Wilk P Value					0.0549	Data Not Lognormal at 10% Significance Level						
2293	Lilliefors Test Statistic					0.0539	Lilliefors Lognormal GOF Test						
2294	10% Lilliefors Critical Value					0.0484	Data Not Lognormal at 10% Significance Level						
2295	Data Not Lognormal at 10% Significance Level												
2296													
2297	Background Statistics assuming Lognormal Distribution												
2298	95% UTL with 95% Coverage					29.99	90% Percentile (z)					23.15	
2299	95% UPL (t)					27.84	95% Percentile (z)					27.73	
2300	95% USL					71.04	99% Percentile (z)					38.91	
2301													
2302	Nonparametric Distribution Free Background Statistics												
2303	Data do not follow a Discernible Distribution												
2304													
2305	Nonparametric Upper Limits for Background Threshold Values												
2306	Order of Statistic, order					278	95% UTL with 95% Coverage					31.2	
2307	Approx, f used to compute achieved CC					1.62	Approximate Actual Confidence Coefficient achieved by UTL					0.949	
2308							Approximate Sample Size needed to achieve specified CC					260	
2309	95% Percentile Bootstrap UTL with 95% Coverage					29.54	95% BCA Bootstrap UTL with 95% Coverage					29.5	
2310	95% UPL					28.55	90% Percentile					21.9	
2311	90% Chebyshev UPL					36.51	95% Percentile					28.16	
2312	95% Chebyshev UPL					46.77	99% Percentile					40.68	
2313	95% USL					59.5							
2314													
2315	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
2316	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
2317	and consists of observations collected from clean unimpacted locations.												
2318	The use of USL tends to provide a balance between false positives and false negatives provided the data												
2319	represents a background data set and when many onsite observations need to be compared with the BTV.												
2320													
2321	MI_Pb <42												
2322													
2323	General Statistics												
2324	Total Number of Observations					283	Number of Distinct Observations					161	
2325	Minimum					3.8	First Quartile					9.2	
2326	Second Largest					40.5	Median					12.5	
2327	Maximum					41.6	Third Quartile					16.5	
2328	Mean					13.54	SD					6.578	
2329	Coefficient of Variation					0.486	Skewness					1.261	
2330	Mean of logged Data					2.494	SD of logged Data					0.481	
2331													
2332	Critical Values for Background Threshold Values (BTVs)												
2333	Tolerance Factor K (For UTL)					1.803	d2max (for USL)					3.536	
2334													
2335	Normal GOF Test												
2336	Shapiro Wilk Test Statistic					0.907	Normal GOF Test						
2337	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
2338	Lilliefors Test Statistic					0.0872	Lilliefors GOF Test						
2339	1% Lilliefors Critical Value					0.0614	Data Not Normal at 1% Significance Level						
2340	Data Not Normal at 1% Significance Level												
2341													
2342	Background Statistics Assuming Normal Distribution												
2343	95% UTL with 95% Coverage					25.41	90% Percentile (z)					21.97	

	A	B	C	D	E	F	G	H	I	J	K	L
2344					95% UPL (t)	24.42					95% Percentile (z)	24.36
2345					95% USL	36.8					99% Percentile (z)	28.85
2346												
2347	Gamma GOF Test											
2348					A-D Test Statistic	0.798		Anderson-Darling Gamma GOF Test				
2349					5% A-D Critical Value	0.757		Data Not Gamma Distributed at 5% Significance Level				
2350					K-S Test Statistic	0.0444		Kolmogorov-Smirnov Gamma GOF Test				
2351					5% K-S Critical Value	0.0542		Detected data appear Gamma Distributed at 5% Significance Level				
2352	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
2353												
2354	Gamma Statistics											
2355					k hat (MLE)	4.621					k star (bias corrected MLE)	4.574
2356					Theta hat (MLE)	2.931					Theta star (bias corrected MLE)	2.961
2357					nu hat (MLE)	2615					nu star (bias corrected)	2589
2358					MLE Mean (bias corrected)	13.54					MLE Sd (bias corrected)	6.333
2359												
2360	Background Statistics Assuming Gamma Distribution											
2361					95% Wilson Hilferty (WH) Approx. Gamma UPL	25.34					90% Percentile	22.03
2362					95% Hawkins Wixley (HW) Approx. Gamma UPL	25.62					95% Percentile	25.36
2363					95% WH Approx. Gamma UTL with 95% Coverage	26.81					99% Percentile	32.42
2364					95% HW Approx. Gamma UTL with 95% Coverage	27.19						
2365					95% WH USL	47.99					95% HW USL	50.99
2366												
2367	Lognormal GOF Test											
2368					Shapiro Wilk Test Statistic	0.971		Shapiro Wilk Lognormal GOF Test				
2369					10% Shapiro Wilk P Value	0.00585		Data Not Lognormal at 10% Significance Level				
2370					Lilliefors Test Statistic	0.0551		Lilliefors Lognormal GOF Test				
2371					10% Lilliefors Critical Value	0.0486		Data Not Lognormal at 10% Significance Level				
2372	Data Not Lognormal at 10% Significance Level											
2373												
2374	Background Statistics assuming Lognormal Distribution											
2375					95% UTL with 95% Coverage	28.84					90% Percentile (z)	22.43
2376					95% UPL (t)	26.82					95% Percentile (z)	26.72
2377					95% USL	66.35					99% Percentile (z)	37.08
2378												
2379	Nonparametric Distribution Free Background Statistics											
2380	Data appear Approximate Gamma Distribution at 5% Significance Level											
2381												
2382	Nonparametric Upper Limits for Background Threshold Values											
2383					Order of Statistic, order	276					95% UTL with 95% Coverage	29.6
2384					Approx, f used to compute achieved CC	1.608		Approximate Actual Confidence Coefficient achieved by UTL				0.947
2385								Approximate Sample Size needed to achieve specified CC				260
2386					95% Percentile Bootstrap UTL with 95% Coverage	29.1		95% BCA Bootstrap UTL with 95% Coverage				29.08
2387					95% UPL	28					90% Percentile	21.4
2388					90% Chebyshev UPL	33.31					95% Percentile	27.93
2389					95% Chebyshev UPL	42.27					99% Percentile	34.29
2390					95% USL	41.6						
2391												
2392	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2393	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2394	and consists of observations collected from clean unimpacted locations.											
2395	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2396	represents a background data set and when many onsite observations need to be compared with the BTV.											
2397												
2398	MI_Pb <36											
2399												
2400	General Statistics											
2401					Total Number of Observations	281		Number of Distinct Observations				159
2402					Minimum	3.8		First Quartile				9.1
2403					Second Largest	34		Median				12.5
2404					Maximum	35.6		Third Quartile				16.5
2405					Mean	13.35		SD				6.175
2406					Coefficient of Variation	0.463		Skewness				0.994
2407					Mean of logged Data	2.485		SD of logged Data				0.472
2408												
2409	Critical Values for Background Threshold Values (BTVs)											
2410					Tolerance Factor K (For UTL)	1.804					d2max (for USL)	3.534
2411												
2412	Normal GOF Test											
2413					Shapiro Wilk Test Statistic	0.923		Normal GOF Test				
2414					1% Shapiro Wilk P Value	0		Data Not Normal at 1% Significance Level				

	A	B	C	D	E	F	G	H	I	J	K	L	
2415	Lilliefors Test Statistic					0.0796	Lilliefors GOF Test						
2416	1% Lilliefors Critical Value					0.0616	Data Not Normal at 1% Significance Level						
2417	Data Not Normal at 1% Significance Level												
2418													
2419	Background Statistics Assuming Normal Distribution												
2420	95% UTL with		95% Coverage	24.49	90% Percentile (z)							21.26	
2421			95% UPL (t)	23.56	95% Percentile (z)							23.51	
2422			95% USL	35.17	99% Percentile (z)							27.71	
2423													
2424	Gamma GOF Test												
2425	A-D Test Statistic		0.686	Anderson-Darling Gamma GOF Test									
2426	5% A-D Critical Value		0.757	Detected data appear Gamma Distributed at 5% Significance Level									
2427	K-S Test Statistic		0.0364	Kolmogorov-Smirnov Gamma GOF Test									
2428	5% K-S Critical Value		0.0544	Detected data appear Gamma Distributed at 5% Significance Level									
2429	Detected data appear Gamma Distributed at 5% Significance Level												
2430													
2431	Gamma Statistics												
2432	k hat (MLE)		4.867	k star (bias corrected MLE)							4.818		
2433	Theta hat (MLE)		2.742	Theta star (bias corrected MLE)							2.771		
2434	nu hat (MLE)		2735	nu star (bias corrected)							2708		
2435	MLE Mean (bias corrected)		13.35	MLE Sd (bias corrected)							6.081		
2436													
2437	Background Statistics Assuming Gamma Distribution												
2438	95% Wilson Hilferty (WH) Approx. Gamma UPL		24.67	90% Percentile							21.49		
2439	95% Hawkins Wixley (HW) Approx. Gamma UPL		24.96	95% Percentile							24.66		
2440	95% WH Approx. Gamma UTL with		95% Coverage	26.07	99% Percentile							31.38	
2441	95% HW Approx. Gamma UTL with		95% Coverage	26.46									
2442			95% WH USL	46.11	95% HW USL							48.99	
2443													
2444	Lognormal GOF Test												
2445	Shapiro Wilk Test Statistic		0.967	Shapiro Wilk Lognormal GOF Test									
2446	10% Shapiro Wilk P Value		4.2055E-4	Data Not Lognormal at 10% Significance Level									
2447	Lilliefors Test Statistic		0.0568	Lilliefors Lognormal GOF Test									
2448	10% Lilliefors Critical Value		0.0487	Data Not Lognormal at 10% Significance Level									
2449	Data Not Lognormal at 10% Significance Level												
2450													
2451	Background Statistics assuming Lognormal Distribution												
2452	95% UTL with		95% Coverage	28.11	90% Percentile (z)							21.97	
2453			95% UPL (t)	26.18	95% Percentile (z)							26.07	
2454			95% USL	63.54	99% Percentile (z)							35.96	
2455													
2456	Nonparametric Distribution Free Background Statistics												
2457	Data appear Gamma Distributed at 5% Significance Level												
2458													
2459	Nonparametric Upper Limits for Background Threshold Values												
2460	Order of Statistic, order		274	95% UTL with							95% Coverage	29.1	
2461	Approx, f used to compute achieved CC		1.596	Approximate Actual Confidence Coefficient achieved by UTL							0.944		
2462				Approximate Sample Size needed to achieve specified CC							260		
2463	95% Percentile Bootstrap UTL with		95% Coverage	28.9	95% BCA Bootstrap UTL with							95% Coverage	28.7
2464			95% UPL	27.28								90% Percentile	21.3
2465			90% Chebyshev UPL	31.91								95% Percentile	27.1
2466			95% Chebyshev UPL	40.31								99% Percentile	31.56
2467			95% USL	35.6									
2468													
2469	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
2470	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
2471	and consists of observations collected from clean unimpacted locations.												
2472	The use of USL tends to provide a balance between false positives and false negatives provided the data												
2473	represents a background data set and when many onsite observations need to be compared with the BTV.												
2474													
2475	MI_Pb <30												
2476													
2477	General Statistics												
2478	Total Number of Observations		276	Number of Distinct Observations							154		
2479	Minimum		3.8	First Quartile							8.925		
2480	Second Largest		29.3	Median							12.4		
2481	Maximum		29.6	Third Quartile							16.23		
2482	Mean		13	SD							5.637		
2483	Coefficient of Variation		0.434	Skewness							0.748		
2484	Mean of logged Data		2.467	SD of logged Data							0.456		
2485													

	A	B	C	D	E	F	G	H	I	J	K	L
2486	Critical Values for Background Threshold Values (BTVs)											
2487	Tolerance Factor K (For UTL)					1.806	d2max (for USL)					3.528
2488												
2489	Normal GOF Test											
2490	Shapiro Wilk Test Statistic					0.937	Normal GOF Test					
2491	1% Shapiro Wilk P Value					5.551E-16	Data Not Normal at 1% Significance Level					
2492	Lilliefors Test Statistic					0.0655	Lilliefors GOF Test					
2493	1% Lilliefors Critical Value					0.0622	Data Not Normal at 1% Significance Level					
2494	Data Not Normal at 1% Significance Level											
2495												
2496	Background Statistics Assuming Normal Distribution											
2497	95% UTL with	95% Coverage			23.18	90% Percentile (z)					20.22	
2498		95% UPL (t)			22.32	95% Percentile (z)					22.27	
2499		95% USL			32.89	99% Percentile (z)					26.11	
2500												
2501	Gamma GOF Test											
2502	A-D Test Statistic					0.684	Anderson-Darling Gamma GOF Test					
2503	5% A-D Critical Value					0.756	Detected data appear Gamma Distributed at 5% Significance Level					
2504	K-S Test Statistic					0.0401	Kolmogorov-Smirnov Gamma GOF Test					
2505	5% K-S Critical Value					0.055	Detected data appear Gamma Distributed at 5% Significance Level					
2506	Detected data appear Gamma Distributed at 5% Significance Level											
2507												
2508	Gamma Statistics											
2509	k hat (MLE)					5.279	k star (bias corrected MLE)					5.224
2510	Theta hat (MLE)					2.462	Theta star (bias corrected MLE)					2.488
2511	nu hat (MLE)					2914	nu star (bias corrected)					2884
2512	MLE Mean (bias corrected)					13	MLE Sd (bias corrected)					5.686
2513												
2514	Background Statistics Assuming Gamma Distribution											
2515	95% Wilson Hilferty (WH) Approx.	Gamma UPL			23.55	90% Percentile					20.61	
2516	95% Hawkins Wixley (HW) Approx.	Gamma UPL			23.85	95% Percentile					23.54	
2517	95% WH Approx.	Gamma UTL with	95% Coverage		24.86	99% Percentile					29.72	
2518	95% HW Approx.	Gamma UTL with	95% Coverage		25.25							
2519		95% WH USL			43.14	95% HW USL					45.78	
2520												
2521	Lognormal GOF Test											
2522	Shapiro Wilk Test Statistic					0.959	Shapiro Wilk Lognormal GOF Test					
2523	10% Shapiro Wilk P Value					2.8178E-6	Data Not Lognormal at 10% Significance Level					
2524	Lilliefors Test Statistic					0.0627	Lilliefors Lognormal GOF Test					
2525	10% Lilliefors Critical Value					0.0492	Data Not Lognormal at 10% Significance Level					
2526	Data Not Lognormal at 10% Significance Level											
2527												
2528	Background Statistics assuming Lognormal Distribution											
2529	95% UTL with	95% Coverage			26.85	90% Percentile (z)					21.14	
2530		95% UPL (t)			25.05	95% Percentile (z)					24.95	
2531		95% USL			58.88	99% Percentile (z)					34.04	
2532												
2533	Nonparametric Distribution Free Background Statistics											
2534	Data appear Gamma Distributed at 5% Significance Level											
2535												
2536	Nonparametric Upper Limits for Background Threshold Values											
2537	Order of Statistic, order					269	95% UTL with 95% Coverage					28
2538	Approx, f used to compute achieved CC					1.567	Approximate Actual Confidence Coefficient achieved by UTL					0.936
2539							Approximate Sample Size needed to achieve specified CC					260
2540	95% Percentile Bootstrap UTL with	95% Coverage			27.15	95% BCA Bootstrap UTL with 95% Coverage					27.1	
2541		95% UPL			24.55	90% Percentile					20.45	
2542		90% Chebyshev UPL			29.94	95% Percentile					24.5	
2543		95% Chebyshev UPL			37.61	99% Percentile					28.95	
2544		95% USL			29.6							
2545												
2546	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2547	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2548	and consists of observations collected from clean unimpacted locations.											
2549	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2550	represents a background data set and when many onsite observations need to be compared with the BTV.											
2551												
2552	MN_As											
2553												
2554	General Statistics											
2555	Total Number of Observations					410	Number of Distinct Observations					93
2556	Minimum					0.3	First Quartile					2.4

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	A	B	C	D	E	F	G	H	I	J	K	L	
2557				Second Largest		16.5					Median	4.25	
2558				Maximum		19.3					Third Quartile	6.1	
2559				Mean		4.593					SD	2.626	
2560				Coefficient of Variation		0.572					Skewness	1.167	
2561				Mean of logged Data		1.351					SD of logged Data	0.623	
2562													
2563				Critical Values for Background Threshold Values (BTVs)									
2564				Tolerance Factor K (For UTL)		1.775					d2max (for USL)	3.641	
2565													
2566				Normal GOF Test									
2567				Shapiro Wilk Test Statistic		0.925					Normal GOF Test		
2568				1% Shapiro Wilk P Value		0					Data Not Normal at 1% Significance Level		
2569				Lilliefors Test Statistic		0.082					Lilliefors GOF Test		
2570				1% Lilliefors Critical Value		0.051					Data Not Normal at 1% Significance Level		
2571				Data Not Normal at 1% Significance Level									
2572													
2573				Background Statistics Assuming Normal Distribution									
2574				95% UTL with	95% Coverage	9.256					90% Percentile (z)	7.959	
2575					95% UPL (t)	8.928					95% Percentile (z)	8.913	
2576					95% USL	14.15					99% Percentile (z)	10.7	
2577													
2578				Gamma GOF Test									
2579				A-D Test Statistic		1.514					Anderson-Darling Gamma GOF Test		
2580				5% A-D Critical Value		0.76					Data Not Gamma Distributed at 5% Significance Level		
2581				K-S Test Statistic		0.0566					Kolmogorov-Smirnov Gamma GOF Test		
2582				5% K-S Critical Value		0.045					Data Not Gamma Distributed at 5% Significance Level		
2583				Data Not Gamma Distributed at 5% Significance Level									
2584													
2585				Gamma Statistics									
2586				k hat (MLE)		3.037					k star (bias corrected MLE)	3.017	
2587				Theta hat (MLE)		1.512					Theta star (bias corrected MLE)	1.522	
2588				nu hat (MLE)		2491					nu star (bias corrected)	2474	
2589				MLE Mean (bias corrected)		4.593					MLE Sd (bias corrected)	2.644	
2590													
2591				Background Statistics Assuming Gamma Distribution									
2592				95% Wilson Hilferty (WH) Approx.	Gamma UPL	9.608					90% Percentile	8.138	
2593				95% Hawkins Wixley (HW) Approx.	Gamma UPL	9.812					95% Percentile	9.623	
2594				95% WH Approx.	Gamma UTL with	95% Coverage	10.15				99% Percentile	12.84	
2595				95% HW Approx.	Gamma UTL with	95% Coverage	10.42						
2596					95% WH USL	20.98					95% HW USL	23.16	
2597													
2598				Lognormal GOF Test									
2599				Shapiro Wilk Test Statistic		0.966					Shapiro Wilk Lognormal GOF Test		
2600				10% Shapiro Wilk P Value		2.3004E-6					Data Not Lognormal at 10% Significance Level		
2601				Lilliefors Test Statistic		0.0856					Lilliefors Lognormal GOF Test		
2602				10% Lilliefors Critical Value		0.0404					Data Not Lognormal at 10% Significance Level		
2603				Data Not Lognormal at 10% Significance Level									
2604													
2605				Background Statistics assuming Lognormal Distribution									
2606				95% UTL with	95% Coverage	11.66					90% Percentile (z)	8.576	
2607					95% UPL (t)	10.79					95% Percentile (z)	10.75	
2608					95% USL	37.27					99% Percentile (z)	16.44	
2609													
2610				Nonparametric Distribution Free Background Statistics									
2611				Data do not follow a Discernible Distribution									
2612													
2613				Nonparametric Upper Limits for Background Threshold Values									
2614				Order of Statistic, order		397					95% UTL with	95% Coverage	9.8
2615				Approx, f used to compute achieved CC		1.389					Approximate Actual Confidence Coefficient achieved by UTL		0.919
2616											Approximate Sample Size needed to achieve specified CC		410
2617				95% Percentile Bootstrap UTL with	95% Coverage	9.5					95% BCA Bootstrap UTL with	95% Coverage	9.455
2618					95% UPL	8.8					90% Percentile		8
2619					90% Chebyshev UPL	12.48					95% Percentile		8.8
2620					95% Chebyshev UPL	16.06					99% Percentile		11.74
2621					95% USL	19.3							
2622													
2623				Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.									
2624				Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers									
2625				and consists of observations collected from clean unimpacted locations.									
2626				The use of USL tends to provide a balance between false positives and false negatives provided the data									
2627				represents a background data set and when many onsite observations need to be compared with the BTV.									

	A	B	C	D	E	F	G	H	I	J	K	L
2628												
2629	MN_As <16											
2630												
2631	General Statistics											
2632	Total Number of Observations					408	Number of Distinct Observations					91
2633	Minimum					0.3	First Quartile					2.4
2634	Second Largest					11.8	Median					4.2
2635	Maximum					15.2	Third Quartile					6.1
2636	Mean					4.527	SD					2.459
2637	Coefficient of Variation					0.543	Skewness					0.701
2638	Mean of logged Data					1.343	SD of logged Data					0.615
2639												
2640	Critical Values for Background Threshold Values (BTVs)											
2641	Tolerance Factor K (For UTL)					1.776	d2max (for USL)					3.639
2642												
2643	Normal GOF Test											
2644	Shapiro Wilk Test Statistic					0.945	Normal GOF Test					
2645	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
2646	Lilliefors Test Statistic					0.0799	Lilliefors GOF Test					
2647	1% Lilliefors Critical Value					0.0512	Data Not Normal at 1% Significance Level					
2648	Data Not Normal at 1% Significance Level											
2649												
2650	Background Statistics Assuming Normal Distribution											
2651	95% UTL with	95% Coverage			8.894	90% Percentile (z)					7.679	
2652		95% UPL (t)			8.587	95% Percentile (z)					8.573	
2653		95% USL			13.48	99% Percentile (z)					10.25	
2654												
2655	Gamma GOF Test											
2656	A-D Test Statistic					1.839	Anderson-Darling Gamma GOF Test					
2657	5% A-D Critical Value					0.76	Data Not Gamma Distributed at 5% Significance Level					
2658	K-S Test Statistic					0.0631	Kolmogorov-Smirnov Gamma GOF Test					
2659	5% K-S Critical Value					0.0451	Data Not Gamma Distributed at 5% Significance Level					
2660	Data Not Gamma Distributed at 5% Significance Level											
2661												
2662	Gamma Statistics											
2663	k hat (MLE)					3.155	k star (bias corrected MLE)					3.134
2664	Theta hat (MLE)					1.435	Theta star (bias corrected MLE)					1.445
2665	nu hat (MLE)					2575	nu star (bias corrected)					2557
2666	MLE Mean (bias corrected)					4.527	MLE Sd (bias corrected)					2.558
2667												
2668	Background Statistics Assuming Gamma Distribution											
2669	95% Wilson Hilferty (WH) Approx. Gamma UPL					9.379	90% Percentile					7.957
2670	95% Hawkins Wixley (HW) Approx. Gamma UPL					9.59	95% Percentile					9.384
2671	95% WH Approx. Gamma UTL with 95% Coverage					9.906	99% Percentile					12.47
2672	95% HW Approx. Gamma UTL with 95% Coverage					10.17						
2673	95% WH USL					20.26	95% HW USL					22.37
2674												
2675	Lognormal GOF Test											
2676	Shapiro Wilk Test Statistic					0.958	Shapiro Wilk Lognormal GOF Test					
2677	10% Shapiro Wilk P Value					1.540E-10	Data Not Lognormal at 10% Significance Level					
2678	Lilliefors Test Statistic					0.0892	Lilliefors Lognormal GOF Test					
2679	10% Lilliefors Critical Value					0.0405	Data Not Lognormal at 10% Significance Level					
2680	Data Not Lognormal at 10% Significance Level											
2681												
2682	Background Statistics assuming Lognormal Distribution											
2683	95% UTL with	95% Coverage			11.42	90% Percentile (z)					8.427	
2684		95% UPL (t)			10.57	95% Percentile (z)					10.54	
2685		95% USL			35.92	99% Percentile (z)					16.02	
2686												
2687	Nonparametric Distribution Free Background Statistics											
2688	Data do not follow a Discernible Distribution											
2689												
2690	Nonparametric Upper Limits for Background Threshold Values											
2691	Order of Statistic, order					396	95% UTL with 95% Coverage					9.5
2692	Approx. f used to compute achieved CC					1.485	Approximate Actual Confidence Coefficient achieved by UTL					0.948
2693							Approximate Sample Size needed to achieve specified CC					385
2694	95% Percentile Bootstrap UTL with 95% Coverage					9.3	95% BCA Bootstrap UTL with 95% Coverage					9.23
2695	95% UPL					8.755	90% Percentile					7.93
2696	90% Chebyshev UPL					11.91	95% Percentile					8.7
2697	95% Chebyshev UPL					15.26	99% Percentile					10.8
2698	95% USL					15.2						

	A	B	C	D	E	F	G	H	I	J	K	L
2699												
2700	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2701	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2702	and consists of observations collected from clean unimpacted locations.											
2703	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2704	represents a background data set and when many onsite observations need to be compared with the BTV.											
2705												
2706	MN_As <11											
2707												
2708	General Statistics											
2709	Total Number of Observations					404	Number of Distinct Observations					88
2710	Minimum					0.3	First Quartile					2.4
2711	Second Largest					10.8	Median					4.2
2712	Maximum					10.8	Third Quartile					6.1
2713	Mean					4.449	SD					2.334
2714	Coefficient of Variation					0.525	Skewness					0.484
2715	Mean of logged Data					1.332	SD of logged Data					0.607
2716												
2717	Critical Values for Background Threshold Values (BTVs)											
2718	Tolerance Factor K (For UTL)					1.776	d2max (for USL)					3.637
2719												
2720	Normal GOF Test											
2721	Shapiro Wilk Test Statistic					0.94	Normal GOF Test					
2722	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
2723	Lilliefors Test Statistic					0.0842	Lilliefors GOF Test					
2724	1% Lilliefors Critical Value					0.0514	Data Not Normal at 1% Significance Level					
2725	Data Not Normal at 1% Significance Level											
2726												
2727	Background Statistics Assuming Normal Distribution											
2728	95% UTL with	95% Coverage				8.596		90% Percentile (z)				7.44
2729		95% UPL (t)				8.302		95% Percentile (z)				8.289
2730		95% USL				12.94		99% Percentile (z)				9.88
2731												
2732	Gamma GOF Test											
2733	A-D Test Statistic					2.27	Anderson-Darling Gamma GOF Test					
2734	5% A-D Critical Value					0.76	Data Not Gamma Distributed at 5% Significance Level					
2735	K-S Test Statistic					0.0694	Kolmogorov-Smirnov Gamma GOF Test					
2736	5% K-S Critical Value					0.0453	Data Not Gamma Distributed at 5% Significance Level					
2737	Data Not Gamma Distributed at 5% Significance Level											
2738												
2739	Gamma Statistics											
2740	k hat (MLE)					3.266	k star (bias corrected MLE)					3.243
2741	Theta hat (MLE)					1.362	Theta star (bias corrected MLE)					1.372
2742	nu hat (MLE)					2639	nu star (bias corrected)					2621
2743	MLE Mean (bias corrected)					4.449	MLE Sd (bias corrected)					2.47
2744												
2745	Background Statistics Assuming Gamma Distribution											
2746	95% Wilson Hilferty (WH) Approx.	Gamma UPL				9.132		90% Percentile				7.761
2747	95% Hawkins Wixley (HW) Approx.	Gamma UPL				9.342		95% Percentile				9.132
2748	95% WH Approx.	Gamma UTL with	95% Coverage			9.64		99% Percentile				12.09
2749	95% HW Approx.	Gamma UTL with	95% Coverage			9.903						
2750		95% WH USL				19.52		95% HW USL				21.55
2751												
2752	Lognormal GOF Test											
2753	Shapiro Wilk Test Statistic					0.948	Shapiro Wilk Lognormal GOF Test					
2754	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
2755	Lilliefors Test Statistic					0.0926	Lilliefors Lognormal GOF Test					
2756	10% Lilliefors Critical Value					0.0407	Data Not Lognormal at 10% Significance Level					
2757	Data Not Lognormal at 10% Significance Level											
2758												
2759	Background Statistics assuming Lognormal Distribution											
2760	95% UTL with	95% Coverage				11.13		90% Percentile (z)				8.242
2761		95% UPL (t)				10.31		95% Percentile (z)				10.27
2762		95% USL				34.39		99% Percentile (z)				15.53
2763												
2764	Nonparametric Distribution Free Background Statistics											
2765	Data do not follow a Discernible Distribution											
2766												
2767	Nonparametric Upper Limits for Background Threshold Values											
2768	Order of Statistic, order					392	95% UTL with 95% Coverage					9.1
2769	Approx. f used to compute achieved CC					1.47	Approximate Actual Confidence Coefficient achieved by UTL					0.944

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	A	B	C	D	E	F	G	H	I	J	K	L	
2770							Approximate Sample Size needed to achieve specified CC					385	
2771	95% Percentile Bootstrap UTL with 95% Coverage					8.8	95% BCA Bootstrap UTL with 95% Coverage					8.8	
2772						95% UPL	8.6	90% Percentile					7.87
2773						90% Chebyshev UPL	11.46	95% Percentile					8.585
2774						95% Chebyshev UPL	14.64	99% Percentile					10.1
2775						95% USL	10.8						
2776													
2777	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
2778	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
2779	and consists of observations collected from clean unimpacted locations.												
2780	The use of USL tends to provide a balance between false positives and false negatives provided the data												
2781	represents a background data set and when many onsite observations need to be compared with the BTV.												
2782													
2783	MN_As <9												
2784													
2785	General Statistics												
2786	Total Number of Observations					391	Number of Distinct Observations					79	
2787	Minimum					0.3	First Quartile					2.35	
2788	Second Largest					8.8	Median					4	
2789	Maximum					8.8	Third Quartile					5.9	
2790	Mean					4.266	SD					2.141	
2791	Coefficient of Variation					0.502	Skewness					0.323	
2792	Mean of logged Data					1.3	SD of logged Data					0.59	
2793													
2794	Critical Values for Background Threshold Values (BTVs)												
2795	Tolerance Factor K (For UTL)					1.779	d2max (for USL)					3.628	
2796													
2797	Normal GOF Test												
2798	Shapiro Wilk Test Statistic					0.935	Normal GOF Test						
2799	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
2800	Lilliefors Test Statistic					0.0883	Lilliefors GOF Test						
2801	1% Lilliefors Critical Value					0.0523	Data Not Normal at 1% Significance Level						
2802	Data Not Normal at 1% Significance Level												
2803													
2804	Background Statistics Assuming Normal Distribution												
2805	95% UTL with 95% Coverage					8.075	90% Percentile (z)					7.01	
2806						95% UPL (t)	7.801	95% Percentile (z)					7.788
2807						95% USL	12.03	99% Percentile (z)					9.247
2808													
2809	Gamma GOF Test												
2810	A-D Test Statistic					3.015	Anderson-Darling Gamma GOF Test						
2811	5% A-D Critical Value					0.759	Data Not Gamma Distributed at 5% Significance Level						
2812	K-S Test Statistic					0.0799	Kolmogorov-Smirnov Gamma GOF Test						
2813	5% K-S Critical Value					0.0461	Data Not Gamma Distributed at 5% Significance Level						
2814	Data Not Gamma Distributed at 5% Significance Level												
2815													
2816	Gamma Statistics												
2817	k hat (MLE)					3.469	k star (bias corrected MLE)					3.444	
2818	Theta hat (MLE)					1.23	Theta star (bias corrected MLE)					1.239	
2819	nu hat (MLE)					2713	nu star (bias corrected)					2693	
2820	MLE Mean (bias corrected)					4.266	MLE Sd (bias corrected)					2.299	
2821													
2822	Background Statistics Assuming Gamma Distribution												
2823	95% Wilson Hilferty (WH) Approx. Gamma UPL					8.616	90% Percentile					7.349	
2824	95% Hawkins Wixley (HW) Approx. Gamma UPL					8.815	95% Percentile					8.612	
2825	95% WH Approx. Gamma UTL with 95% Coverage					9.092	99% Percentile					11.33	
2826	95% HW Approx. Gamma UTL with 95% Coverage					9.34							
2827						95% WH USL	18.06	95% HW USL					19.88
2828													
2829	Lognormal GOF Test												
2830	Shapiro Wilk Test Statistic					0.937	Shapiro Wilk Lognormal GOF Test						
2831	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level						
2832	Lilliefors Test Statistic					0.0973	Lilliefors Lognormal GOF Test						
2833	10% Lilliefors Critical Value					0.0414	Data Not Lognormal at 10% Significance Level						
2834	Data Not Lognormal at 10% Significance Level												
2835													
2836	Background Statistics assuming Lognormal Distribution												
2837	95% UTL with 95% Coverage					10.48	90% Percentile (z)					7.815	
2838						95% UPL (t)	9.718	95% Percentile (z)					9.684
2839						95% USL	31.2	99% Percentile (z)					14.48
2840													

	A	B	C	D	E	F	G	H	I	J	K	L	
2841	Nonparametric Distribution Free Background Statistics												
2842	Data do not follow a Discernible Distribution												
2843													
2844	Nonparametric Upper Limits for Background Threshold Values												
2845	Order of Statistic, order					379	95% UTL with 95% Coverage					8.4	
2846	Approx, f used to compute achieved CC					1.421	Approximate Actual Confidence Coefficient achieved by UTL					0.926	
2847							Approximate Sample Size needed to achieve specified CC					385	
2848	95% Percentile Bootstrap UTL with 95% Coverage					8.3	95% BCA Bootstrap UTL with 95% Coverage					8.3	
2849						8.1	90% Percentile					7.4	
2850	90% Chebyshev UPL					10.7	95% Percentile					8.1	
2851	95% Chebyshev UPL					13.61	99% Percentile					8.7	
2852	95% USL					8.8							
2853													
2854	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
2855	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
2856	and consists of observations collected from clean unpacted locations.												
2857	The use of USL tends to provide a balance between false positives and false negatives provided the data												
2858	represents a background data set and when many onsite observations need to be compared with the BTV.												
2859													
2860	MN_Pb												
2861													
2862	General Statistics												
2863	Total Number of Observations					410	Number of Distinct Observations					149	
2864	Minimum					3.6	First Quartile					11.93	
2865	Second Largest					42.1	Median					14.3	
2866	Maximum					45	Third Quartile					17.28	
2867	Mean					15.12	SD					5.213	
2868	Coefficient of Variation					0.345	Skewness					2.038	
2869	Mean of logged Data					2.666	SD of logged Data					0.311	
2870													
2871	Critical Values for Background Threshold Values (BTVs)												
2872	Tolerance Factor K (For UTL)					1.775	d2max (for USL)					3.641	
2873													
2874	Normal GOF Test												
2875	Shapiro Wilk Test Statistic					0.858	Normal GOF Test						
2876	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
2877	Lilliefors Test Statistic					0.115	Lilliefors GOF Test						
2878	1% Lilliefors Critical Value					0.051	Data Not Normal at 1% Significance Level						
2879	Data Not Normal at 1% Significance Level												
2880													
2881	Background Statistics Assuming Normal Distribution												
2882	95% UTL with 95% Coverage					24.37	90% Percentile (z)					21.8	
2883	95% UPL (t)					23.72	95% Percentile (z)					23.69	
2884	95% USL					34.1	99% Percentile (z)					27.24	
2885													
2886	Gamma GOF Test												
2887	A-D Test Statistic					3.598	Anderson-Darling Gamma GOF Test						
2888	5% A-D Critical Value					0.754	Data Not Gamma Distributed at 5% Significance Level						
2889	K-S Test Statistic					0.0757	Kolmogorov-Smirnov Gamma GOF Test						
2890	5% K-S Critical Value					0.0447	Data Not Gamma Distributed at 5% Significance Level						
2891	Data Not Gamma Distributed at 5% Significance Level												
2892													
2893	Gamma Statistics												
2894	k hat (MLE)					10.18	k star (bias corrected MLE)					10.1	
2895	Theta hat (MLE)					1.485	Theta star (bias corrected MLE)					1.496	
2896	nu hat (MLE)					8346	nu star (bias corrected)					8286	
2897	MLE Mean (bias corrected)					15.12	MLE Sd (bias corrected)					4.755	
2898													
2899	Background Statistics Assuming Gamma Distribution												
2900	95% Wilson Hilferty (WH) Approx. Gamma UPL					23.66	90% Percentile					21.44	
2901	95% Hawkins Wixley (HW) Approx. Gamma UPL					23.72	95% Percentile					23.69	
2902	95% WH Approx. Gamma UTL with 95% Coverage					24.47	99% Percentile					28.31	
2903	95% HW Approx. Gamma UTL with 95% Coverage					24.56							
2904	95% WH USL					38.78	95% HW USL					39.87	
2905													
2906	Lognormal GOF Test												
2907	Shapiro Wilk Test Statistic					0.977	Shapiro Wilk Lognormal GOF Test						
2908	10% Shapiro Wilk P Value					0.0295	Data Not Lognormal at 10% Significance Level						
2909	Lilliefors Test Statistic					0.0629	Lilliefors Lognormal GOF Test						
2910	10% Lilliefors Critical Value					0.0404	Data Not Lognormal at 10% Significance Level						
2911	Data Not Lognormal at 10% Significance Level												

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	A	B	C	D	E	F	G	H	I	J	K	L
2912												
2913	Background Statistics assuming Lognormal Distribution											
2914	95% UTL with 95% Coverage				24.97	90% Percentile (z)				21.42		
2915	95% UPL (t)				24.02	95% Percentile (z)				23.98		
2916	95% USL				44.6	99% Percentile (z)				29.64		
2917												
2918	Nonparametric Distribution Free Background Statistics											
2919	Data do not follow a Discernible Distribution											
2920												
2921	Nonparametric Upper Limits for Background Threshold Values											
2922	Order of Statistic, order				397	95% UTL with 95% Coverage				27.9		
2923	Approx, f used to compute achieved CC				1.389	Approximate Actual Confidence Coefficient achieved by UTL				0.919		
2924						Approximate Sample Size needed to achieve specified CC				410		
2925	95% Percentile Bootstrap UTL with 95% Coverage				26.6	95% BCA Bootstrap UTL with 95% Coverage				26.2		
2926	95% UPL				23.94	90% Percentile				20.31		
2927	90% Chebyshev UPL				30.77	95% Percentile				23.76		
2928	95% Chebyshev UPL				37.87	99% Percentile				36.97		
2929	95% USL				45							
2930												
2931	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2932	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2933	and consists of observations collected from clean unimpacted locations.											
2934	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2935	represents a background data set and when many onsite observations need to be compared with the BTV.											
2936												
2937	MN_Pb <40											
2938												
2939	General Statistics											
2940	Total Number of Observations				407	Number of Distinct Observations				146		
2941	Minimum				3.6	First Quartile				11.9		
2942	Second Largest				37.2	Median				14.3		
2943	Maximum				37.4	Third Quartile				17.2		
2944	Mean				14.91	SD				4.661		
2945	Coefficient of Variation				0.313	Skewness				1.458		
2946	Mean of logged Data				2.658	SD of logged Data				0.298		
2947												
2948	Critical Values for Background Threshold Values (BTVs)											
2949	Tolerance Factor K (For UTL)				1.776	d2max (for USL)				3.639		
2950												
2951	Normal GOF Test											
2952	Shapiro Wilk Test Statistic				0.909	Normal GOF Test						
2953	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level						
2954	Lilliefors Test Statistic				0.0879	Lilliefors GOF Test						
2955	1% Lilliefors Critical Value				0.0512	Data Not Normal at 1% Significance Level						
2956	Data Not Normal at 1% Significance Level											
2957												
2958	Background Statistics Assuming Normal Distribution											
2959	95% UTL with 95% Coverage				23.19	90% Percentile (z)				20.89		
2960	95% UPL (t)				22.61	95% Percentile (z)				22.58		
2961	95% USL				31.87	99% Percentile (z)				25.75		
2962												
2963	Gamma GOF Test											
2964	A-D Test Statistic				1.954	Anderson-Darling Gamma GOF Test						
2965	5% A-D Critical Value				0.754	Data Not Gamma Distributed at 5% Significance Level						
2966	K-S Test Statistic				0.0582	Kolmogorov-Smirnov Gamma GOF Test						
2967	5% K-S Critical Value				0.0448	Data Not Gamma Distributed at 5% Significance Level						
2968	Data Not Gamma Distributed at 5% Significance Level											
2969												
2970	Gamma Statistics											
2971	k hat (MLE)				11.42	k star (bias corrected MLE)				11.34		
2972	Theta hat (MLE)				1.306	Theta star (bias corrected MLE)				1.315		
2973	nu hat (MLE)				9295	nu star (bias corrected)				9228		
2974	MLE Mean (bias corrected)				14.91	MLE Sd (bias corrected)				4.429		
2975												
2976	Background Statistics Assuming Gamma Distribution											
2977	95% Wilson Hilferty (WH) Approx. Gamma UPL				22.86	90% Percentile				20.8		
2978	95% Hawkins Wixley (HW) Approx. Gamma UPL				22.94	95% Percentile				22.87		
2979	95% WH Approx. Gamma UTL with 95% Coverage				23.6	99% Percentile				27.1		
2980	95% HW Approx. Gamma UTL with 95% Coverage				23.72							
2981	95% WH USL				36.61	95% HW USL				37.67		
2982												

	A	B	C	D	E	F	G	H	I	J	K	L
2983	Lognormal GOF Test											
2984	Shapiro Wilk Test Statistic					0.984	Shapiro Wilk Lognormal GOF Test					
2985	10% Shapiro Wilk P Value					0.394	Data appear Lognormal at 10% Significance Level					
2986	Lilliefors Test Statistic					0.0514	Lilliefors Lognormal GOF Test					
2987	10% Lilliefors Critical Value					0.0405	Data Not Lognormal at 10% Significance Level					
2988	Data appear Approximate Lognormal at 10% Significance Level											
2989												
2990	Background Statistics assuming Lognormal Distribution											
2991	95% UTL with		95% Coverage		24.2	90% Percentile (z)						20.89
2992			95% UPL (t)		23.31	95% Percentile (z)						23.27
2993			95% USL		42.13	99% Percentile (z)						28.51
2994												
2995	Nonparametric Distribution Free Background Statistics											
2996	Data appear Approximate Lognormal at 10% Significance Level											
2997												
2998	Nonparametric Upper Limits for Background Threshold Values											
2999	Order of Statistic, order				395	95% UTL with				95% Coverage	25.7	
3000	Approx, f used to compute achieved CC				1.481	Approximate Actual Confidence Coefficient achieved by UTL				0.947		
3001						Approximate Sample Size needed to achieve specified CC				385		
3002	95% Percentile Bootstrap UTL with		95% Coverage		24.3	95% BCA Bootstrap UTL with		95% Coverage		24.3		
3003			95% UPL		23.22			90% Percentile		20		
3004			90% Chebyshev UPL		28.91			95% Percentile		22.77		
3005			95% Chebyshev UPL		35.25			99% Percentile		31.59		
3006			95% USL		37.4							
3007												
3008	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
3009	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3010	and consists of observations collected from clean unimpacted locations.											
3011	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3012	represents a background data set and when many onsite observations need to be compared with the BTV.											
3013												
3014	MN_Pb <32											
3015												
3016	General Statistics											
3017	Total Number of Observations				403	Number of Distinct Observations				142		
3018	Minimum				3.6	First Quartile				11.9		
3019	Second Largest				29.8	Median				14.3		
3020	Maximum				31.7	Third Quartile				16.95		
3021	Mean				14.7	SD				4.183		
3022	Coefficient of Variation				0.285	Skewness				0.911		
3023	Mean of logged Data				2.649	SD of logged Data				0.284		
3024												
3025	Critical Values for Background Threshold Values (BTVs)											
3026	Tolerance Factor K (For UTL)				1.777	d2max (for USL)				3.636		
3027												
3028	Normal GOF Test											
3029	Shapiro Wilk Test Statistic					0.95	Normal GOF Test					
3030	1% Shapiro Wilk P Value					7.772E-16	Data Not Normal at 1% Significance Level					
3031	Lilliefors Test Statistic					0.0673	Lilliefors GOF Test					
3032	1% Lilliefors Critical Value					0.0515	Data Not Normal at 1% Significance Level					
3033	Data Not Normal at 1% Significance Level											
3034												
3035	Background Statistics Assuming Normal Distribution											
3036	95% UTL with		95% Coverage		22.14	90% Percentile (z)		20.07				
3037			95% UPL (t)		21.61	95% Percentile (z)		21.59				
3038			95% USL		29.92	99% Percentile (z)		24.44				
3039												
3040	Gamma GOF Test											
3041	A-D Test Statistic					0.849	Anderson-Darling Gamma GOF Test					
3042	5% A-D Critical Value					0.753	Data Not Gamma Distributed at 5% Significance Level					
3043	K-S Test Statistic					0.0415	Kolmogorov-Smirnov Gamma GOF Test					
3044	5% K-S Critical Value					0.045	Detected data appear Gamma Distributed at 5% Significance Level					
3045	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
3046												
3047	Gamma Statistics											
3048	k hat (MLE)				12.82	k star (bias corrected MLE)				12.72		
3049	Theta hat (MLE)				1.147	Theta star (bias corrected MLE)				1.156		
3050	nu hat (MLE)				10330	nu star (bias corrected)				10254		
3051	MLE Mean (bias corrected)				14.7	MLE Sd (bias corrected)				4.123		
3052												
3053	Background Statistics Assuming Gamma Distribution											

	A	B	C	D	E	F	G	H	I	J	K	L
3054		95% Wilson Hilferty (WH) Approx.	Gamma UPL		22.08						90% Percentile	20.17
3055		95% Hawkins Wixley (HW) Approx.	Gamma UPL		22.18						95% Percentile	22.08
3056		95% WH Approx.	Gamma UTL with 95% Coverage		22.76						99% Percentile	25.95
3057		95% HW Approx.	Gamma UTL with 95% Coverage		22.9							
3058			95% WH USL		34.59						95% HW USL	35.59
3059												
3060												
3061				Shapiro Wilk Test Statistic	0.985						Shapiro Wilk Lognormal GOF Test	
3062				10% Shapiro Wilk P Value	0.546						Data appear Lognormal at 10% Significance Level	
3063				Lilliefors Test Statistic	0.0464						Lilliefors Lognormal GOF Test	
3064				10% Lilliefors Critical Value	0.0407						Data Not Lognormal at 10% Significance Level	
3065												
3066												
3067												
3068				Background Statistics assuming Lognormal Distribution								
3069				95% UTL with 95% Coverage	23.43						90% Percentile (z)	20.35
3070				95% UPL (t)	22.61						95% Percentile (z)	22.57
3071				95% USL	39.76						99% Percentile (z)	27.4
3072												
3073				Nonparametric Distribution Free Background Statistics								
3074												
3075												
3076				Nonparametric Upper Limits for Background Threshold Values								
3077				Order of Statistic, order	391						95% UTL with 95% Coverage	24.1
3078				Approx, f used to compute achieved CC	1.466						Approximate Actual Confidence Coefficient achieved by UTL	0.942
3079											Approximate Sample Size needed to achieve specified CC	385
3080				95% Percentile Bootstrap UTL with 95% Coverage	23.7						95% BCA Bootstrap UTL with 95% Coverage	22.8
3081				95% UPL	22.24						90% Percentile	19.6
3082				90% Chebyshev UPL	27.27						95% Percentile	22
3083				95% Chebyshev UPL	32.96						99% Percentile	29.2
3084				95% USL	31.7							
3085												
3086				Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.								
3087				Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers								
3088				and consists of observations collected from clean unimpacted locations.								
3089				The use of USL tends to provide a balance between false positives and false negatives provided the data								
3090				represents a background data set and when many onsite observations need to be compared with the BTV.								
3091												
3092				MN_Pb <25								
3093												
3094				General Statistics								
3095				Total Number of Observations	394						Number of Distinct Observations	133
3096				Minimum	3.6						First Quartile	11.7
3097				Second Largest	24.3						Median	14.15
3098				Maximum	24.9						Third Quartile	16.8
3099				Mean	14.38						SD	3.634
3100				Coefficient of Variation	0.253						Skewness	0.297
3101				Mean of logged Data	2.632						SD of logged Data	0.266
3102												
3103				Critical Values for Background Threshold Values (BTVs)								
3104				Tolerance Factor K (For UTL)	1.778						d2max (for USL)	3.63
3105												
3106				Normal GOF Test								
3107				Shapiro Wilk Test Statistic	0.979						Normal GOF Test	
3108				1% Shapiro Wilk P Value	0.0878						Data appear Normal at 1% Significance Level	
3109				Lilliefors Test Statistic	0.0397						Lilliefors GOF Test	
3110				1% Lilliefors Critical Value	0.0521						Data appear Normal at 1% Significance Level	
3111												
3112												
3113				Background Statistics Assuming Normal Distribution								
3114				95% UTL with 95% Coverage	20.84						90% Percentile (z)	19.04
3115				95% UPL (t)	20.38						95% Percentile (z)	20.36
3116				95% USL	27.57						99% Percentile (z)	22.84
3117												
3118				Gamma GOF Test								
3119				A-D Test Statistic	0.419						Anderson-Darling Gamma GOF Test	
3120				5% A-D Critical Value	0.753						Detected data appear Gamma Distributed at 5% Significance Level	
3121				K-S Test Statistic	0.0366						Kolmogorov-Smirnov Gamma GOF Test	
3122				5% K-S Critical Value	0.0455						Detected data appear Gamma Distributed at 5% Significance Level	
3123												
3124				Detected data appear Gamma Distributed at 5% Significance Level								
				Gamma Statistics								

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	A	B	C	D	E	F	G	H	I	J	K	L
3125	k hat (MLE)					15.03	k star (bias corrected MLE)					14.92
3126	Theta hat (MLE)					0.957	Theta star (bias corrected MLE)					0.964
3127	nu hat (MLE)					11847	nu star (bias corrected)					11758
3128	MLE Mean (bias corrected)					14.38	MLE Sd (bias corrected)					3.723
3129												
3130	Background Statistics Assuming Gamma Distribution											
3131	95% Wilson Hilferty (WH) Approx. Gamma UPL					21.01	90% Percentile					19.31
3132	95% Hawkins Wixley (HW) Approx. Gamma UPL					21.13	95% Percentile					21.01
3133	95% WH Approx. Gamma UTL with 95% Coverage					21.63	99% Percentile					24.43
3134	95% HW Approx. Gamma UTL with 95% Coverage					21.78						
3135	95% WH USL					31.96	95% HW USL					32.86
3136												
3137	Lognormal GOF Test											
3138	Shapiro Wilk Test Statistic					0.974	Shapiro Wilk Lognormal GOF Test					
3139	10% Shapiro Wilk P Value					0.00485	Data Not Lognormal at 10% Significance Level					
3140	Lilliefors Test Statistic					0.0543	Lilliefors Lognormal GOF Test					
3141	10% Lilliefors Critical Value					0.0412	Data Not Lognormal at 10% Significance Level					
3142	Data Not Lognormal at 10% Significance Level											
3143												
3144	Background Statistics assuming Lognormal Distribution											
3145	95% UTL with		95% Coverage		22.33	90% Percentile (z)					19.57	
3146			95% UPL (t)		21.59	95% Percentile (z)					21.55	
3147			95% USL		36.57	99% Percentile (z)					25.84	
3148												
3149	Nonparametric Distribution Free Background Statistics											
3150	Data appear Normal at 1% Significance Level											
3151												
3152	Nonparametric Upper Limits for Background Threshold Values											
3153	Order of Statistic, order				382	95% UTL with 95% Coverage					22	
3154	Approx, f used to compute achieved CC				1.432	Approximate Actual Confidence Coefficient achieved by UTL					0.93	
3155						Approximate Sample Size needed to achieve specified CC					385	
3156	95% Percentile Bootstrap UTL with		95% Coverage		21.87	95% BCA Bootstrap UTL with 95% Coverage					21.87	
3157			95% UPL		20.8	90% Percentile					19.04	
3158			90% Chebyshev UPL		25.3	95% Percentile					20.67	
3159			95% Chebyshev UPL		30.24	99% Percentile					23.82	
3160			95% USL		24.9							
3161												
3162	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
3163	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3164	and consists of observations collected from clean unimpacted locations.											
3165	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3166	represents a background data set and when many onsite observations need to be compared with the BTV.											
3167												
3168	MO_As											
3169												
3170	General Statistics											
3171	Total Number of Observations				345	Number of Distinct Observations					112	
3172	Minimum				1.5	First Quartile					5.5	
3173	Second Largest				18.3	Median					7.8	
3174	Maximum				20.8	Third Quartile					9.9	
3175	Mean				7.96	SD					3.144	
3176	Coefficient of Variation				0.395	Skewness					0.791	
3177	Mean of logged Data				1.994	SD of logged Data					0.416	
3178												
3179	Critical Values for Background Threshold Values (BTVs)											
3180	Tolerance Factor K (For UTL)				1.788	d2max (for USL)					3.592	
3181												
3182	Normal GOF Test											
3183	Shapiro Wilk Test Statistic					0.954	Normal GOF Test					
3184	1% Shapiro Wilk P Value					1.163E-10	Data Not Normal at 1% Significance Level					
3185	Lilliefors Test Statistic					0.0526	Lilliefors GOF Test					
3186	1% Lilliefors Critical Value					0.0556	Data appear Normal at 1% Significance Level					
3187	Data appear Approximate Normal at 1% Significance Level											
3188												
3189	Background Statistics Assuming Normal Distribution											
3190	95% UTL with		95% Coverage		13.58	90% Percentile (z)					11.99	
3191			95% UPL (t)		13.15	95% Percentile (z)					13.13	
3192			95% USL		19.25	99% Percentile (z)					15.27	
3193												
3194	Gamma GOF Test											
3195	A-D Test Statistic				0.683	Anderson-Darling Gamma GOF Test						

	A	B	C	D	E	F	G	H	I	J	K	L	
3196				5% A-D Critical Value		0.756	Detected data appear Gamma Distributed at 5% Significance Level						
3197				K-S Test Statistic		0.04	Kolmogorov-Smirnov Gamma GOF Test						
3198				5% K-S Critical Value		0.0491	Detected data appear Gamma Distributed at 5% Significance Level						
3199	Detected data appear Gamma Distributed at 5% Significance Level												
3200													
3201	Gamma Statistics												
3202				k hat (MLE)		6.341				k star (bias corrected MLE)		6.288	
3203				Theta hat (MLE)		1.255				Theta star (bias corrected MLE)		1.266	
3204				nu hat (MLE)		4375				nu star (bias corrected)		4338	
3205				MLE Mean (bias corrected)		7.96				MLE Sd (bias corrected)		3.175	
3206													
3207	Background Statistics Assuming Gamma Distribution												
3208	95% Wilson Hilferty (WH) Approx. Gamma UPL					13.8				90% Percentile		12.2	
3209	95% Hawkins Wixley (HW) Approx. Gamma UPL					13.96				95% Percentile		13.8	
3210	95% WH Approx. Gamma UTL with			95% Coverage		14.43				99% Percentile		17.13	
3211	95% HW Approx. Gamma UTL with			95% Coverage		14.63							
3212				95% WH USL		24.69				95% HW USL		26.06	
3213													
3214	Lognormal GOF Test												
3215				Shapiro Wilk Test Statistic		0.973				Shapiro Wilk Lognormal GOF Test			
3216				10% Shapiro Wilk P Value		0.00544				Data Not Lognormal at 10% Significance Level			
3217				Lilliefors Test Statistic		0.0597				Lilliefors Lognormal GOF Test			
3218				10% Lilliefors Critical Value		0.044				Data Not Lognormal at 10% Significance Level			
3219	Data Not Lognormal at 10% Significance Level												
3220													
3221	Background Statistics assuming Lognormal Distribution												
3222	95% UTL with			95% Coverage		15.46				90% Percentile (z)		12.52	
3223				95% UPL (t)		14.61				95% Percentile (z)		14.56	
3224				95% USL		32.77				99% Percentile (z)		19.34	
3225													
3226	Nonparametric Distribution Free Background Statistics												
3227	Data appear Approximate Normal at 1% Significance Level												
3228													
3229	Nonparametric Upper Limits for Background Threshold Values												
3230	Order of Statistic, order			335					95% UTL with		95% Coverage	15.6	
3231	Approx, f used to compute achieved CC			1.465					Approximate Actual Confidence Coefficient achieved by UTL		0.929		
3232									Approximate Sample Size needed to achieve specified CC		336		
3233	95% Percentile Bootstrap UTL with			95% Coverage		15.44				95% BCA Bootstrap UTL with		95% Coverage	15.2
3234				95% UPL		13.94				90% Percentile		11.56	
3235				90% Chebyshev UPL		17.41				95% Percentile		13.1	
3236				95% Chebyshev UPL		21.68				99% Percentile		17.26	
3237				95% USL		20.8							
3238													
3239	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
3240	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
3241	and consists of observations collected from clean unimpacted locations.												
3242	The use of USL tends to provide a balance between false positives and false negatives provided the data												
3243	represents a background data set and when many onsite observations need to be compared with the BTV.												
3244													
3245	MO_As <17												
3246													
3247	General Statistics												
3248				Total Number of Observations		340				Number of Distinct Observations		107	
3249				Minimum		1.5				First Quartile		5.5	
3250				Second Largest		16.3				Median		7.65	
3251				Maximum		16.8				Third Quartile		9.825	
3252				Mean		7.809				SD		2.901	
3253				Coefficient of Variation		0.371				Skewness		0.48	
3254				Mean of logged Data		1.98				SD of logged Data		0.404	
3255													
3256	Critical Values for Background Threshold Values (BTVs)												
3257	Tolerance Factor K (For UTL)					1.789				d2max (for USL)		3.588	
3258													
3259	Normal GOF Test												
3260				Shapiro Wilk Test Statistic		0.965				Normal GOF Test			
3261				1% Shapiro Wilk P Value		9.0597E-6				Data Not Normal at 1% Significance Level			
3262				Lilliefors Test Statistic		0.0605				Lilliefors GOF Test			
3263				1% Lilliefors Critical Value		0.056				Data Not Normal at 1% Significance Level			
3264	Data Not Normal at 1% Significance Level												
3265													
3266	Background Statistics Assuming Normal Distribution												

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	A	B	C	D	E	F	G	H	I	J	K	L						
3267	95% UTL with 95% Coverage					13	90% Percentile (z)					11.53						
3268	95% UPL (t)					12.6	95% Percentile (z)					12.58						
3269	95% USL					18.22	99% Percentile (z)					14.56						
3270																		
3271	Gamma GOF Test																	
3272	A-D Test Statistic					0.89	Anderson-Darling Gamma GOF Test											
3273	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level											
3274	K-S Test Statistic					0.0493	Kolmogorov-Smirnov Gamma GOF Test											
3275	5% K-S Critical Value					0.0494	Detected data appear Gamma Distributed at 5% Significance Level											
3276	Detected data follow Appr. Gamma Distribution at 5% Significance Level																	
3277																		
3278	Gamma Statistics																	
3279	k hat (MLE)					6.823	k star (bias corrected MLE)					6.764						
3280	Theta hat (MLE)					1.145	Theta star (bias corrected MLE)					1.154						
3281	nu hat (MLE)					4639	nu star (bias corrected)					4600						
3282	MLE Mean (bias corrected)					7.809	MLE Sd (bias corrected)					3.002						
3283																		
3284	Background Statistics Assuming Gamma Distribution																	
3285	95% Wilson Hilferty (WH) Approx. Gamma UPL					13.32	90% Percentile					11.82						
3286	95% Hawkins Wixley (HW) Approx. Gamma UPL					13.48	95% Percentile					13.31						
3287	95% WH Approx. Gamma UTL with 95% Coverage					13.91	99% Percentile					16.43						
3288	95% HW Approx. Gamma UTL with 95% Coverage					14.11												
3289	95% WH USL					23.42	95% HW USL					24.71						
3290																		
3291	Lognormal GOF Test																	
3292	Shapiro Wilk Test Statistic					0.963	Shapiro Wilk Lognormal GOF Test											
3293	10% Shapiro Wilk P Value					1.5862E-6	Data Not Lognormal at 10% Significance Level											
3294	Lilliefors Test Statistic					0.0672	Lilliefors Lognormal GOF Test											
3295	10% Lilliefors Critical Value					0.0443	Data Not Lognormal at 10% Significance Level											
3296	Data Not Lognormal at 10% Significance Level																	
3297																		
3298	Background Statistics assuming Lognormal Distribution																	
3299	95% UTL with 95% Coverage					14.93	90% Percentile (z)					12.16						
3300	95% UPL (t)					14.13	95% Percentile (z)					14.09						
3301	95% USL					30.92	99% Percentile (z)					18.56						
3302																		
3303	Nonparametric Distribution Free Background Statistics																	
3304	Data appear Approximate Gamma Distribution at 5% Significance Level																	
3305																		
3306	Nonparametric Upper Limits for Background Threshold Values																	
3307	Order of Statistic, order					330	95% UTL with 95% Coverage					14.6						
3308	Approx, f used to compute achieved CC					1.443	Approximate Actual Confidence Coefficient achieved by UTL					0.921						
3309							Approximate Sample Size needed to achieve specified CC					336						
3310	95% Percentile Bootstrap UTL with 95% Coverage					14.3	95% BCA Bootstrap UTL with 95% Coverage					14.3						
3311	95% UPL					12.89	90% Percentile					11.4						
3312	90% Chebyshev UPL					16.52	95% Percentile					12.71						
3313	95% Chebyshev UPL					20.47	99% Percentile					15.76						
3314	95% USL					16.8												
3315																		
3316	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.																	
3317	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers																	
3318	and consists of observations collected from clean unimpacted locations.																	
3319	The use of USL tends to provide a balance between false positives and false negatives provided the data																	
3320	represents a background data set and when many onsite observations need to be compared with the BTV.																	
3321																		
3322	MO_As <15																	
3323																		
3324	General Statistics																	
3325	Total Number of Observations					331	Number of Distinct Observations					99						
3326	Minimum					1.5	First Quartile					5.45						
3327	Second Largest					14.6	Median					7.6						
3328	Maximum					14.8	Third Quartile					9.6						
3329	Mean					7.592	SD					2.619						
3330	Coefficient of Variation					0.345	Skewness					0.139						
3331	Mean of logged Data					1.959	SD of logged Data					0.389						
3332																		
3333	Critical Values for Background Threshold Values (BTVs)																	
3334	Tolerance Factor K (For UTL)					1.791	d2max (for USL)					3.581						
3335																		
3336	Normal GOF Test																	
3337	Shapiro Wilk Test Statistic					0.973	Normal GOF Test											

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	A	B	C	D	E	F	G	H	I	J	K	L
3338				1% Shapiro Wilk P Value		0.0058						Data Not Normal at 1% Significance Level
3339				Lilliefors Test Statistic		0.0688						Lilliefors GOF Test
3340				1% Lilliefors Critical Value		0.0568						Data Not Normal at 1% Significance Level
3341				Data Not Normal at 1% Significance Level								
3342												
3343				Background Statistics Assuming Normal Distribution								
3344				95% UTL with 95% Coverage		12.28				90% Percentile (z)		10.95
3345				95% UPL (t)		11.92				95% Percentile (z)		11.9
3346				95% USL		16.97				99% Percentile (z)		13.68
3347												
3348				Gamma GOF Test								
3349				A-D Test Statistic		1.687				Anderson-Darling Gamma GOF Test		
3350				5% A-D Critical Value		0.756				Data Not Gamma Distributed at 5% Significance Level		
3351				K-S Test Statistic		0.0645				Kolmogorov-Smirnov Gamma GOF Test		
3352				5% K-S Critical Value		0.05				Data Not Gamma Distributed at 5% Significance Level		
3353				Data Not Gamma Distributed at 5% Significance Level								
3354												
3355				Gamma Statistics								
3356				k hat (MLE)		7.506				k star (bias corrected MLE)		7.44
3357				Theta hat (MLE)		1.011				Theta star (bias corrected MLE)		1.02
3358				nu hat (MLE)		4969				nu star (bias corrected)		4926
3359				MLE Mean (bias corrected)		7.592				MLE Sd (bias corrected)		2.783
3360												
3361				Background Statistics Assuming Gamma Distribution								
3362				95% Wilson Hilferty (WH) Approx. Gamma UPL		12.68				90% Percentile		11.31
3363				95% Hawkins Wixley (HW) Approx. Gamma UPL		12.84				95% Percentile		12.67
3364				95% WH Approx. Gamma UTL with 95% Coverage		13.23				99% Percentile		15.51
3365				95% HW Approx. Gamma UTL with 95% Coverage		13.43						
3366				95% WH USL		21.8				95% HW USL		22.97
3367												
3368				Lognormal GOF Test								
3369				Shapiro Wilk Test Statistic		0.948				Shapiro Wilk Lognormal GOF Test		
3370				10% Shapiro Wilk P Value		1.192E-13				Data Not Lognormal at 10% Significance Level		
3371				Lilliefors Test Statistic		0.0776				Lilliefors Lognormal GOF Test		
3372				10% Lilliefors Critical Value		0.0449				Data Not Lognormal at 10% Significance Level		
3373				Data Not Lognormal at 10% Significance Level								
3374												
3375				Background Statistics assuming Lognormal Distribution								
3376				95% UTL with 95% Coverage		14.23				90% Percentile (z)		11.67
3377				95% UPL (t)		13.48				95% Percentile (z)		13.44
3378				95% USL		28.52				99% Percentile (z)		17.52
3379												
3380				Nonparametric Distribution Free Background Statistics								
3381				Data do not follow a Discernible Distribution								
3382												
3383				Nonparametric Upper Limits for Background Threshold Values								
3384				Order of Statistic, order		322				95% UTL with 95% Coverage		12.6
3385				Approx, f used to compute achieved CC		1.536				Approximate Actual Confidence Coefficient achieved by UTL		0.944
3386										Approximate Sample Size needed to achieve specified CC		311
3387				95% Percentile Bootstrap UTL with 95% Coverage		12.3				95% BCA Bootstrap UTL with 95% Coverage		12.2
3388				95% UPL		11.9				90% Percentile		10.9
3389				90% Chebyshev UPL		15.46				95% Percentile		11.9
3390				95% Chebyshev UPL		19.03				99% Percentile		13.1
3391				95% USL		14.8						
3392												
3393				Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.								
3394				Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers								
3395				and consists of observations collected from clean unimpacted locations.								
3396				The use of USL tends to provide a balance between false positives and false negatives provided the data								
3397				represents a background data set and when many onsite observations need to be compared with the BTV.								
3398												
3399				MO_As <13								
3400												
3401				General Statistics								
3402				Total Number of Observations		324				Number of Distinct Observations		94
3403				Minimum		1.5				First Quartile		5.4
3404				Second Largest		12.7				Median		7.45
3405				Maximum		12.9				Third Quartile		9.4
3406				Mean		7.46				SD		2.484
3407				Coefficient of Variation		0.333				Skewness		-0.0124
3408				Mean of looged Data		1.945				SD of looged Data		0.38

	A	B	C	D	E	F	G	H	I	J	K	L
3409												
3410	Critical Values for Background Threshold Values (BTVs)											
3411	Tolerance Factor K (For UTL)					1.793	d2max (for USL)					3.575
3412												
3413	Normal GOF Test											
3414	Shapiro Wilk Test Statistic					0.964	Normal GOF Test					
3415	1% Shapiro Wilk P Value					1.4300E-5	Data Not Normal at 1% Significance Level					
3416	Lilliefors Test Statistic					0.072	Lilliefors GOF Test					
3417	1% Lilliefors Critical Value					0.0574	Data Not Normal at 1% Significance Level					
3418	Data Not Normal at 1% Significance Level											
3419												
3420	Background Statistics Assuming Normal Distribution											
3421	95% UTL with		95% Coverage		11.91	90% Percentile (z)					10.64	
3422			95% UPL (t)		11.56	95% Percentile (z)					11.55	
3423			95% USL		16.34	99% Percentile (z)					13.24	
3424												
3425	Gamma GOF Test											
3426	A-D Test Statistic					2.308	Anderson-Darling Gamma GOF Test					
3427	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level					
3428	K-S Test Statistic					0.0715	Kolmogorov-Smirnov Gamma GOF Test					
3429	5% K-S Critical Value					0.0505	Data Not Gamma Distributed at 5% Significance Level					
3430	Data Not Gamma Distributed at 5% Significance Level											
3431												
3432	Gamma Statistics											
3433	k hat (MLE)					7.886	k star (bias corrected MLE)					7.815
3434	Theta hat (MLE)					0.946	Theta star (bias corrected MLE)					0.955
3435	nu hat (MLE)					5110	nu star (bias corrected)					5064
3436	MLE Mean (bias corrected)					7.46	MLE Sd (bias corrected)					2.669
3437												
3438	Background Statistics Assuming Gamma Distribution											
3439	95% Wilson Hilferty (WH) Approx.		Gamma UPL		12.33	90% Percentile					11.02	
3440	95% Hawkins Wixley (HW) Approx.		Gamma UPL		12.49	95% Percentile					12.32	
3441	95% WH Approx. Gamma UTL with		95% Coverage		12.86	99% Percentile					15.02	
3442	95% HW Approx. Gamma UTL with		95% Coverage		13.06							
3443			95% WH USL		20.95	95% HW USL					22.05	
3444												
3445	Lognormal GOF Test											
3446	Shapiro Wilk Test Statistic					0.935	Shapiro Wilk Lognormal GOF Test					
3447	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
3448	Lilliefors Test Statistic					0.0826	Lilliefors Lognormal GOF Test					
3449	10% Lilliefors Critical Value					0.0454	Data Not Lognormal at 10% Significance Level					
3450	Data Not Lognormal at 10% Significance Level											
3451												
3452	Background Statistics assuming Lognormal Distribution											
3453	95% UTL with		95% Coverage		13.83	90% Percentile (z)					11.39	
3454			95% UPL (t)		13.11	95% Percentile (z)					13.07	
3455			95% USL		27.24	99% Percentile (z)					16.94	
3456												
3457	Nonparametric Distribution Free Background Statistics											
3458	Data do not follow a Discernible Distribution											
3459												
3460	Nonparametric Upper Limits for Background Threshold Values											
3461	Order of Statistic, order		315		95% UTL with 95% Coverage							11.9
3462	Approx, f used to compute achieved CC		1.502		Approximate Actual Confidence Coefficient achieved by UTL							0.934
3463					Approximate Sample Size needed to achieve specified CC							311
3464	95% Percentile Bootstrap UTL with		95% Coverage		11.6	95% BCA Bootstrap UTL with 95% Coverage						11.4
3465			95% UPL		11.4	90% Percentile						10.6
3466			90% Chebyshev UPL		14.92	95% Percentile						11.4
3467			95% Chebyshev UPL		18.3	99% Percentile						12.3
3468			95% USL		12.9							
3469												
3470	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
3471	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3472	and consists of observations collected from clean unimpacted locations.											
3473	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3474	represents a background data set and when many onsite observations need to be compared with the BTV.											
3475												
3476	MO_Pb											
3477												
3478	General Statistics											
3479	Total Number of Observations					345	Number of Distinct Observations					191

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	A	B	C	D	E	F	G	H	I	J	K	L	
3480					Minimum	7.9					First Quartile	20	
3481					Second Largest	318					Median	23.6	
3482					Maximum	681					Third Quartile	27.7	
3483					Mean	30.16					SD	45.18	
3484					Coefficient of Variation	1.498					Skewness	10.65	
3485					Mean of logged Data	3.213					SD of logged Data	0.458	
3486													
3487	Critical Values for Background Threshold Values (BTVs)												
3488	Tolerance Factor K (For UTL)					1.788						d2max (for USL)	3.592
3489													
3490	Normal GOF Test												
3491	Shapiro Wilk Test Statistic					0.255	Normal GOF Test						
3492	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
3493	Lilliefors Test Statistic					0.348	Lilliefors GOF Test						
3494	1% Lilliefors Critical Value					0.0556	Data Not Normal at 1% Significance Level						
3495	Data Not Normal at 1% Significance Level												
3496													
3497	Background Statistics Assuming Normal Distribution												
3498	95% UTL with	95% Coverage	110.9									90% Percentile (z)	88.06
3499		95% UPL (t)	104.8									95% Percentile (z)	104.5
3500		95% USL	192.5									99% Percentile (z)	135.3
3501													
3502	Gamma GOF Test												
3503	A-D Test Statistic					2.899E+28	Anderson-Darling Gamma GOF Test						
3504	5% A-D Critical Value					0.761	Data Not Gamma Distributed at 5% Significance Level						
3505	K-S Test Statistic					0.238	Kolmogorov-Smirnov Gamma GOF Test						
3506	5% K-S Critical Value					0.0494	Data Not Gamma Distributed at 5% Significance Level						
3507	Data Not Gamma Distributed at 5% Significance Level												
3508													
3509	Gamma Statistics												
3510	k hat (MLE)					2.745						k star (bias corrected MLE)	2.723
3511	Theta hat (MLE)					10.99						Theta star (bias corrected MLE)	11.08
3512	nu hat (MLE)					1894						nu star (bias corrected)	1879
3513	MLE Mean (bias corrected)					30.16						MLE Sd (bias corrected)	18.28
3514													
3515	Background Statistics Assuming Gamma Distribution												
3516	95% Wilson Hilferty (WH) Approx.	Gamma UPL	61.36									90% Percentile	54.65
3517	95% Hawkins Wixley (HW) Approx.	Gamma UPL	58.6									95% Percentile	65.1
3518	95% WH Approx.	Gamma UTL with 95% Coverage	65.23									99% Percentile	87.85
3519	95% HW Approx.	Gamma UTL with 95% Coverage	62.29										
3520		95% WH USL	132.8									95% HW USL	129.7
3521													
3522	Lognormal GOF Test												
3523	Shapiro Wilk Test Statistic					0.789	Shapiro Wilk Lognormal GOF Test						
3524	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level						
3525	Lilliefors Test Statistic					0.158	Lilliefors Lognormal GOF Test						
3526	10% Lilliefors Critical Value					0.044	Data Not Lognormal at 10% Significance Level						
3527	Data Not Lognormal at 10% Significance Level												
3528													
3529	Background Statistics assuming Lognormal Distribution												
3530	95% UTL with	95% Coverage	56.33									90% Percentile (z)	44.69
3531		95% UPL (t)	52.93									95% Percentile (z)	52.77
3532		95% USL	128.6									99% Percentile (z)	72.07
3533													
3534	Nonparametric Distribution Free Background Statistics												
3535	Data do not follow a Discernible Distribution												
3536													
3537	Nonparametric Upper Limits for Background Threshold Values												
3538	Order of Statistic, order					335	95% UTL with 95% Coverage					59.2	
3539	Approx, f used to compute achieved CC					1.465	Approximate Actual Confidence Coefficient achieved by UTL					0.929	
3540							Approximate Sample Size needed to achieve specified CC					336	
3541	95% Percentile Bootstrap UTL with	95% Coverage	56.86	95% BCA Bootstrap UTL with 95% Coverage								52.7	
3542		95% UPL	45.13									90% Percentile	36.66
3543		90% Chebyshev UPL	165.9									95% Percentile	44.4
3544		95% Chebyshev UPL	227.4									99% Percentile	226.4
3545		95% USL	681										
3546													
3547	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
3548	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
3549	and consists of observations collected from clean unimpacted locations.												
3550	The use of USL tends to provide a balance between false positives and false negatives provided the data												

	A	B	C	D	E	F	G	H	I	J	K	L
3551	represents a background data set and when many onsite observations need to be compared with the BTV.											
3552												
3553	MO_Pb <120											
3554												
3555	General Statistics											
3556	Total Number of Observations					340	Number of Distinct Observations					186
3557	Minimum					7.9	First Quartile					19.88
3558	Second Largest					95.6	Median					23.4
3559	Maximum					118	Third Quartile					27.53
3560	Mean					25.49	SD					10.82
3561	Coefficient of Variation					0.425	Skewness					3.751
3562	Mean of logged Data					3.176	SD of logged Data					0.337
3563												
3564	Critical Values for Background Threshold Values (BTVs)											
3565	Tolerance Factor K (For UTL)					1.789	d2max (for USL)					3.588
3566												
3567	Normal GOF Test											
3568	Shapiro Wilk Test Statistic					0.735	Normal GOF Test					
3569	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
3570	Lilliefors Test Statistic					0.181	Lilliefors GOF Test					
3571	1% Lilliefors Critical Value					0.056	Data Not Normal at 1% Significance Level					
3572	Data Not Normal at 1% Significance Level											
3573												
3574	Background Statistics Assuming Normal Distribution											
3575	95% UTL with	95% Coverage	44.85	90% Percentile (z)					39.36			
3576		95% UPL (t)	43.37	95% Percentile (z)					43.29			
3577		95% USL	64.33	99% Percentile (z)					50.67			
3578												
3579	Gamma GOF Test											
3580	A-D Test Statistic					8.049	Anderson-Darling Gamma GOF Test					
3581	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level					
3582	K-S Test Statistic					0.123	Kolmogorov-Smirnov Gamma GOF Test					
3583	5% K-S Critical Value					0.0494	Data Not Gamma Distributed at 5% Significance Level					
3584	Data Not Gamma Distributed at 5% Significance Level											
3585												
3586	Gamma Statistics											
3587	k hat (MLE)					8.22	k star (bias corrected MLE)					8.149
3588	Theta hat (MLE)					3.101	Theta star (bias corrected MLE)					3.127
3589	nu hat (MLE)					5590	nu star (bias corrected)					5542
3590	MLE Mean (bias corrected)					25.49	MLE Sd (bias corrected)					8.928
3591												
3592	Background Statistics Assuming Gamma Distribution											
3593	95% Wilson Hilferty (WH) Approx. Gamma UPL	41.58	90% Percentile					37.39				
3594	95% Hawkins Wixley (HW) Approx. Gamma UPL	41.55	95% Percentile					41.72				
3595	95% WH Approx. Gamma UTL with	95% Coverage	43.29	99% Percentile					50.7			
3596	95% HW Approx. Gamma UTL with	95% Coverage	43.31									
3597		95% WH USL	70.18	95% HW USL					71.96			
3598												
3599	Lognormal GOF Test											
3600	Shapiro Wilk Test Statistic					0.947	Shapiro Wilk Lognormal GOF Test					
3601	10% Shapiro Wilk P Value					8.993E-15	Data Not Lognormal at 10% Significance Level					
3602	Lilliefors Test Statistic					0.0958	Lilliefors Lognormal GOF Test					
3603	10% Lilliefors Critical Value					0.0443	Data Not Lognormal at 10% Significance Level					
3604	Data Not Lognormal at 10% Significance Level											
3605												
3606	Background Statistics assuming Lognormal Distribution											
3607	95% UTL with	95% Coverage	43.75	90% Percentile (z)					36.88			
3608		95% UPL (t)	41.78	95% Percentile (z)					41.68			
3609		95% USL	80.21	99% Percentile (z)					52.44			
3610												
3611	Nonparametric Distribution Free Background Statistics											
3612	Data do not follow a Discernible Distribution											
3613												
3614	Nonparametric Upper Limits for Background Threshold Values											
3615	Order of Statistic, order					330	95% UTL with 95% Coverage					47.1
3616	Approx, f used to compute achieved CC					1.443	Approximate Actual Confidence Coefficient achieved by UTL					0.921
3617							Approximate Sample Size needed to achieve specified CC					336
3618	95% Percentile Bootstrap UTL with	95% Coverage	45.4	95% BCA Bootstrap UTL with 95% Coverage					45.4			
3619		95% UPL	42.09	90% Percentile					35.31			
3620		90% Chebyshev UPL	58.01	95% Percentile					41.82			
3621		95% Chebyshev UPL	72.74	99% Percentile					60.96			

	A	B	C	D	E	F	G	H	I	J	K	L	
3622	95% USL					118							
3623													
3624	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
3625	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
3626	and consists of observations collected from clean unimpacted locations.												
3627	The use of USL tends to provide a balance between false positives and false negatives provided the data												
3628	represents a background data set and when many onsite observations need to be compared with the BTV.												
3629													
3630	MO_Pb <53												
3631													
3632	General Statistics												
3633	Total Number of Observations					333	Number of Distinct Observations					179	
3634	Minimum					7.9	First Quartile					19.8	
3635	Second Largest					52.6	Median					23.1	
3636	Maximum					52.7	Third Quartile					27.4	
3637	Mean					24.4	SD					7.239	
3638	Coefficient of Variation					0.297	Skewness					1.046	
3639	Mean of logged Data					3.152	SD of logged Data					0.295	
3640													
3641	Critical Values for Background Threshold Values (BTVs)												
3642	Tolerance Factor K (For UTL)					1.79	d2max (for USL)					3.582	
3643													
3644	Normal GOF Test												
3645	Shapiro Wilk Test Statistic					0.927	Normal GOF Test						
3646	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
3647	Lilliefors Test Statistic					0.104	Lilliefors GOF Test						
3648	1% Lilliefors Critical Value					0.0566	Data Not Normal at 1% Significance Level						
3649	Data Not Normal at 1% Significance Level												
3650													
3651	Background Statistics Assuming Normal Distribution												
3652	95% UTL with	95% Coverage			37.36	90% Percentile (z)					33.68		
3653		95% UPL (t)			36.36	95% Percentile (z)					36.31		
3654		95% USL			50.33	99% Percentile (z)					41.24		
3655													
3656	Gamma GOF Test												
3657	A-D Test Statistic					2.976	Anderson-Darling Gamma GOF Test						
3658	5% A-D Critical Value					0.754	Data Not Gamma Distributed at 5% Significance Level						
3659	K-S Test Statistic					0.0755	Kolmogorov-Smirnov Gamma GOF Test						
3660	5% K-S Critical Value					0.0498	Data Not Gamma Distributed at 5% Significance Level						
3661	Data Not Gamma Distributed at 5% Significance Level												
3662													
3663	Gamma Statistics												
3664	k hat (MLE)					11.96	k star (bias corrected MLE)					11.85	
3665	Theta hat (MLE)					2.041	Theta star (bias corrected MLE)					2.059	
3666	nu hat (MLE)					7965	nu star (bias corrected)					7894	
3667	MLE Mean (bias corrected)					24.4	MLE Sd (bias corrected)					7.088	
3668													
3669	Background Statistics Assuming Gamma Distribution												
3670	95% Wilson Hiferty (WH) Approx.	Gamma UPL			37.11	90% Percentile					33.81		
3671	95% Hawkins Wixley (HW) Approx.	Gamma UPL			37.3	95% Percentile					37.11		
3672	95% WH Approx.	Gamma UTL with	95% Coverage		38.42	99% Percentile					43.84		
3673	95% HW Approx.	Gamma UTL with	95% Coverage		38.66								
3674		95% WH USL			58.2	95% HW USL					59.93		
3675													
3676	Lognormal GOF Test												
3677	Shapiro Wilk Test Statistic					0.962	Shapiro Wilk Lognormal GOF Test						
3678	10% Shapiro Wilk P Value					1.1478E-6	Data Not Lognormal at 10% Significance Level						
3679	Lilliefors Test Statistic					0.0809	Lilliefors Lognormal GOF Test						
3680	10% Lilliefors Critical Value					0.0448	Data Not Lognormal at 10% Significance Level						
3681	Data Not Lognormal at 10% Significance Level												
3682													
3683	Background Statistics assuming Lognormal Distribution												
3684	95% UTL with	95% Coverage			39.64	90% Percentile (z)					34.12		
3685		95% UPL (t)			38.05	95% Percentile (z)					37.97		
3686		95% USL			67.2	99% Percentile (z)					46.42		
3687													
3688	Nonparametric Distribution Free Background Statistics												
3689	Data do not follow a Discernible Distribution												
3690													
3691	Nonparametric Upper Limits for Background Threshold Values												
3692	Order of Statistic, order					324	95% UTL with 95% Coverage					42.1	

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	A	B	C	D	E	F	G	H	I	J	K	L	
3693	Approx, f used to compute achieved CC					1.545	Approximate Actual Confidence Coefficient achieved by UTL					0.947	
3694							Approximate Sample Size needed to achieve specified CC					311	
3695	95% Percentile Bootstrap UTL with 95% Coverage					41.74	95% BCA Bootstrap UTL with 95% Coverage					41.7	
3696	95% UPL					40.02	90% Percentile					33.42	
3697	90% Chebyshev UPL					46.15	95% Percentile					39.54	
3698	95% Chebyshev UPL					56	99% Percentile					46.56	
3699	95% USL					52.7							
3700													
3701	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
3702	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
3703	and consists of observations collected from clean unimpacted locations.												
3704	The use of USL tends to provide a balance between false positives and false negatives provided the data												
3705	represents a background data set and when many onsite observations need to be compared with the BTV.												
3706													
3707	MO_Pb <42												
3708													
3709	General Statistics												
3710	Total Number of Observations					323	Number of Distinct Observations					169	
3711	Minimum					7.9	First Quartile					19.65	
3712	Second Largest					41.7	Median					22.8	
3713	Maximum					41.8	Third Quartile					27	
3714	Mean					23.72	SD					6.145	
3715	Coefficient of Variation					0.259	Skewness					0.475	
3716	Mean of logged Data					3.131	SD of logged Data					0.272	
3717													
3718	Critical Values for Background Threshold Values (BTVs)												
3719	Tolerance Factor K (For UTL)					1.793	d2max (for USL)					3.574	
3720													
3721	Normal GOF Test												
3722	Shapiro Wilk Test Statistic					0.961	Normal GOF Test						
3723	1% Shapiro Wilk P Value					5.0462E-7	Data Not Normal at 1% Significance Level						
3724	Lilliefors Test Statistic					0.0657	Lilliefors GOF Test						
3725	1% Lilliefors Critical Value					0.0575	Data Not Normal at 1% Significance Level						
3726	Data Not Normal at 1% Significance Level												
3727													
3728	Background Statistics Assuming Normal Distribution												
3729	95% UTL with 95% Coverage					34.73	90% Percentile (z)					31.59	
3730	95% UPL (t)					33.87	95% Percentile (z)					33.82	
3731	95% USL					45.68	99% Percentile (z)					38.01	
3732													
3733	Gamma GOF Test												
3734	A-D Test Statistic					1.769	Anderson-Darling Gamma GOF Test						
3735	5% A-D Critical Value					0.753	Data Not Gamma Distributed at 5% Significance Level						
3736	K-S Test Statistic					0.071	Kolmogorov-Smimov Gamma GOF Test						
3737	5% K-S Critical Value					0.0505	Data Not Gamma Distributed at 5% Significance Level						
3738	Data Not Gamma Distributed at 5% Significance Level												
3739													
3740	Gamma Statistics												
3741	k hat (MLE)					14.42	k star (bias corrected MLE)					14.29	
3742	Theta hat (MLE)					1.644	Theta star (bias corrected MLE)					1.66	
3743	nu hat (MLE)					9317	nu star (bias corrected)					9231	
3744	MLE Mean (bias corrected)					23.72	MLE Sd (bias corrected)					6.274	
3745													
3746	Background Statistics Assuming Gamma Distribution												
3747	95% Wilson Hilferty (WH) Approx. Gamma UPL					34.9	90% Percentile					32.03	
3748	95% Hawkins Wixley (HW) Approx. Gamma UPL					35.11	95% Percentile					34.89	
3749	95% WH Approx. Gamma UTL with 95% Coverage					36.05	99% Percentile					40.69	
3750	95% HW Approx. Gamma UTL with 95% Coverage					36.32							
3751	95% WH USL					52.85	95% HW USL					54.37	
3752													
3753	Lognormal GOF Test												
3754	Shapiro Wilk Test Statistic					0.951	Shapiro Wilk Lognormal GOF Test						
3755	10% Shapiro Wilk P Value					2.787E-11	Data Not Lognormal at 10% Significance Level						
3756	Lilliefors Test Statistic					0.0806	Lilliefors Lognormal GOF Test						
3757	10% Lilliefors Critical Value					0.0455	Data Not Lognormal at 10% Significance Level						
3758	Data Not Lognormal at 10% Significance Level												
3759													
3760	Background Statistics assuming Lognormal Distribution												
3761	95% UTL with 95% Coverage					37.32	90% Percentile (z)					32.47	
3762	95% UPL (t)					35.92	95% Percentile (z)					35.85	
3763	95% USL					60.64	99% Percentile (z)					43.16	

	A	B	C	D	E	F	G	H	I	J	K	L
3764												
3765	Nonparametric Distribution Free Background Statistics											
3766	Data do not follow a Discernible Distribution											
3767												
3768	Nonparametric Upper Limits for Background Threshold Values											
3769	Order of Statistic, order					314	95% UTL with 95% Coverage					37.5
3770	Approx. f used to compute achieved CC					1.498	Approximate Actual Confidence Coefficient achieved by UTL					0.933
3771							Approximate Sample Size needed to achieve specified CC					311
3772	95% Percentile Bootstrap UTL with 95% Coverage					36.9	95% BCA Bootstrap UTL with 95% Coverage					36.9
3773	95% UPL					35.64	90% Percentile					31.9
3774	90% Chebyshev UPL					42.18	95% Percentile					35.39
3775	95% Chebyshev UPL					50.54	99% Percentile					41
3776	95% USL					41.8						
3777												
3778	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
3779	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3780	and consists of observations collected from clean unimpacted locations.											
3781	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3782	represents a background data set and when many onsite observations need to be compared with the BTV.											
3783												
3784	MS_As											
3785												
3786	General Statistics											
3787	Total Number of Observations					231	Number of Distinct Observations					112
3788	Minimum					0.3	First Quartile					2.55
3789	Second Largest					20.6	Median					4.9
3790	Maximum					24.5	Third Quartile					8.6
3791	Mean					6.044	SD					4.232
3792	Coefficient of Variation					0.7	Skewness					1.128
3793	Mean of logged Data					1.533	SD of logged Data					0.777
3794												
3795	Critical Values for Background Threshold Values (BTVs)											
3796	Tolerance Factor K (For UTL)					1.822	d2max (for USL)					3.476
3797												
3798	Normal GOF Test											
3799	Shapiro Wilk Test Statistic					0.903	Normal GOF Test					
3800	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
3801	Lilliefors Test Statistic					0.113	Lilliefors GOF Test					
3802	1% Lilliefors Critical Value					0.0679	Data Not Normal at 1% Significance Level					
3803	Data Not Normal at 1% Significance Level											
3804												
3805	Background Statistics Assuming Normal Distribution											
3806	95% UTL with 95% Coverage					13.75	90% Percentile (z)					11.47
3807	95% UPL (t)					13.05	95% Percentile (z)					13
3808	95% USL					20.75	99% Percentile (z)					15.89
3809												
3810	Gamma GOF Test											
3811	A-D Test Statistic					1.004	Anderson-Darling Gamma GOF Test					
3812	5% A-D Critical Value					0.766	Data Not Gamma Distributed at 5% Significance Level					
3813	K-S Test Statistic					0.0527	Kolmogorov-Smirnov Gamma GOF Test					
3814	5% K-S Critical Value					0.0608	Detected data appear Gamma Distributed at 5% Significance Level					
3815	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
3816												
3817	Gamma Statistics											
3818	k hat (MLE)					2.029	k star (bias corrected MLE)					2.005
3819	Theta hat (MLE)					2.979	Theta star (bias corrected MLE)					3.014
3820	nu hat (MLE)					937.3	nu star (bias corrected)					926.5
3821	MLE Mean (bias corrected)					6.044	MLE Sd (bias corrected)					4.268
3822												
3823	Background Statistics Assuming Gamma Distribution											
3824	95% Wilson Hilferty (WH) Approx. Gamma UPL					14.29	90% Percentile					11.75
3825	95% Hawkins Wixley (HW) Approx. Gamma UPL					14.69	95% Percentile					14.32
3826	95% WH Approx. Gamma UTL with 95% Coverage					15.58	99% Percentile					20.04
3827	95% HW Approx. Gamma UTL with 95% Coverage					16.14						
3828	95% WH USL					32.84	95% HW USL					37.11
3829												
3830	Lognormal GOF Test											
3831	Shapiro Wilk Test Statistic					0.968	Shapiro Wilk Lognormal GOF Test					
3832	10% Shapiro Wilk P Value					0.00444	Data Not Lognormal at 10% Significance Level					
3833	Lilliefors Test Statistic					0.0704	Lilliefors Lognormal GOF Test					
3834	10% Lilliefors Critical Value					0.0537	Data Not Lognormal at 10% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L
3835	Data Not Lognormal at 10% Significance Level											
3836												
3837	Background Statistics assuming Lognormal Distribution											
3838	95% UTL with	95% Coverage	19.09						90% Percentile (z)		12.54	
3839		95% UPL (t)	16.77						95% Percentile (z)		16.64	
3840		95% USL	69.07						99% Percentile (z)		28.26	
3841												
3842	Nonparametric Distribution Free Background Statistics											
3843	Data appear Approximate Gamma Distribution at 5% Significance Level											
3844												
3845	Nonparametric Upper Limits for Background Threshold Values											
3846	Order of Statistic, order	226						95% UTL with	95% Coverage		16.2	
3847	Approx, f used to compute achieved CC	1.692						Approximate Actual Confidence Coefficient achieved by UTL			0.946	
3848								Approximate Sample Size needed to achieve specified CC			208	
3849	95% Percentile Bootstrap UTL with	95% Coverage	15.9					95% BCA Bootstrap UTL with	95% Coverage		15.3	
3850		95% UPL	13.74						90% Percentile		11.4	
3851		90% Chebyshev UPL	18.77						95% Percentile		13.4	
3852		95% Chebyshev UPL	24.53						99% Percentile		18.69	
3853		95% USL	24.5									
3854												
3855	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
3856	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3857	and consists of observations collected from clean unimpacted locations.											
3858	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3859	represents a background data set and when many onsite observations need to be compared with the BTV.											
3860												
3861	MS_As <20											
3862												
3863	General Statistics											
3864	Total Number of Observations	229						Number of Distinct Observations			110	
3865	Minimum	0.3						First Quartile			2.5	
3866	Second Largest	17.5						Median			4.8	
3867	Maximum	19.2						Third Quartile			8.6	
3868	Mean	5.9						SD			3.952	
3869	Coefficient of Variation	0.67						Skewness			0.836	
3870	Mean of logged Data	1.519						SD of logged Data			0.767	
3871												
3872	Critical Values for Background Threshold Values (BTVs)											
3873	Tolerance Factor K (For UTL)	1.822						d2max (for USL)			3.473	
3874												
3875	Normal GOF Test											
3876	Shapiro Wilk Test Statistic	0.912						Normal GOF Test				
3877	1% Shapiro Wilk P Value	0						Data Not Normal at 1% Significance Level				
3878	Lilliefors Test Statistic	0.112						Lilliefors GOF Test				
3879	1% Lilliefors Critical Value	0.0682						Data Not Normal at 1% Significance Level				
3880	Data Not Normal at 1% Significance Level											
3881												
3882	Background Statistics Assuming Normal Distribution											
3883	95% UTL with	95% Coverage	13.1					90% Percentile (z)			10.96	
3884		95% UPL (t)	12.44					95% Percentile (z)			12.4	
3885		95% USL	19.63					99% Percentile (z)			15.09	
3886												
3887	Gamma GOF Test											
3888	A-D Test Statistic	1.192						Anderson-Darling Gamma GOF Test				
3889	5% A-D Critical Value	0.766						Data Not Gamma Distributed at 5% Significance Level				
3890	K-S Test Statistic	0.0587						Kolmogorov-Smirnov Gamma GOF Test				
3891	5% K-S Critical Value	0.061						Detected data appear Gamma Distributed at 5% Significance Level				
3892	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
3893												
3894	Gamma Statistics											
3895	k hat (MLE)	2.105						k star (bias corrected MLE)			2.081	
3896	Theta hat (MLE)	2.802						Theta star (bias corrected MLE)			2.835	
3897	nu hat (MLE)	964.3						nu star (bias corrected)			953	
3898	MLE Mean (bias corrected)	5.9						MLE Sd (bias corrected)			4.09	
3899												
3900	Background Statistics Assuming Gamma Distribution											
3901	95% Wilson Hilferty (WH) Approx. Gamma UPL	13.81						90% Percentile			11.37	
3902	95% Hawkins Wixley (HW) Approx. Gamma UPL	14.21						95% Percentile			13.82	
3903	95% WH Approx. Gamma UTL with	95% Coverage	15.04					99% Percentile			19.25	
3904	95% HW Approx. Gamma UTL with	95% Coverage	15.6									
3905		95% WH USL	31.37					95% HW USL			35.43	

	A	B	C	D	E	F	G	H	I	J	K	L	
3906													
3907	Lognormal GOF Test												
3908	Shapiro Wilk Test Statistic					0.961	Shapiro Wilk Lognormal GOF Test						
3909	10% Shapiro Wilk P Value					8.5266E-5	Data Not Lognormal at 10% Significance Level						
3910	Lilliefors Test Statistic					0.0737	Lilliefors Lognormal GOF Test						
3911	10% Lilliefors Critical Value					0.054	Data Not Lognormal at 10% Significance Level						
3912	Data Not Lognormal at 10% Significance Level												
3913													
3914	Background Statistics assuming Lognormal Distribution												
3915	95% UTL with		95% Coverage		18.47						90% Percentile (z)	12.2	
3916			95% UPL (t)		16.24						95% Percentile (z)	16.12	
3917			95% USL		65.46						99% Percentile (z)	27.17	
3918													
3919	Nonparametric Distribution Free Background Statistics												
3920	Data appear Approximate Gamma Distribution at 5% Significance Level												
3921													
3922	Nonparametric Upper Limits for Background Threshold Values												
3923	Order of Statistic, order					224	95% UTL with					95% Coverage	15.9
3924	Approx, f used to compute achieved CC					1.677	Approximate Actual Confidence Coefficient achieved by UTL					0.943	
3925							Approximate Sample Size needed to achieve specified CC					208	
3926	95% Percentile Bootstrap UTL with		95% Coverage		14.5	95% BCA Bootstrap UTL with					95% Coverage	14.5	
3927			95% UPL		13.15						90% Percentile	11.32	
3928			90% Chebyshev UPL		17.78						95% Percentile	12.96	
3929			95% Chebyshev UPL		23.16						99% Percentile	16.78	
3930			95% USL		19.2								
3931													
3932	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
3933	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
3934	and consists of observations collected from clean unimpacted locations.												
3935	The use of USL tends to provide a balance between false positives and false negatives provided the data												
3936	represents a background data set and when many onsite observations need to be compared with the BTV.												
3937													
3938	MS_As <18												
3939													
3940	General Statistics												
3941	Total Number of Observations					228	Number of Distinct Observations					109	
3942	Minimum					0.3	First Quartile					2.5	
3943	Second Largest					17	Median					4.8	
3944	Maximum					17.5	Third Quartile					8.525	
3945	Mean					5.841	SD					3.861	
3946	Coefficient of Variation					0.661	Skewness					0.765	
3947	Mean of logged Data					1.513	SD of logged Data					0.762	
3948													
3949	Critical Values for Background Threshold Values (BTVs)												
3950	Tolerance Factor K (For UTL)					1.823	d2max (for USL)					3.472	
3951													
3952	Normal GOF Test												
3953	Shapiro Wilk Test Statistic					0.912	Normal GOF Test						
3954	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
3955	Lilliefors Test Statistic					0.111	Lilliefors GOF Test						
3956	1% Lilliefors Critical Value					0.0683	Data Not Normal at 1% Significance Level						
3957	Data Not Normal at 1% Significance Level												
3958													
3959	Background Statistics Assuming Normal Distribution												
3960	95% UTL with		95% Coverage		12.88	90% Percentile (z)					10.79		
3961			95% UPL (t)		12.23	95% Percentile (z)					12.19		
3962			95% USL		19.25	99% Percentile (z)					14.82		
3963													
3964	Gamma GOF Test												
3965	A-D Test Statistic					1.273	Anderson-Darling Gamma GOF Test						
3966	5% A-D Critical Value					0.765	Data Not Gamma Distributed at 5% Significance Level						
3967	K-S Test Statistic					0.061	Kolmogorov-Smirnov Gamma GOF Test						
3968	5% K-S Critical Value					0.0611	Detected data appear Gamma Distributed at 5% Significance Level						
3969	Detected data follow Appr. Gamma Distribution at 5% Significance Level												
3970													
3971	Gamma Statistics												
3972	k hat (MLE)					2.134	k star (bias corrected MLE)					2.109	
3973	Theta hat (MLE)					2.738	Theta star (bias corrected MLE)					2.77	
3974	nu hat (MLE)					973	nu star (bias corrected)					961.5	
3975	MLE Mean (bias corrected)					5.841	MLE Sd (bias corrected)					4.023	
3976													

	A	B	C	D	E	F	G	H	I	J	K	L	
3977	Background Statistics Assuming Gamma Distribution												
3978	95% Wilson Hilferty (WH) Approx. Gamma UPL					13.62						90% Percentile	11.22
3979	95% Hawkins Wixley (HW) Approx. Gamma UPL					14.02						95% Percentile	13.63
3980	95% WH Approx. Gamma UTL with 95% Coverage					14.83						99% Percentile	18.95
3981	95% HW Approx. Gamma UTL with 95% Coverage					15.39							
3982	95% WH USL					30.8						95% HW USL	34.78
3983													
3984	Lognormal GOF Test												
3985	Shapiro Wilk Test Statistic					0.958						Shapiro Wilk Lognormal GOF Test	
3986	10% Shapiro Wilk P Value					1.5040E-5						Data Not Lognormal at 10% Significance Level	
3987	Lilliefors Test Statistic					0.0747						Lilliefors Lognormal GOF Test	
3988	10% Lilliefors Critical Value					0.0541						Data Not Lognormal at 10% Significance Level	
3989	Data Not Lognormal at 10% Significance Level												
3990													
3991	Background Statistics assuming Lognormal Distribution												
3992	95% UTL with		95% Coverage		18.21						90% Percentile (z)	12.06	
3993			95% UPL (t)		16.03						95% Percentile (z)	15.9	
3994			95% USL		64.02						99% Percentile (z)	26.74	
3995													
3996	Nonparametric Distribution Free Background Statistics												
3997	Data appear Approximate Gamma Distribution at 5% Significance Level												
3998													
3999	Nonparametric Upper Limits for Background Threshold Values												
4000	Order of Statistic, order					223						95% UTL with 95% Coverage	14.7
4001	Approx, f used to compute achieved CC					1.669						Approximate Actual Confidence Coefficient achieved by UTL	0.941
4002												Approximate Sample Size needed to achieve specified CC	208
4003	95% Percentile Bootstrap UTL with		95% Coverage		14.1						95% BCA Bootstrap UTL with 95% Coverage	14.1	
4004			95% UPL		12.96						90% Percentile	11.23	
4005			90% Chebyshev UPL		17.45						95% Percentile	12.83	
4006			95% Chebyshev UPL		22.71						99% Percentile	16.15	
4007			95% USL		17.5								
4008													
4009	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
4010	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
4011	and consists of observations collected from clean unimpacted locations.												
4012	The use of USL tends to provide a balance between false positives and false negatives provided the data												
4013	represents a background data set and when many onsite observations need to be compared with the BTV.												
4014													
4015	MS_As <14												
4016													
4017	General Statistics												
4018	Total Number of Observations					220						Number of Distinct Observations	101
4019	Minimum					0.3						First Quartile	2.5
4020	Second Largest					13.3						Median	4.8
4021	Maximum					13.5						Third Quartile	8.325
4022	Mean					5.481						SD	3.42
4023	Coefficient of Variation					0.624						Skewness	0.532
4024	Mean of logged Data					1.468						SD of logged Data	0.737
4025													
4026	Critical Values for Background Threshold Values (BTVs)												
4027	Tolerance Factor K (For UTL)					1.826						d2max (for USL)	3.461
4028													
4029	Normal GOF Test												
4030	Shapiro Wilk Test Statistic					0.911						Normal GOF Test	
4031	1% Shapiro Wilk P Value					0						Data Not Normal at 1% Significance Level	
4032	Lilliefors Test Statistic					0.108						Lilliefors GOF Test	
4033	1% Lilliefors Critical Value					0.0696						Data Not Normal at 1% Significance Level	
4034	Data Not Normal at 1% Significance Level												
4035													
4036	Background Statistics Assuming Normal Distribution												
4037	95% UTL with		95% Coverage		11.73						90% Percentile (z)	9.864	
4038			95% UPL (t)		11.14						95% Percentile (z)	11.11	
4039			95% USL		17.32						99% Percentile (z)	13.44	
4040													
4041	Gamma GOF Test												
4042	A-D Test Statistic					1.686						Anderson-Darling Gamma GOF Test	
4043	5% A-D Critical Value					0.765						Data Not Gamma Distributed at 5% Significance Level	
4044	K-S Test Statistic					0.0685						Kolmogorov-Smirnov Gamma GOF Test	
4045	5% K-S Critical Value					0.062						Data Not Gamma Distributed at 5% Significance Level	
4046	Data Not Gamma Distributed at 5% Significance Level												
4047													

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	A	B	C	D	E	F	G	H	I	J	K	L
4048	Gamma Statistics											
4049	k hat (MLE)					2.291	k star (bias corrected MLE)					2.263
4050	Theta hat (MLE)					2.392	Theta star (bias corrected MLE)					2.422
4051	nu hat (MLE)					1008	nu star (bias corrected)					995.8
4052	MLE Mean (bias corrected)					5.481	MLE Sd (bias corrected)					3.644
4053												
4054	Background Statistics Assuming Gamma Distribution											
4055	95% Wilson Hilferty (WH) Approx. Gamma UPL					12.52	90% Percentile					10.36
4056	95% Hawkins Wixley (HW) Approx. Gamma UPL					12.89	95% Percentile					12.51
4057	95% WH Approx. Gamma UTL with 95% Coverage					13.62	99% Percentile					17.25
4058	95% HW Approx. Gamma UTL with 95% Coverage					14.13						
4059	95% WH USL					27.64	95% HW USL					31.09
4060												
4061	Lognormal GOF Test											
4062	Shapiro Wilk Test Statistic					0.946	Shapiro Wilk Lognormal GOF Test					
4063	10% Shapiro Wilk P Value					1.2746E-8	Data Not Lognormal at 10% Significance Level					
4064	Lilliefors Test Statistic					0.0781	Lilliefors Lognormal GOF Test					
4065	10% Lilliefors Critical Value					0.055	Data Not Lognormal at 10% Significance Level					
4066	Data Not Lognormal at 10% Significance Level											
4067												
4068	Background Statistics assuming Lognormal Distribution											
4069	95% UTL with 95% Coverage					16.68	90% Percentile (z)					11.16
4070	95% UPL (t)					14.71	95% Percentile (z)					14.59
4071	95% USL					55.7	99% Percentile (z)					24.12
4072												
4073	Nonparametric Distribution Free Background Statistics											
4074	Data do not follow a Discernible Distribution											
4075												
4076	Nonparametric Upper Limits for Background Threshold Values											
4077	Order of Statistic, order					215	95% UTL with 95% Coverage					12.7
4078	Approx, f used to compute achieved CC					1.609	Approximate Actual Confidence Coefficient achieved by UTL					0.927
4079							Approximate Sample Size needed to achieve specified CC					208
4080	95% Percentile Bootstrap UTL with 95% Coverage					12.1	95% BCA Bootstrap UTL with 95% Coverage					12.1
4081	95% UPL					11.6	90% Percentile					10.6
4082	90% Chebyshev UPL					15.76	95% Percentile					11.51
4083	95% Chebyshev UPL					20.42	99% Percentile					12.98
4084	95% USL					13.5						
4085												
4086	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4087	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4088	and consists of observations collected from clean unimpacted locations.											
4089	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4090	represents a background data set and when many onsite observations need to be compared with the BTV.											
4091												
4092	MS_Pb											
4093												
4094	General Statistics											
4095	Total Number of Observations					231	Number of Distinct Observations					154
4096	Minimum					3.7	First Quartile					11.55
4097	Second Largest					137	Median					15.3
4098	Maximum					181	Third Quartile					19.45
4099	Mean					18.43	SD					17.66
4100	Coefficient of Variation					0.958	Skewness					6.086
4101	Mean of logged Data					2.727	SD of logged Data					0.548
4102												
4103	Critical Values for Background Threshold Values (BTVs)											
4104	Tolerance Factor K (For UTL)					1.822	d2max (for USL)					3.476
4105												
4106	Normal GOF Test											
4107	Shapiro Wilk Test Statistic					0.502	Normal GOF Test					
4108	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
4109	Lilliefors Test Statistic					0.255	Lilliefors GOF Test					
4110	1% Lilliefors Critical Value					0.0679	Data Not Normal at 1% Significance Level					
4111	Data Not Normal at 1% Significance Level											
4112												
4113	Background Statistics Assuming Normal Distribution											
4114	95% UTL with 95% Coverage					50.59	90% Percentile (z)					41.06
4115	95% UPL (t)					47.65	95% Percentile (z)					47.47
4116	95% USL					79.8	99% Percentile (z)					59.51
4117												
4118	Gamma GOF Test											

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	A	B	C	D	E	F	G	H	I	J	K	L	
4119	A-D Test Statistic					7.122	Anderson-Darling Gamma GOF Test						
4120	5% A-D Critical Value					0.761	Data Not Gamma Distributed at 5% Significance Level						
4121	K-S Test Statistic					0.141	Kolmogorov-Smirnov Gamma GOF Test						
4122	5% K-S Critical Value					0.0605	Data Not Gamma Distributed at 5% Significance Level						
4123	Data Not Gamma Distributed at 5% Significance Level												
4124													
4125	Gamma Statistics												
4126	k hat (MLE)					2.835	k star (bias corrected MLE)					2.801	
4127	Theta hat (MLE)					6.501	Theta star (bias corrected MLE)					6.58	
4128	nu hat (MLE)					1310	nu star (bias corrected)					1294	
4129	MLE Mean (bias corrected)					18.43	MLE Sd (bias corrected)					11.01	
4130													
4131	Background Statistics Assuming Gamma Distribution												
4132	95% Wilson Hilferty (WH) Approx. Gamma UPL					38.57	90% Percentile					33.19	
4133	95% Hawkins Wixley (HW) Approx. Gamma UPL					38.14	95% Percentile					39.45	
4134	95% WH Approx. Gamma UTL with		95% Coverage		41.58	99% Percentile					53.07		
4135	95% HW Approx. Gamma UTL with		95% Coverage		41.25								
4136	95% WH USL					80.44	95% HW USL					83.44	
4137													
4138	Lognormal GOF Test												
4139	Shapiro Wilk Test Statistic					0.95	Shapiro Wilk Lognormal GOF Test						
4140	10% Shapiro Wilk P Value					8.9220E-8	Data Not Lognormal at 10% Significance Level						
4141	Lilliefors Test Statistic					0.0871	Lilliefors Lognormal GOF Test						
4142	10% Lilliefors Critical Value					0.0537	Data Not Lognormal at 10% Significance Level						
4143	Data Not Lognormal at 10% Significance Level												
4144													
4145	Background Statistics assuming Lognormal Distribution												
4146	95% UTL with		95% Coverage		41.49	90% Percentile (z)					30.86		
4147			95% UPL (t)		37.87	95% Percentile (z)					37.66		
4148			95% USL		102.7	99% Percentile (z)					54.71		
4149													
4150	Nonparametric Distribution Free Background Statistics												
4151	Data do not follow a Discernible Distribution												
4152													
4153	Nonparametric Upper Limits for Background Threshold Values												
4154	Order of Statistic, order					226	95% UTL with 95% Coverage					47.9	
4155	Approx, f used to compute achieved CC					1.692	Approximate Actual Confidence Coefficient achieved by UTL					0.946	
4156							Approximate Sample Size needed to achieve specified CC					208	
4157	95% Percentile Bootstrap UTL with		95% Coverage		46.2	95% BCA Bootstrap UTL with 95% Coverage					46.2		
4158			95% UPL		38.62	90% Percentile					29		
4159			90% Chebyshev UPL		71.52	95% Percentile					36.95		
4160			95% Chebyshev UPL		95.56	99% Percentile					109.6		
4161			95% USL		181								
4162													
4163	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
4164	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
4165	and consists of observations collected from clean unimpacted locations.												
4166	The use of USL tends to provide a balance between false positives and false negatives provided the data												
4167	represents a background data set and when many onsite observations need to be compared with the BTV.												
4168													
4169	MS_Pb <56												
4170													
4171	General Statistics												
4172	Total Number of Observations					228	Number of Distinct Observations					151	
4173	Minimum					3.7	First Quartile					11.5	
4174	Second Largest					52.7	Median					15.15	
4175	Maximum					55.1	Third Quartile					19.05	
4176	Mean					16.69	SD					8.758	
4177	Coefficient of Variation					0.525	Skewness					1.751	
4178	Mean of logged Data					2.697	SD of logged Data					0.484	
4179													
4180	Critical Values for Background Threshold Values (BTVs)												
4181	Tolerance Factor K (For UTL)					1.823	d2max (for USL)					3.472	
4182													
4183	Normal GOF Test												
4184	Shapiro Wilk Test Statistic					0.852	Normal GOF Test						
4185	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
4186	Lilliefors Test Statistic					0.151	Lilliefors GOF Test						
4187	1% Lilliefors Critical Value					0.0683	Data Not Normal at 1% Significance Level						
4188	Data Not Normal at 1% Significance Level												
4189													

	A	B	C	D	E	F	G	H	I	J	K	L
4190	Background Statistics Assuming Normal Distribution											
4191			95% UTL with	95% Coverage	32.66					90% Percentile (z)		27.92
4192				95% UPL (t)	31.19					95% Percentile (z)		31.1
4193				95% USL	47.1					99% Percentile (z)		37.07
4194												
4195	Gamma GOF Test											
4196			A-D Test Statistic	2.023						Anderson-Darling Gamma GOF Test		
4197			5% A-D Critical Value	0.757						Data Not Gamma Distributed at 5% Significance Level		
4198			K-S Test Statistic	0.0855						Kolmogorov-Sminov Gamma GOF Test		
4199			5% K-S Critical Value	0.0606						Data Not Gamma Distributed at 5% Significance Level		
4200	Data Not Gamma Distributed at 5% Significance Level											
4201												
4202	Gamma Statistics											
4203			k hat (MLE)	4.409						k star (bias corrected MLE)		4.354
4204			Theta hat (MLE)	3.786						Theta star (bias corrected MLE)		3.834
4205			nu hat (MLE)	2011						nu star (bias corrected)		1985
4206			MLE Mean (bias corrected)	16.69						MLE Sd (bias corrected)		7.999
4207												
4208	Background Statistics Assuming Gamma Distribution											
4209			95% Wilson Hilferty (WH) Approx. Gamma UPL	31.59						90% Percentile		27.41
4210			95% Hawkins Wixley (HW) Approx. Gamma UPL	31.84						95% Percentile		31.65
4211			95% WH Approx. Gamma UTL with	95% Coverage	33.67					99% Percentile		40.65
4212			95% HW Approx. Gamma UTL with	95% Coverage	34.06							
4213				95% WH USL	59.25					95% HW USL		62.6
4214												
4215	Lognormal GOF Test											
4216			Shapiro Wilk Test Statistic	0.976						Shapiro Wilk Lognormal GOF Test		
4217			10% Shapiro Wilk P Value	0.0976						Data Not Lognormal at 10% Significance Level		
4218			Lilliefors Test Statistic	0.0633						Lilliefors Lognormal GOF Test		
4219			10% Lilliefors Critical Value	0.0541						Data Not Lognormal at 10% Significance Level		
4220	Data Not Lognormal at 10% Significance Level											
4221												
4222	Background Statistics assuming Lognormal Distribution											
4223			95% UTL with	95% Coverage	35.89					90% Percentile (z)		27.61
4224				95% UPL (t)	33.09					95% Percentile (z)		32.92
4225				95% USL	79.78					99% Percentile (z)		45.8
4226												
4227	Nonparametric Distribution Free Background Statistics											
4228	Data do not follow a Discernible Distribution											
4229												
4230	Nonparametric Upper Limits for Background Threshold Values											
4231			Order of Statistic, order	223						95% UTL with	95% Coverage	43.1
4232			Approx, f used to compute achieved CC	1.669						Approximate Actual Confidence Coefficient achieved by UTL		0.941
4233										Approximate Sample Size needed to achieve specified CC		208
4234			95% Percentile Bootstrap UTL with	95% Coverage	40.3					95% BCA Bootstrap UTL with	95% Coverage	41.07
4235				95% UPL	34.27						90% Percentile	27.45
4236				90% Chebyshev UPL	43.02						95% Percentile	33.93
4237				95% Chebyshev UPL	54.95						99% Percentile	47.85
4238				95% USL	55.1							
4239												
4240	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4241	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4242	and consists of observations collected from clean unimpacted locations.											
4243	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4244	represents a background data set and when many onsite observations need to be compared with the BTV.											
4245												
4246	MS_Pb <44											
4247												
4248	General Statistics											
4249			Total Number of Observations	223						Number of Distinct Observations		146
4250			Minimum	3.7						First Quartile		11.4
4251			Second Largest	43						Median		15.1
4252			Maximum	43.1						Third Quartile		18.65
4253			Mean	15.95						SD		7.263
4254			Coefficient of Variation	0.455						Skewness		1.207
4255			Mean of logged Data	2.67						SD of logged Data		0.454
4256												
4257	Critical Values for Background Threshold Values (BTVs)											
4258			Tolerance Factor K (For UTL)	1.825						d2max (for USL)		3.465
4259												
4260	Normal GOF Test											

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	A	B	C	D	E	F	G	H	I	J	K	L	
4261	Shapiro Wilk Test Statistic					0.909	Normal GOF Test						
4262	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
4263	Lilliefors Test Statistic					0.116	Lilliefors GOF Test						
4264	1% Lilliefors Critical Value					0.0691	Data Not Normal at 1% Significance Level						
4265	Data Not Normal at 1% Significance Level												
4266													
4267	Background Statistics Assuming Normal Distribution												
4268	95% UTL with	95% Coverage		29.2						90% Percentile (z)		25.25	
4269		95% UPL (t)		27.97						95% Percentile (z)		27.89	
4270		95% USL		41.11						99% Percentile (z)		32.84	
4271													
4272	Gamma GOF Test												
4273	A-D Test Statistic					1.031	Anderson-Darling Gamma GOF Test						
4274	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level						
4275	K-S Test Statistic					0.0614	Kolmogorov-Smirnov Gamma GOF Test						
4276	5% K-S Critical Value					0.0611	Data Not Gamma Distributed at 5% Significance Level						
4277	Data Not Gamma Distributed at 5% Significance Level												
4278													
4279	Gamma Statistics												
4280		k hat (MLE)		5.204						k star (bias corrected MLE)		5.137	
4281		Theta hat (MLE)		3.065						Theta star (bias corrected MLE)		3.105	
4282		nu hat (MLE)		2321						nu star (bias corrected)		2291	
4283	MLE Mean (bias corrected)					15.95					MLE Sd (bias corrected)		7.036
4284													
4285	Background Statistics Assuming Gamma Distribution												
4286	95% Wilson Hilferty (WH) Approx.	Gamma UPL		29						90% Percentile		25.36	
4287	95% Hawkins Wixley (HW) Approx.	Gamma UPL		29.3						95% Percentile		29	
4288	95% WH Approx.	Gamma UTL with	95% Coverage	30.8						99% Percentile		36.67	
4289	95% HW Approx.	Gamma UTL with	95% Coverage	31.23									
4290		95% WH USL		52.26						95% HW USL		55.18	
4291													
4292	Lognormal GOF Test												
4293	Shapiro Wilk Test Statistic					0.974	Shapiro Wilk Lognormal GOF Test						
4294	10% Shapiro Wilk P Value					0.0574	Data Not Lognormal at 10% Significance Level						
4295	Lilliefors Test Statistic					0.0754	Lilliefors Lognormal GOF Test						
4296	10% Lilliefors Critical Value					0.0547	Data Not Lognormal at 10% Significance Level						
4297	Data Not Lognormal at 10% Significance Level												
4298													
4299	Background Statistics assuming Lognormal Distribution												
4300	95% UTL with	95% Coverage		33.07						90% Percentile (z)		25.84	
4301		95% UPL (t)		30.62						95% Percentile (z)		30.48	
4302		95% USL		69.65						99% Percentile (z)		41.53	
4303													
4304	Nonparametric Distribution Free Background Statistics												
4305	Data do not follow a Discernible Distribution												
4306													
4307	Nonparametric Upper Limits for Background Threshold Values												
4308	Order of Statistic, order				218	95% UTL with				95% Coverage		34.4	
4309	Approx, f used to compute achieved CC				1.632	Approximate Actual Confidence Coefficient achieved by UTL						0.932	
4310						Approximate Sample Size needed to achieve specified CC						208	
4311	95% Percentile Bootstrap UTL with	95% Coverage		33.83	95% BCA Bootstrap UTL with				95% Coverage		33.6		
4312		95% UPL		31.64					90% Percentile		25.34		
4313		90% Chebyshev UPL		37.78					95% Percentile		31.38		
4314		95% Chebyshev UPL		47.68					99% Percentile		39.68		
4315		95% USL		43.1									
4316													
4317	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
4318	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
4319	and consists of observations collected from clean unimpacted locations.												
4320	The use of USL tends to provide a balance between false positives and false negatives provided the data												
4321	represents a background data set and when many onsite observations need to be compared with the BTV.												
4322													
4323	MS_Pb <38												
4324													
4325	General Statistics												
4326	Total Number of Observations				220	Number of Distinct Observations					143		
4327	Minimum				3.7	First Quartile					11.28		
4328	Second Largest				36.4	Median					15		
4329	Maximum				37.5	Third Quartile					18.5		
4330	Mean				15.59	SD					6.628		
4331	Coefficient of Variation				0.425	Skewness					0.915		

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	A	B	C	D	E	F	G	H	I	J	K	L
4332	Mean of logged Data					2.656	SD of logged Data					0.439
4333												
4334	Critical Values for Background Threshold Values (BTVs)											
4335	Tolerance Factor K (For UTL)				1.826	d2max (for USL)					3.461	
4336												
4337	Normal GOF Test											
4338	Shapiro Wilk Test Statistic				0.931	Normal GOF Test						
4339	1% Shapiro Wilk P Value				1.256E-13	Data Not Normal at 1% Significance Level						
4340	Lilliefors Test Statistic				0.0955	Lilliefors GOF Test						
4341	1% Lilliefors Critical Value				0.0696	Data Not Normal at 1% Significance Level						
4342	Data Not Normal at 1% Significance Level											
4343												
4344	Background Statistics Assuming Normal Distribution											
4345	95% UTL with	95% Coverage	27.69						90% Percentile (z)	24.08		
4346		95% UPL (t)	26.56						95% Percentile (z)	26.49		
4347		95% USL	38.53						99% Percentile (z)	31.01		
4348												
4349	Gamma GOF Test											
4350	A-D Test Statistic				0.803	Anderson-Darling Gamma GOF Test						
4351	5% A-D Critical Value				0.756	Data Not Gamma Distributed at 5% Significance Level						
4352	K-S Test Statistic				0.0539	Kolmogorov-Smirnov Gamma GOF Test						
4353	5% K-S Critical Value				0.0615	Detected data appear Gamma Distributed at 5% Significance Level						
4354	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
4355												
4356	Gamma Statistics											
4357	k hat (MLE)				5.65	k star (bias corrected MLE)					5.576	
4358	Theta hat (MLE)				2.759	Theta star (bias corrected MLE)					2.796	
4359	nu hat (MLE)				2486	nu star (bias corrected)					2453	
4360	MLE Mean (bias corrected)				15.59	MLE Sd (bias corrected)					6.602	
4361												
4362	Background Statistics Assuming Gamma Distribution											
4363	95% Wilson Hilferty (WH) Approx. Gamma UPL				27.81	90% Percentile					24.42	
4364	95% Hawkins Wixley (HW) Approx. Gamma UPL				28.13	95% Percentile					27.79	
4365	95% WH Approx. Gamma UTL with 95% Coverage				29.49	99% Percentile					34.88	
4366	95% HW Approx. Gamma UTL with 95% Coverage				29.93							
4367	95% WH USL				49.16	95% HW USL					51.87	
4368												
4369	Lognormal GOF Test											
4370	Shapiro Wilk Test Statistic				0.969	Shapiro Wilk Lognormal GOF Test						
4371	10% Shapiro Wilk P Value				0.00909	Data Not Lognormal at 10% Significance Level						
4372	Lilliefors Test Statistic				0.0824	Lilliefors Lognormal GOF Test						
4373	10% Lilliefors Critical Value				0.055	Data Not Lognormal at 10% Significance Level						
4374	Data Not Lognormal at 10% Significance Level											
4375												
4376	Background Statistics assuming Lognormal Distribution											
4377	95% UTL with	95% Coverage	31.75						90% Percentile (z)	24.99		
4378		95% UPL (t)	29.46						95% Percentile (z)	29.32		
4379		95% USL	65.12						99% Percentile (z)	39.55		
4380												
4381	Nonparametric Distribution Free Background Statistics											
4382	Data appear Approximate Gamma Distribution at 5% Significance Level											
4383												
4384	Nonparametric Upper Limits for Background Threshold Values											
4385	Order of Statistic, order				215	95% UTL with 95% Coverage					33.1	
4386	Approx, f used to compute achieved CC				1.609	Approximate Actual Confidence Coefficient achieved by UTL					0.927	
4387						Approximate Sample Size needed to achieve specified CC					208	
4388	95% Percentile Bootstrap UTL with 95% Coverage				31.8	95% BCA Bootstrap UTL with 95% Coverage					31.8	
4389	95% UPL				30.27	90% Percentile					23.41	
4390	90% Chebyshev UPL				35.52	95% Percentile					29.64	
4391	95% Chebyshev UPL				44.54	99% Percentile					34.34	
4392	95% USL				37.5							
4393												
4394	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4395	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4396	and consists of observations collected from clean unimpacted locations.											
4397	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4398	represents a background data set and when many onsite observations need to be compared with the BTV.											
4399												
4400	MT_As											
4401												
4402	General Statistics											

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	A	B	C	D	E	F	G	H	I	J	K	L
4403	Total Number of Observations					717	Number of Distinct Observations					191
4404	Minimum					0.3	First Quartile					5.8
4405	Second Largest					565	Median					8
4406	Maximum					588	Third Quartile					10.9
4407	Mean					12	SD					34.54
4408	Coefficient of Variation					2.878	Skewness					14.33
4409	Mean of logged Data					2.115	SD of logged Data					0.629
4410												
4411	Critical Values for Background Threshold Values (BTVs)											
4412	Tolerance Factor K (For UTL)					1.742	d2max (for USL)					3.791
4413												
4414	Normal GOF Test											
4415	Shapiro Wilk Test Statistic					0.161	Normal GOF Test					
4416	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
4417	Lilliefors Test Statistic					0.382	Lilliefors GOF Test					
4418	1% Lilliefors Critical Value					0.0386	Data Not Normal at 1% Significance Level					
4419	Data Not Normal at 1% Significance Level											
4420												
4421	Background Statistics Assuming Normal Distribution											
4422	95% UTL with	95% Coverage			72.19		90% Percentile (z)					56.27
4423		95% UPL (t)			68.93		95% Percentile (z)					68.82
4424		95% USL			143		99% Percentile (z)					92.36
4425												
4426	Gamma GOF Test											
4427	A-D Test Statistic					1.395E+28	Anderson-Darling Gamma GOF Test					
4428	5% A-D Critical Value					0.772	Data Not Gamma Distributed at 5% Significance Level					
4429	K-S Test Statistic					0.206	Kolmogorov-Smirnov Gamma GOF Test					
4430	5% K-S Critical Value					0.036	Data Not Gamma Distributed at 5% Significance Level					
4431	Data Not Gamma Distributed at 5% Significance Level											
4432												
4433	Gamma Statistics											
4434	k hat (MLE)					1.495	k star (bias corrected MLE)					1.49
4435	Theta hat (MLE)					8.029	Theta star (bias corrected MLE)					8.058
4436	nu hat (MLE)					2144	nu star (bias corrected)					2136
4437	MLE Mean (bias corrected)					12	MLE Sd (bias corrected)					9.834
4438												
4439	Background Statistics Assuming Gamma Distribution											
4440	95% Wilson Hilferty (WH) Approx. Gamma UPL					27.53	90% Percentile					25.05
4441	95% Hawkins Wixley (HW) Approx. Gamma UPL					25.81	95% Percentile					31.34
4442	95% WH Approx. Gamma UTL with	95% Coverage			29.03	99% Percentile					45.54	
4443	95% HW Approx. Gamma UTL with	95% Coverage			27.24							
4444		95% WH USL			76.63	95% HW USL					75.57	
4445												
4446	Lognormal GOF Test											
4447	Shapiro Wilk Test Statistic					0.909	Shapiro Wilk Lognormal GOF Test					
4448	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
4449	Lilliefors Test Statistic					0.0906	Lilliefors Lognormal GOF Test					
4450	10% Lilliefors Critical Value					0.0306	Data Not Lognormal at 10% Significance Level					
4451	Data Not Lognormal at 10% Significance Level											
4452												
4453	Background Statistics assuming Lognormal Distribution											
4454	95% UTL with	95% Coverage			24.79	90% Percentile (z)					18.56	
4455		95% UPL (t)			23.37	95% Percentile (z)					23.32	
4456		95% USL			89.95	99% Percentile (z)					35.8	
4457												
4458	Nonparametric Distribution Free Background Statistics											
4459	Data do not follow a Discernible Distribution											
4460												
4461	Nonparametric Upper Limits for Background Threshold Values											
4462	Order of Statistic, order					691	95% UTL with 95% Coverage					30.1
4463	Approx, f used to compute achieved CC					1.297	Approximate Actual Confidence Coefficient achieved by UTL					0.928
4464							Approximate Sample Size needed to achieve specified CC					716
4465	95% Percentile Bootstrap UTL with	95% Coverage			28.7	95% BCA Bootstrap UTL with 95% Coverage					27.1	
4466		95% UPL			22.05	90% Percentile					15.34	
4467		90% Chebyshev UPL			115.7	95% Percentile					21.84	
4468		95% Chebyshev UPL			162.7	99% Percentile					58.33	
4469		95% USL			588							
4470												
4471	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4472	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4473	and consists of observations collected from clean unimpacted locations.											

	A	B	C	D	E	F	G	H	I	J	K	L
4474	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4475	represents a background data set and when many onsite observations need to be compared with the BTV.											
4476												
4477	MT_As <67											
4478												
4479	General Statistics											
4480	Total Number of Observations					712	Number of Distinct Observations					186
4481	Minimum					0.3	First Quartile					5.8
4482	Second Largest					65.6	Median					7.95
4483	Maximum					66.7	Third Quartile					10.8
4484	Mean					9.568	SD					7.196
4485	Coefficient of Variation					0.752	Skewness					3.803
4486	Mean of logged Data					2.09	SD of logged Data					0.553
4487												
4488	Critical Values for Background Threshold Values (BTVs)											
4489	Tolerance Factor K (For UTL)					1.743	d2max (for USL)					3.789
4490												
4491	Normal GOF Test											
4492	Shapiro Wilk Test Statistic					0.657	Normal GOF Test					
4493	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
4494	Lilliefors Test Statistic					0.19	Lilliefors GOF Test					
4495	1% Lilliefors Critical Value					0.0388	Data Not Normal at 1% Significance Level					
4496	Data Not Normal at 1% Significance Level											
4497												
4498	Background Statistics Assuming Normal Distribution											
4499	95% UTL with	95% Coverage		22.11				90% Percentile (z)		18.79		
4500		95% UPL (t)		21.43				95% Percentile (z)		21.41		
4501		95% USL		36.84				99% Percentile (z)		26.31		
4502												
4503	Gamma GOF Test											
4504	A-D Test Statistic					14.59	Anderson-Darling Gamma GOF Test					
4505	5% A-D Critical Value					0.761	Data Not Gamma Distributed at 5% Significance Level					
4506	K-S Test Statistic					0.102	Kolmogorov-Smirnov Gamma GOF Test					
4507	5% K-S Critical Value					0.0357	Data Not Gamma Distributed at 5% Significance Level					
4508	Data Not Gamma Distributed at 5% Significance Level											
4509												
4510	Gamma Statistics											
4511	k hat (MLE)					3.126	k star (bias corrected MLE)					3.113
4512	Theta hat (MLE)					3.061	Theta star (bias corrected MLE)					3.073
4513	nu hat (MLE)					4451	nu star (bias corrected)					4434
4514	MLE Mean (bias corrected)					9.568	MLE Sd (bias corrected)					5.423
4515												
4516	Background Statistics Assuming Gamma Distribution											
4517	95% Wilson Hiferty (WH) Approx.	Gamma UPL		19.6				90% Percentile		16.84		
4518	95% Hawkins Wixley (HW) Approx.	Gamma UPL		19.6				95% Percentile		19.87		
4519	95% WH Approx.	Gamma UTL with	95% Coverage	20.43				99% Percentile		26.42		
4520	95% HW Approx.	Gamma UTL with	95% Coverage	20.47								
4521		95% WH USL		44.59				95% HW USL		47.52		
4522												
4523	Lognormal GOF Test											
4524	Shapiro Wilk Test Statistic					0.969	Shapiro Wilk Lognormal GOF Test					
4525	10% Shapiro Wilk P Value					2.055E-10	Data Not Lognormal at 10% Significance Level					
4526	Lilliefors Test Statistic					0.0579	Lilliefors Lognormal GOF Test					
4527	10% Lilliefors Critical Value					0.0307	Data Not Lognormal at 10% Significance Level					
4528	Data Not Lognormal at 10% Significance Level											
4529												
4530	Background Statistics assuming Lognormal Distribution											
4531	95% UTL with	95% Coverage		21.21				90% Percentile (z)		16.43		
4532		95% UPL (t)		20.13				95% Percentile (z)		20.09		
4533		95% USL		65.85				99% Percentile (z)		29.3		
4534												
4535	Nonparametric Distribution Free Background Statistics											
4536	Data do not follow a Discernible Distribution											
4537												
4538	Nonparametric Upper Limits for Background Threshold Values											
4539	Order of Statistic, order					687	95% UTL with 95% Coverage					23.9
4540	Approx, f used to compute achieved CC					1.337	Approximate Actual Confidence Coefficient achieved by UTL					0.946
4541							Approximate Sample Size needed to achieve specified CC					693
4542	95% Percentile Bootstrap UTL with	95% Coverage		22.7		95% BCA Bootstrap UTL with 95% Coverage					22.92	
4543		95% UPL		21.37		90% Percentile					14.8	
4544		90% Chebvshev UPL		31.17		95% Percentile					20.97	

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	A	B	C	D	E	F	G	H	I	J	K	L
4545	95% Chebyshev UPL					40.96	99% Percentile					41.1
4546	95% USL					66.7						
4547												
4548	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4549	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4550	and consists of observations collected from clean unimpacted locations.											
4551	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4552	represents a background data set and when many onsite observations need to be compared with the BTV.											
4553												
4554	MT_As <44											
4555												
4556	General Statistics											
4557	Total Number of Observations					707	Number of Distinct Observations					181
4558	Minimum					0.3	First Quartile					5.8
4559	Second Largest					43.6	Median					7.9
4560	Maximum					43.8	Third Quartile					10.7
4561	Mean					9.226	SD					5.914
4562	Coefficient of Variation					0.641	Skewness					2.868
4563	Mean of logged Data					2.076	SD of logged Data					0.53
4564												
4565	Critical Values for Background Threshold Values (BTVs)											
4566	Tolerance Factor K (For UTL)					1.743	d2max (for USL)					3.788
4567												
4568	Normal GOF Test											
4569	Shapiro Wilk Test Statistic					0.738	Normal GOF Test					
4570	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
4571	Lilliefors Test Statistic					0.16	Lilliefors GOF Test					
4572	1% Lilliefors Critical Value					0.0389	Data Not Normal at 1% Significance Level					
4573	Data Not Normal at 1% Significance Level											
4574												
4575	Background Statistics Assuming Normal Distribution											
4576	95% UTL with	95% Coverage			19.54			90% Percentile (z)			16.81	
4577		95% UPL (t)			18.97			95% Percentile (z)			18.95	
4578		95% USL			31.63			99% Percentile (z)			22.98	
4579												
4580	Gamma GOF Test											
4581	A-D Test Statistic					9.108	Anderson-Darling Gamma GOF Test					
4582	5% A-D Critical Value					0.76	Data Not Gamma Distributed at 5% Significance Level					
4583	K-S Test Statistic					0.084	Kolmogorov-Smirnov Gamma GOF Test					
4584	5% K-S Critical Value					0.0358	Data Not Gamma Distributed at 5% Significance Level					
4585	Data Not Gamma Distributed at 5% Significance Level											
4586												
4587	Gamma Statistics											
4588	k hat (MLE)					3.587	k star (bias corrected MLE)					3.573
4589	Theta hat (MLE)					2.572	Theta star (bias corrected MLE)					2.582
4590	nu hat (MLE)					5072	nu star (bias corrected)					5052
4591	MLE Mean (bias corrected)					9.226	MLE Sd (bias corrected)					4.881
4592												
4593	Background Statistics Assuming Gamma Distribution											
4594	95% Wilson Hilferty (WH) Approx.	Gamma UPL			18.28			90% Percentile			15.77	
4595	95% Hawkins Wixley (HW) Approx.	Gamma UPL			18.37			95% Percentile			18.44	
4596	95% WH Approx.	Gamma UTL with	95% Coverage		19.02			99% Percentile			24.16	
4597	95% HW Approx.	Gamma UTL with	95% Coverage		19.15							
4598		95% WH USL			39.99			95% HW USL			42.75	
4599												
4600	Lognormal GOF Test											
4601	Shapiro Wilk Test Statistic					0.975	Shapiro Wilk Lognormal GOF Test					
4602	10% Shapiro Wilk P Value					3.7366E-5	Data Not Lognormal at 10% Significance Level					
4603	Lilliefors Test Statistic					0.0474	Lilliefors Lognormal GOF Test					
4604	10% Lilliefors Critical Value					0.0308	Data Not Lognormal at 10% Significance Level					
4605	Data Not Lognormal at 10% Significance Level											
4606												
4607	Background Statistics assuming Lognormal Distribution											
4608	95% UTL with	95% Coverage			20.09			90% Percentile (z)			15.73	
4609		95% UPL (t)			19.1			95% Percentile (z)			19.07	
4610		95% USL			59.37			99% Percentile (z)			27.36	
4611												
4612	Nonparametric Distribution Free Background Statistics											
4613	Data do not follow a Discernible Distribution											
4614												
4615	Nonparametric Upper Limits for Background Threshold Values											

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	A	B	C	D	E	F	G	H	I	J	K	L	
4616	Order of Statistic, order					682	95% UTL with 95% Coverage					22	
4617	Approx, f used to compute achieved CC					1.327	Approximate Actual Confidence Coefficient achieved by UTL					0.942	
4618							Approximate Sample Size needed to achieve specified CC					693	
4619	95% Percentile Bootstrap UTL with 95% Coverage					21.8	95% BCA Bootstrap UTL with 95% Coverage					21.77	
4620	95% UPL					18.4	90% Percentile					14.24	
4621	90% Chebyshev UPL					26.98	95% Percentile					18.34	
4622	95% Chebyshev UPL					35.02	99% Percentile					36.83	
4623	95% USL					43.8							
4624													
4625	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
4626	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
4627	and consists of observations collected from clean unimpacted locations.												
4628	The use of USL tends to provide a balance between false positives and false negatives provided the data												
4629	represents a background data set and when many onsite observations need to be compared with the BTV.												
4630													
4631	MT_As <30												
4632													
4633	General Statistics												
4634	Total Number of Observations					690	Number of Distinct Observations					165	
4635	Minimum					0.3	First Quartile					5.8	
4636	Second Largest					26.7	Median					7.8	
4637	Maximum					28.7	Third Quartile					10.6	
4638	Mean					8.549	SD					4.033	
4639	Coefficient of Variation					0.472	Skewness					1.331	
4640	Mean of logged Data					2.039	SD of logged Data					0.479	
4641													
4642	Critical Values for Background Threshold Values (BTVs)												
4643	Tolerance Factor K (For UTL)					1.744	d2max (for USL)					3.781	
4644													
4645	Normal GOF Test												
4646	Shapiro Wilk Test Statistic					0.911	Normal GOF Test						
4647	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
4648	Lilliefors Test Statistic					0.0952	Lilliefors GOF Test						
4649	1% Lilliefors Critical Value					0.0394	Data Not Normal at 1% Significance Level						
4650	Data Not Normal at 1% Significance Level												
4651													
4652	Background Statistics Assuming Normal Distribution												
4653	95% UTL with 95% Coverage					15.58	90% Percentile (z)					13.72	
4654	95% UPL (t)					15.2	95% Percentile (z)					15.18	
4655	95% USL					23.8	99% Percentile (z)					17.93	
4656													
4657	Gamma GOF Test												
4658	A-D Test Statistic					1.36	Anderson-Darling Gamma GOF Test						
4659	5% A-D Critical Value					0.757	Data Not Gamma Distributed at 5% Significance Level						
4660	K-S Test Statistic					0.0395	Kolmogorov-Smirnov Gamma GOF Test						
4661	5% K-S Critical Value					0.0361	Data Not Gamma Distributed at 5% Significance Level						
4662	Data Not Gamma Distributed at 5% Significance Level												
4663													
4664	Gamma Statistics												
4665	k hat (MLE)					4.832	k star (bias corrected MLE)					4.812	
4666	Theta hat (MLE)					1.769	Theta star (bias corrected MLE)					1.776	
4667	nu hat (MLE)					6668	nu star (bias corrected)					6641	
4668	MLE Mean (bias corrected)					8.549	MLE Sd (bias corrected)					3.897	
4669													
4670	Background Statistics Assuming Gamma Distribution												
4671	95% Wilson Hilferty (WH) Approx. Gamma UPL					15.76	90% Percentile					13.77	
4672	95% Hawkins Wixley (HW) Approx. Gamma UPL					15.96	95% Percentile					15.8	
4673	95% WH Approx. Gamma UTL with 95% Coverage					16.33	99% Percentile					20.1	
4674	95% HW Approx. Gamma UTL with 95% Coverage					16.56							
4675	95% WH USL					31.76	95% HW USL					34.04	
4676													
4677	Lognormal GOF Test												
4678	Shapiro Wilk Test Statistic					0.98	Shapiro Wilk Lognormal GOF Test						
4679	10% Shapiro Wilk P Value					0.0162	Data Not Lognormal at 10% Significance Level						
4680	Lilliefors Test Statistic					0.0391	Lilliefors Lognormal GOF Test						
4681	10% Lilliefors Critical Value					0.0312	Data Not Lognormal at 10% Significance Level						
4682	Data Not Lognormal at 10% Significance Level												
4683													
4684	Background Statistics assuming Lognormal Distribution												
4685	95% UTL with 95% Coverage					17.7	90% Percentile (z)					14.19	
4686	95% UPL (t)					16.91	95% Percentile (z)					16.88	

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	A	B	C	D	E	F	G	H	I	J	K	L
4687	95% USL					46.93	99% Percentile (z)					23.39
4688												
4689	Nonparametric Distribution Free Background Statistics											
4690	Data do not follow a Discernible Distribution											
4691												
4692	Nonparametric Upper Limits for Background Threshold Values											
4693	Order of Statistic, order					666	95% UTL with 95% Coverage					17.2
4694	Approx, f used to compute achieved CC					1.346	Approximate Actual Confidence Coefficient achieved by UTL					0.947
4695							Approximate Sample Size needed to achieve specified CC					670
4696	95% Percentile Bootstrap UTL with 95% Coverage					16.8	95% BCA Bootstrap UTL with 95% Coverage					16.56
4697	95% UPL					15.99	90% Percentile					13.71
4698	90% Chebyshev UPL					20.66	95% Percentile					15.9
4699	95% Chebyshev UPL					26.14	99% Percentile					22.51
4700	95% USL					28.7						
4701												
4702	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4703	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4704	and consists of observations collected from clean unimpacted locations.											
4705	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4706	represents a background data set and when many onsite observations need to be compared with the BTV.											
4707												
4708	MT_Pb											
4709												
4710	General Statistics											
4711	Total Number of Observations					717	Number of Distinct Observations					229
4712	Minimum					3.5	First Quartile					13.7
4713	Second Largest					114	Median					16.8
4714	Maximum					132	Third Quartile					20.1
4715	Mean					18.7	SD					10.68
4716	Coefficient of Variation					0.571	Skewness					5.058
4717	Mean of logged Data					2.839	SD of logged Data					0.389
4718												
4719	Critical Values for Background Threshold Values (BTVs)											
4720	Tolerance Factor K (For UTL)					1.742	d2max (for USL)					3.791
4721												
4722	Normal GOF Test											
4723	Shapiro Wilk Test Statistic					0.612	Normal GOF Test					
4724	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
4725	Lilliefors Test Statistic					0.219	Lilliefors GOF Test					
4726	1% Lilliefors Critical Value					0.0386	Data Not Normal at 1% Significance Level					
4727	Data Not Normal at 1% Significance Level											
4728												
4729	Background Statistics Assuming Normal Distribution											
4730	95% UTL with 95% Coverage					37.32	90% Percentile (z)					32.39
4731	95% UPL (t)					36.31	95% Percentile (z)					36.27
4732	95% USL					59.21	99% Percentile (z)					43.56
4733												
4734	Gamma GOF Test											
4735	A-D Test Statistic					25.04	Anderson-Darling Gamma GOF Test					
4736	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level					
4737	K-S Test Statistic					0.14	Kolmogorov-Smirnov Gamma GOF Test					
4738	5% K-S Critical Value					0.0354	Data Not Gamma Distributed at 5% Significance Level					
4739	Data Not Gamma Distributed at 5% Significance Level											
4740												
4741	Gamma Statistics											
4742	k hat (MLE)					5.756	k star (bias corrected MLE)					5.733
4743	Theta hat (MLE)					3.249	Theta star (bias corrected MLE)					3.262
4744	nu hat (MLE)					8254	nu star (bias corrected)					8221
4745	MLE Mean (bias corrected)					18.7	MLE Sd (bias corrected)					7.81
4746												
4747	Background Statistics Assuming Gamma Distribution											
4748	95% Wilson Hiferty (WH) Approx. Gamma UPL					32.83	90% Percentile					29.14
4749	95% Hawkins Wixley (HW) Approx. Gamma UPL					32.64	95% Percentile					33.12
4750	95% WH Approx. Gamma UTL with 95% Coverage					33.9	99% Percentile					41.46
4751	95% HW Approx. Gamma UTL with 95% Coverage					33.74						
4752	95% WH USL					63.32	95% HW USL					65.16
4753												
4754	Lognormal GOF Test											
4755	Shapiro Wilk Test Statistic					0.927	Shapiro Wilk Lognormal GOF Test					
4756	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
4757	Lilliefors Test Statistic					0.102	Lilliefors Lognormal GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L	
4758	10% Lilliefors Critical Value					0.0306	Data Not Lognormal at 10% Significance Level						
4759	Data Not Lognormal at 10% Significance Level												
4760													
4761	Background Statistics assuming Lognormal Distribution												
4762	95% UTL with		95% Coverage		33.66				90% Percentile (z)		28.14		
4763			95% UPL (t)		32.45				95% Percentile (z)		32.41		
4764			95% USL		74.65				99% Percentile (z)		42.24		
4765													
4766	Nonparametric Distribution Free Background Statistics												
4767	Data do not follow a Discernible Distribution												
4768													
4769	Nonparametric Upper Limits for Background Threshold Values												
4770	Order of Statistic, order				691				95% UTL with		95% Coverage		37.7
4771	Approx, f used to compute achieved CC				1.297		Approximate Actual Confidence Coefficient achieved by UTL				0.928		
4772							Approximate Sample Size needed to achieve specified CC				716		
4773	95% Percentile Bootstrap UTL with		95% Coverage		37				95% BCA Bootstrap UTL with		95% Coverage		37
4774			95% UPL		34.5				90% Percentile		25.62		
4775			90% Chebyshev UPL		50.78				95% Percentile		33.92		
4776			95% Chebyshev UPL		65.31				99% Percentile		62.4		
4777			95% USL		132								
4778													
4779	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
4780	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
4781	and consists of observations collected from clean unimpacted locations.												
4782	The use of USL tends to provide a balance between false positives and false negatives provided the data												
4783	represents a background data set and when many onsite observations need to be compared with the BTV.												
4784													
4785	MT_Pb <84												
4786													
4787	General Statistics												
4788	Total Number of Observations				714		Number of Distinct Observations				226		
4789	Minimum				3.5		First Quartile				13.7		
4790	Second Largest				69		Median				16.8		
4791	Maximum				83.3		Third Quartile				20.08		
4792	Mean				18.27		SD				8.441		
4793	Coefficient of Variation				0.462		Skewness				3.067		
4794	Mean of logged Data				2.831		SD of logged Data				0.368		
4795													
4796	Critical Values for Background Threshold Values (BTVs)												
4797	Tolerance Factor K (For UTL)				1.743		d2max (for USL)				3.79		
4798													
4799	Normal GOF Test												
4800	Shapiro Wilk Test Statistic				0.739		Normal GOF Test						
4801	1% Shapiro Wilk P Value				0		Data Not Normal at 1% Significance Level						
4802	Lilliefors Test Statistic				0.18		Lilliefors GOF Test						
4803	1% Lilliefors Critical Value				0.0387		Data Not Normal at 1% Significance Level						
4804	Data Not Normal at 1% Significance Level												
4805													
4806	Background Statistics Assuming Normal Distribution												
4807	95% UTL with		95% Coverage		32.98				90% Percentile (z)		29.09		
4808			95% UPL (t)		32.19				95% Percentile (z)		32.16		
4809			95% USL		50.27				99% Percentile (z)		37.91		
4810													
4811	Gamma GOF Test												
4812	A-D Test Statistic				17.71		Anderson-Darling Gamma GOF Test						
4813	5% A-D Critical Value				0.755		Data Not Gamma Distributed at 5% Significance Level						
4814	K-S Test Statistic				0.115		Kolmogorov-Smirnov Gamma GOF Test						
4815	5% K-S Critical Value				0.0355		Data Not Gamma Distributed at 5% Significance Level						
4816	Data Not Gamma Distributed at 5% Significance Level												
4817													
4818	Gamma Statistics												
4819	k hat (MLE)				6.866		k star (bias corrected MLE)				6.838		
4820	Theta hat (MLE)				2.662		Theta star (bias corrected MLE)				2.673		
4821	nu hat (MLE)				9804		nu star (bias corrected)				9764		
4822	MLE Mean (bias corrected)				18.27		MLE Sd (bias corrected)				6.989		
4823													
4824	Background Statistics Assuming Gamma Distribution												
4825	95% Wilson Hilferty (WH) Approx. Gamma UPL				30.94		90% Percentile				27.61		
4826	95% Hawkins Wixley (HW) Approx. Gamma UPL				30.93		95% Percentile				31.08		
4827	95% WH Approx. Gamma UTL with		95% Coverage		31.88				99% Percentile		38.31		
4828	95% HW Approx. Gamma UTL with		95% Coverage		31.9								

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	A	B	C	D	E	F	G	H	I	J	K	L
4829					95% WH USL	57.27					95% HW USL	59.22
4830												
4831												
4832					Shapiro Wilk Test Statistic	0.946					Shapiro Wilk Lognormal GOF Test	
4833					10% Shapiro Wilk P Value	0					Data Not Lognormal at 10% Significance Level	
4834					Lilliefors Test Statistic	0.0876					Lilliefors Lognormal GOF Test	
4835					10% Lilliefors Critical Value	0.0306					Data Not Lognormal at 10% Significance Level	
4836												
4837												
4838												
4839					95% UTL with 95% Coverage	32.23					90% Percentile (z)	27.2
4840					95% UPL (t)	31.13					95% Percentile (z)	31.09
4841					95% USL	68.54					99% Percentile (z)	39.97
4842												
4843												
4844												
4845												
4846												
4847					Order of Statistic, order	689					95% UTL with 95% Coverage	36.4
4848					Approx, f used to compute achieved CC	1.341					Approximate Actual Confidence Coefficient achieved by UTL	0.948
4849											Approximate Sample Size needed to achieve specified CC	693
4850					95% Percentile Bootstrap UTL with 95% Coverage	36.14					95% BCA Bootstrap UTL with 95% Coverage	36.1
4851					95% UPL	33.48					90% Percentile	25.2
4852					90% Chebyshev UPL	43.62					95% Percentile	33.4
4853					95% Chebyshev UPL	55.09					99% Percentile	56.26
4854					95% USL	83.3						
4855												
4856												
4857												
4858												
4859												
4860												
4861												
4862												
4863												
4864												
4865					Total Number of Observations	705					Number of Distinct Observations	217
4866					Minimum	3.5					First Quartile	13.7
4867					Second Largest	53.9					Median	16.7
4868					Maximum	54.6					Third Quartile	19.8
4869					Mean	17.69					SD	6.647
4870					Coefficient of Variation	0.376					Skewness	2.023
4871					Mean of logged Data	2.814					SD of logged Data	0.339
4872												
4873												
4874												
4875												
4876												
4877					Shapiro Wilk Test Statistic	0.843					Normal GOF Test	
4878					1% Shapiro Wilk P Value	0					Data Not Normal at 1% Significance Level	
4879					Lilliefors Test Statistic	0.135					Lilliefors GOF Test	
4880					1% Lilliefors Critical Value	0.0389					Data Not Normal at 1% Significance Level	
4881												
4882												
4883												
4884					95% UTL with 95% Coverage	29.28					90% Percentile (z)	26.21
4885					95% UPL (t)	28.64					95% Percentile (z)	28.62
4886					95% USL	42.86					99% Percentile (z)	33.15
4887												
4888												
4889					A-D Test Statistic	9.28					Anderson-Darling Gamma GOF Test	
4890					5% A-D Critical Value	0.754					Data Not Gamma Distributed at 5% Significance Level	
4891					K-S Test Statistic	0.086					Kolmogorov-Smirnov Gamma GOF Test	
4892					5% K-S Critical Value	0.0356					Data Not Gamma Distributed at 5% Significance Level	
4893												
4894												
4895												
4896												
4897					k hat (MLE)	8.647					k star (bias corrected MLE)	8.611
4898					Theta hat (MLE)	2.046					Theta star (bias corrected MLE)	2.054
4899					nu hat (MLE)	12192					nu star (bias corrected)	12141
4899					MLE Mean (bias corrected)	17.69					MLE Sd (bias corrected)	6.028

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	A	B	C	D	E	F	G	H	I	J	K	L		
4900														
4901	Background Statistics Assuming Gamma Distribution													
4902	95% Wilson Hilferty (WH) Approx. Gamma UPL					28.58						90% Percentile	25.72	
4903	95% Hawkins Wixley (HW) Approx. Gamma UPL					28.67						95% Percentile	28.63	
4904	95% WH Approx. Gamma UTL with 95% Coverage					29.37						99% Percentile	34.64	
4905	95% HW Approx. Gamma UTL with 95% Coverage					29.49								
4906						95% WH USL	50.16						95% HW USL	51.95
4907														
4908	Lognormal GOF Test													
4909	Shapiro Wilk Test Statistic					0.964						Shapiro Wilk Lognormal GOF Test		
4910	10% Shapiro Wilk P Value					2.887E-15						Data Not Lognormal at 10% Significance Level		
4911	Lilliefors Test Statistic					0.0648						Lilliefors Lognormal GOF Test		
4912	10% Lilliefors Critical Value					0.0308						Data Not Lognormal at 10% Significance Level		
4913	Data Not Lognormal at 10% Significance Level													
4914														
4915	Background Statistics assuming Lognormal Distribution													
4916	95% UTL with		95% Coverage		30.1						90% Percentile (z)	25.74		
4917			95% UPL (t)		29.14						95% Percentile (z)	29.11		
4918			95% USL		60.13						99% Percentile (z)	36.67		
4919														
4920	Nonparametric Distribution Free Background Statistics													
4921	Data do not follow a Discernible Distribution													
4922														
4923	Nonparametric Upper Limits for Background Threshold Values													
4924	Order of Statistic, order				680						95% UTL with 95% Coverage	33.7		
4925	Approx, f used to compute achieved CC				1.324						Approximate Actual Confidence Coefficient achieved by UTL	0.94		
4926											Approximate Sample Size needed to achieve specified CC	693		
4927	95% Percentile Bootstrap UTL with		95% Coverage		33.4						95% BCA Bootstrap UTL with 95% Coverage	33.4		
4928			95% UPL		31.27						90% Percentile	24.1		
4929			90% Chebyshev UPL		37.64						95% Percentile	31.12		
4930			95% Chebyshev UPL		46.68						99% Percentile	45.08		
4931			95% USL		54.6									
4932														
4933	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.													
4934	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers													
4935	and consists of observations collected from clean unimpacted locations.													
4936	The use of USL tends to provide a balance between false positives and false negatives provided the data													
4937	represents a background data set and when many onsite observations need to be compared with the BTV.													
4938														
4939	MT_Pb <40													
4940														
4941	General Statistics													
4942	Total Number of Observations				693						Number of Distinct Observations	205		
4943	Minimum				3.5						First Quartile	13.6		
4944	Second Largest				38.6						Median	16.6		
4945	Maximum				38.7						Third Quartile	19.7		
4946	Mean				17.18						SD	5.439		
4947	Coefficient of Variation				0.316						Skewness	1.154		
4948	Mean of logged Data				2.796						SD of logged Data	0.313		
4949														
4950	Critical Values for Background Threshold Values (BTVs)													
4951	Tolerance Factor K (For UTL)				1.744						d2max (for USL)	3.782		
4952														
4953	Normal GOF Test													
4954	Shapiro Wilk Test Statistic				0.92						Normal GOF Test			
4955	1% Shapiro Wilk P Value				0						Data Not Normal at 1% Significance Level			
4956	Lilliefors Test Statistic				0.0986						Lilliefors GOF Test			
4957	1% Lilliefors Critical Value				0.0393						Data Not Normal at 1% Significance Level			
4958	Data Not Normal at 1% Significance Level													
4959														
4960	Background Statistics Assuming Normal Distribution													
4961	95% UTL with		95% Coverage		26.67						90% Percentile (z)	24.15		
4962			95% UPL (t)		26.15						95% Percentile (z)	26.13		
4963			95% USL		37.76						99% Percentile (z)	29.84		
4964														
4965	Gamma GOF Test													
4966	A-D Test Statistic				3.925						Anderson-Darling Gamma GOF Test			
4967	5% A-D Critical Value				0.753						Data Not Gamma Distributed at 5% Significance Level			
4968	K-S Test Statistic				0.0595						Kolmogorov-Smirnov Gamma GOF Test			
4969	5% K-S Critical Value				0.0359						Data Not Gamma Distributed at 5% Significance Level			
4970	Data Not Gamma Distributed at 5% Significance Level													

	A	B	C	D	E	F	G	H	I	J	K	L
4971												
4972	Gamma Statistics											
4973	k hat (MLE)					10.63	k star (bias corrected MLE)					10.58
4974	Theta hat (MLE)					1.617	Theta star (bias corrected MLE)					1.624
4975	nu hat (MLE)					14729	nu star (bias corrected)					14667
4976	MLE Mean (bias corrected)					17.18	MLE Sd (bias corrected)					5.283
4977												
4978	Background Statistics Assuming Gamma Distribution											
4979	95% Wilson Hilferty (WH) Approx. Gamma UPL					26.68	90% Percentile					24.21
4980	95% Hawkins Wixley (HW) Approx. Gamma UPL					26.82	95% Percentile					26.69
4981	95% WH Approx. Gamma UTL with 95% Coverage					27.36	99% Percentile					31.79
4982	95% HW Approx. Gamma UTL with 95% Coverage					27.54						
4983	95% WH USL					44.76	95% HW USL					46.37
4984												
4985	Lognormal GOF Test											
4986	Shapiro Wilk Test Statistic					0.969	Shapiro Wilk Lognormal GOF Test					
4987	10% Shapiro Wilk P Value					7.258E-10	Data Not Lognormal at 10% Significance Level					
4988	Lilliefors Test Statistic					0.0452	Lilliefors Lognormal GOF Test					
4989	10% Lilliefors Critical Value					0.0311	Data Not Lognormal at 10% Significance Level					
4990	Data Not Lognormal at 10% Significance Level											
4991												
4992	Background Statistics assuming Lognormal Distribution											
4993	95% UTL with 95% Coverage					28.27	90% Percentile (z)					24.46
4994	95% UPL (t)					27.44	95% Percentile (z)					27.41
4995	95% USL					53.49	99% Percentile (z)					33.92
4996												
4997	Nonparametric Distribution Free Background Statistics											
4998	Data do not follow a Discernible Distribution											
4999												
5000	Nonparametric Upper Limits for Background Threshold Values											
5001	Order of Statistic, order					669	95% UTL with 95% Coverage					30.8
5002	Approx, f used to compute achieved CC					1.352	Approximate Actual Confidence Coefficient achieved by UTL					0.95
5003							Approximate Sample Size needed to achieve specified CC					670
5004	95% Percentile Bootstrap UTL with 95% Coverage					30.4	95% BCA Bootstrap UTL with 95% Coverage					30.08
5005	95% UPL					27.59	90% Percentile					23.3
5006	90% Chebyshev UPL					33.51	95% Percentile					27.5
5007	95% Chebyshev UPL					40.91	99% Percentile					36.1
5008	95% USL					38.7						
5009												
5010	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
5011	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
5012	and consists of observations collected from clean unimpacted locations.											
5013	The use of USL tends to provide a balance between false positives and false negatives provided the data											
5014	represents a background data set and when many onsite observations need to be compared with the BTV.											
5015												
5016	NC_As											
5017												
5018	General Statistics											
5019	Total Number of Observations					249	Number of Distinct Observations					71
5020	Minimum					0.3	First Quartile					1.4
5021	Second Largest					21	Median					2.3
5022	Maximum					35.9	Third Quartile					3.6
5023	Mean					3.276	SD					3.502
5024	Coefficient of Variation					1.069	Skewness					4.579
5025	Mean of logged Data					0.85	SD of logged Data					0.816
5026												
5027	Critical Values for Background Threshold Values (BTVs)											
5028	Tolerance Factor K (For UTL)					1.815	d2max (for USL)					3.498
5029												
5030	Normal GOF Test											
5031	Shapiro Wilk Test Statistic					0.643	Normal GOF Test					
5032	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
5033	Lilliefors Test Statistic					0.23	Lilliefors GOF Test					
5034	1% Lilliefors Critical Value					0.0654	Data Not Normal at 1% Significance Level					
5035	Data Not Normal at 1% Significance Level											
5036												
5037	Background Statistics Assuming Normal Distribution											
5038	95% UTL with 95% Coverage					9.631	90% Percentile (z)					7.764
5039	95% UPL (t)					9.069	95% Percentile (z)					9.036
5040	95% USL					15.53	99% Percentile (z)					11.42
5041												

	A	B	C	D	E	F	G	H	I	J	K	L
5042	Gamma GOF Test											
5043	A-D Test Statistic					4.096	Anderson-Darling Gamma GOF Test					
5044	5% A-D Critical Value					0.77	Data Not Gamma Distributed at 5% Significance Level					
5045	K-S Test Statistic					0.117	Kolmogorov-Smirnov Gamma GOF Test					
5046	5% K-S Critical Value					0.059	Data Not Gamma Distributed at 5% Significance Level					
5047	Data Not Gamma Distributed at 5% Significance Level											
5048												
5049	Gamma Statistics											
5050	k hat (MLE)					1.633	k star (bias corrected MLE)					1.616
5051	Theta hat (MLE)					2.005	Theta star (bias corrected MLE)					2.026
5052	nu hat (MLE)					813.4	nu star (bias corrected)					805
5053	MLE Mean (bias corrected)					3.276	MLE Sd (bias corrected)					2.576
5054												
5055	Background Statistics Assuming Gamma Distribution											
5056	95% Wilson Hilferty (WH) Approx. Gamma UPL					8.123	90% Percentile					6.703
5057	95% Hawkins Wixley (HW) Approx. Gamma UPL					8.205	95% Percentile					8.323
5058	95% WH Approx. Gamma UTL with 95% Coverage					8.889	99% Percentile					11.96
5059	95% HW Approx. Gamma UTL with 95% Coverage					9.043						
5060	95% WH USL					20.03	95% HW USL					22.24
5061												
5062	Lognormal GOF Test											
5063	Shapiro Wilk Test Statistic					0.967	Shapiro Wilk Lognormal GOF Test					
5064	10% Shapiro Wilk P Value					0.00122	Data Not Lognormal at 10% Significance Level					
5065	Lilliefors Test Statistic					0.0658	Lilliefors Lognormal GOF Test					
5066	10% Lilliefors Critical Value					0.0518	Data Not Lognormal at 10% Significance Level					
5067	Data Not Lognormal at 10% Significance Level											
5068												
5069	Background Statistics assuming Lognormal Distribution											
5070	95% UTL with 95% Coverage					10.28	90% Percentile (z)					6.655
5071	95% UPL (t)					9.02	95% Percentile (z)					8.95
5072	95% USL					40.58	99% Percentile (z)					15.6
5073												
5074	Nonparametric Distribution Free Background Statistics											
5075	Data do not follow a Discernible Distribution											
5076												
5077	Nonparametric Upper Limits for Background Threshold Values											
5078	Order of Statistic, order					243	95% UTL with 95% Coverage					11.7
5079	Approx, f used to compute achieved CC					1.592	Approximate Actual Confidence Coefficient achieved by UTL					0.933
5080							Approximate Sample Size needed to achieve specified CC					234
5081	95% Percentile Bootstrap UTL with 95% Coverage					10.7	95% BCA Bootstrap UTL with 95% Coverage					10.88
5082	95% UPL					9.85	90% Percentile					6.46
5083	90% Chebyshev UPL					13.8	95% Percentile					9.48
5084	95% Chebyshev UPL					18.57	99% Percentile					14.56
5085	95% USL					35.9						
5086												
5087	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
5088	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
5089	and consists of observations collected from clean unpacted locations.											
5090	The use of USL tends to provide a balance between false positives and false negatives provided the data											
5091	represents a background data set and when many onsite observations need to be compared with the BTV.											
5092												
5093	NC_As <22											
5094												
5095	General Statistics											
5096	Total Number of Observations					248	Number of Distinct Observations					70
5097	Minimum					0.3	First Quartile					1.4
5098	Second Largest					14.9	Median					2.3
5099	Maximum					21	Third Quartile					3.6
5100	Mean					3.144	SD					2.826
5101	Coefficient of Variation					0.899	Skewness					2.611
5102	Mean of logged Data					0.839	SD of logged Data					0.799
5103												
5104	Critical Values for Background Threshold Values (BTVs)											
5105	Tolerance Factor K (For UTL)					1.815	d2max (for USL)					3.497
5106												
5107	Normal GOF Test											
5108	Shapiro Wilk Test Statistic					0.748	Normal GOF Test					
5109	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
5110	Lilliefors Test Statistic					0.206	Lilliefors GOF Test					
5111	1% Lilliefors Critical Value					0.0655	Data Not Normal at 1% Significance Level					
5112	Data Not Normal at 1% Significance Level											

	A	B	C	D	E	F	G	H	I	J	K	L		
5113														
5114	Background Statistics Assuming Normal Distribution													
5115	95% UTL with 95% Coverage				8.274						90% Percentile (z)		6.766	
5116					95% UPL (t)								95% Percentile (z)	7.793
5117					95% USL								99% Percentile (z)	9.719
5118														
5119	Gamma GOF Test													
5120	A-D Test Statistic				3.144						Anderson-Darling Gamma GOF Test			
5121	5% A-D Critical Value				0.769						Data Not Gamma Distributed at 5% Significance Level			
5122	K-S Test Statistic				0.102						Kolmogorov-Smirnov Gamma GOF Test			
5123	5% K-S Critical Value				0.059						Data Not Gamma Distributed at 5% Significance Level			
5124	Data Not Gamma Distributed at 5% Significance Level													
5125														
5126	Gamma Statistics													
5127	k hat (MLE)				1.781						k star (bias corrected MLE)		1.762	
5128	Theta hat (MLE)				1.766						Theta star (bias corrected MLE)		1.785	
5129	nu hat (MLE)				883.2						nu star (bias corrected)		873.8	
5130	MLE Mean (bias corrected)				3.144						MLE Sd (bias corrected)		2.369	
5131														
5132	Background Statistics Assuming Gamma Distribution													
5133	95% Wilson Hilferty (WH) Approx. Gamma UPL				7.651						90% Percentile		6.301	
5134	95% Hawkins Wixley (HW) Approx. Gamma UPL				7.779						95% Percentile		7.767	
5135	95% WH Approx. Gamma UTL with 95% Coverage				8.351						99% Percentile		11.04	
5136	95% HW Approx. Gamma UTL with 95% Coverage				8.552									
5137					95% WH USL						95% HW USL		20.55	
5138														
5139	Lognormal GOF Test													
5140	Shapiro Wilk Test Statistic				0.962						Shapiro Wilk Lognormal GOF Test			
5141	10% Shapiro Wilk P Value				7.7312E-5						Data Not Lognormal at 10% Significance Level			
5142	Lilliefors Test Statistic				0.0633						Lilliefors Lognormal GOF Test			
5143	10% Lilliefors Critical Value				0.0519						Data Not Lognormal at 10% Significance Level			
5144	Data Not Lognormal at 10% Significance Level													
5145														
5146	Background Statistics assuming Lognormal Distribution													
5147	95% UTL with 95% Coverage				9.859						90% Percentile (z)		6.44	
5148					95% UPL (t)								95% Percentile (z)	8.607
5149					95% USL								99% Percentile (z)	14.83
5150														
5151	Nonparametric Distribution Free Background Statistics													
5152	Data do not follow a Discernible Distribution													
5153														
5154	Nonparametric Upper Limits for Background Threshold Values													
5155	Order of Statistic, order				242						95% UTL with 95% Coverage		11	
5156	Approx, f used to compute achieved CC				1.586						Approximate Actual Confidence Coefficient achieved by UTL		0.932	
5157											Approximate Sample Size needed to achieve specified CC		234	
5158	95% Percentile Bootstrap UTL with 95% Coverage				10.67						95% BCA Bootstrap UTL with 95% Coverage		10.6	
5159					95% UPL						90% Percentile		6.4	
5160					90% Chebyshev UPL						95% Percentile		8.895	
5161					95% Chebyshev UPL						99% Percentile		13.73	
5162					95% USL		21							
5163														
5164	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.													
5165	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers													
5166	and consists of observations collected from clean unimpacted locations.													
5167	The use of USL tends to provide a balance between false positives and false negatives provided the data													
5168	represents a background data set and when many onsite observations need to be compared with the BTV.													
5169														
5170	NC_As <14													
5171														
5172	General Statistics													
5173	Total Number of Observations				245						Number of Distinct Observations		67	
5174					Minimum		0.3						First Quartile	1.4
5175					Second Largest		12.9						Median	2.3
5176					Maximum		13.2						Third Quartile	3.5
5177					Mean		2.978						SD	2.384
5178					Coefficient of Variation		0.801						Skewness	1.971
5179					Mean of logged Data		0.815						SD of logged Data	0.773
5180														
5181	Critical Values for Background Threshold Values (BTVs)													
5182	Tolerance Factor K (For UTL)				1.816						d2max (for USL)		3.493	
5183														

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	A	B	C	D	E	F	G	H	I	J	K	L							
5184	Normal GOF Test																		
5185	Shapiro Wilk Test Statistic					0.793	Normal GOF Test												
5186	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level												
5187	Lilliefors Test Statistic					0.177	Lilliefors GOF Test												
5188	1% Lilliefors Critical Value					0.0659	Data Not Normal at 1% Significance Level												
5189	Data Not Normal at 1% Significance Level																		
5190																			
5191	Background Statistics Assuming Normal Distribution																		
5192	95% UTL with	95% Coverage			7.308					90% Percentile (z)		6.033							
5193		95% UPL (t)			6.923					95% Percentile (z)		6.9							
5194		95% USL			11.31					99% Percentile (z)		8.524							
5195																			
5196	Gamma GOF Test																		
5197	A-D Test Statistic					2.17	Anderson-Darling Gamma GOF Test												
5198	5% A-D Critical Value					0.767	Data Not Gamma Distributed at 5% Significance Level												
5199	K-S Test Statistic					0.0843	Kolmogorov-Smirnov Gamma GOF Test												
5200	5% K-S Critical Value					0.0592	Data Not Gamma Distributed at 5% Significance Level												
5201	Data Not Gamma Distributed at 5% Significance Level																		
5202																			
5203	Gamma Statistics																		
5204	k hat (MLE)					1.961	k star (bias corrected MLE)					1.94							
5205	Theta hat (MLE)					1.518	Theta star (bias corrected MLE)					1.535							
5206	nu hat (MLE)					961	nu star (bias corrected)					950.5							
5207	MLE Mean (bias corrected)					2.978	MLE Sd (bias corrected)					2.138							
5208																			
5209	Background Statistics Assuming Gamma Distribution																		
5210	95% Wilson Hilferty (WH) Approx.	Gamma UPL			7.063					90% Percentile		5.834							
5211	95% Hawkins Wixley (HW) Approx.	Gamma UPL			7.211					95% Percentile		7.132							
5212	95% WH Approx.	Gamma UTL with	95% Coverage		7.689					99% Percentile		10.02							
5213	95% HW Approx.	Gamma UTL with	95% Coverage		7.905														
5214		95% WH USL			16.49					95% HW USL		18.44							
5215																			
5216	Lognormal GOF Test																		
5217	Shapiro Wilk Test Statistic					0.955	Shapiro Wilk Lognormal GOF Test												
5218	10% Shapiro Wilk P Value					6.2654E-7	Data Not Lognormal at 10% Significance Level												
5219	Lilliefors Test Statistic					0.0666	Lilliefors Lognormal GOF Test												
5220	10% Lilliefors Critical Value					0.0522	Data Not Lognormal at 10% Significance Level												
5221	Data Not Lognormal at 10% Significance Level																		
5222																			
5223	Background Statistics assuming Lognormal Distribution																		
5224	95% UTL with	95% Coverage			9.195					90% Percentile (z)		6.083							
5225		95% UPL (t)			8.115					95% Percentile (z)		8.055							
5226		95% USL			33.61					99% Percentile (z)		13.64							
5227																			
5228	Nonparametric Distribution Free Background Statistics																		
5229	Data do not follow a Discernible Distribution																		
5230																			
5231	Nonparametric Upper Limits for Background Threshold Values																		
5232	Order of Statistic, order					239	95% UTL with 95% Coverage					10.4							
5233	Approx, f used to compute achieved CC					1.566	Approximate Actual Confidence Coefficient achieved by UTL					0.926							
5234							Approximate Sample Size needed to achieve specified CC					234							
5235	95% Percentile Bootstrap UTL with	95% Coverage			9.8	95% BCA Bootstrap UTL with 95% Coverage					9.66								
5236		95% UPL			8.64	90% Percentile					5.52								
5237		90% Chebyshev UPL			10.14	95% Percentile					8.5								
5238		95% Chebyshev UPL			13.39	99% Percentile					11.39								
5239		95% USL			13.2														
5240																			
5241	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.																		
5242	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers																		
5243	and consists of observations collected from clean unimpacted locations.																		
5244	The use of USL tends to provide a balance between false positives and false negatives provided the data																		
5245	represents a background data set and when many onsite observations need to be compared with the BTV.																		
5246																			
5247	NC_As <10																		
5248																			
5249	General Statistics																		
5250	Total Number of Observations					238	Number of Distinct Observations					60							
5251	Minimum					0.3	First Quartile					1.4							
5252	Second Largest					9.8	Median					2.3							
5253	Maximum					9.9	Third Quartile					3.4							
5254	Mean					2.727	SD					1.9							

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	A	B	C	D	E	F	G	H	I	J	K	L	
5255	Coefficient of Variation					0.697	Skewness					1.597	
5256	Mean of logged Data					0.767	SD of logged Data					0.731	
5257													
5258	Critical Values for Background Threshold Values (BTVs)												
5259	Tolerance Factor K (For UTL)					1.819	d2max (for USL)					3.485	
5260													
5261	Normal GOF Test												
5262	Shapiro Wilk Test Statistic					0.848	Normal GOF Test						
5263	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
5264	Lilliefors Test Statistic					0.127	Lilliefors GOF Test						
5265	1% Lilliefors Critical Value					0.0669	Data Not Normal at 1% Significance Level						
5266	Data Not Normal at 1% Significance Level												
5267													
5268	Background Statistics Assuming Normal Distribution												
5269	95% UTL with		95% Coverage		6.183	90% Percentile (z)					5.163		
5270			95% UPL (t)		5.872	95% Percentile (z)					5.853		
5271			95% USL		9.349	99% Percentile (z)					7.148		
5272													
5273	Gamma GOF Test												
5274	A-D Test Statistic					1.03	Anderson-Darling Gamma GOF Test						
5275	5% A-D Critical Value					0.765	Data Not Gamma Distributed at 5% Significance Level						
5276	K-S Test Statistic					0.0582	Kolmogorov-Smirnov Gamma GOF Test						
5277	5% K-S Critical Value					0.0599	Detected data appear Gamma Distributed at 5% Significance Level						
5278	Detected data follow Appr. Gamma Distribution at 5% Significance Level												
5279													
5280	Gamma Statistics												
5281	k hat (MLE)					2.272	k star (bias corrected MLE)					2.246	
5282	Theta hat (MLE)					1.2	Theta star (bias corrected MLE)					1.214	
5283	nu hat (MLE)					1081	nu star (bias corrected)					1069	
5284	MLE Mean (bias corrected)					2.727	MLE Sd (bias corrected)					1.82	
5285													
5286	Background Statistics Assuming Gamma Distribution												
5287	95% Wilson Hilferty (WH) Approx. Gamma UPL					6.208	90% Percentile					5.163	
5288	95% Hawkins Wixley (HW) Approx. Gamma UPL					6.362	95% Percentile					6.239	
5289	95% WH Approx. Gamma UTL with		95% Coverage		6.733	99% Percentile					8.609		
5290	95% HW Approx. Gamma UTL with		95% Coverage		6.949								
5291						95% WH USL	13.84	95% HW USL					15.47
5292													
5293	Lognormal GOF Test												
5294	Shapiro Wilk Test Statistic					0.945	Shapiro Wilk Lognormal GOF Test						
5295	10% Shapiro Wilk P Value					9.926E-10	Data Not Lognormal at 10% Significance Level						
5296	Lilliefors Test Statistic					0.0752	Lilliefors Lognormal GOF Test						
5297	10% Lilliefors Critical Value					0.0529	Data Not Lognormal at 10% Significance Level						
5298	Data Not Lognormal at 10% Significance Level												
5299													
5300	Background Statistics assuming Lognormal Distribution												
5301	95% UTL with		95% Coverage		8.143	90% Percentile (z)					5.498		
5302			95% UPL (t)		7.223	95% Percentile (z)					7.17		
5303			95% USL		27.53	99% Percentile (z)					11.8		
5304													
5305	Nonparametric Distribution Free Background Statistics												
5306	Data appear Approximate Gamma Distribution at 5% Significance Level												
5307													
5308	Nonparametric Upper Limits for Background Threshold Values												
5309	Order of Statistic, order					232	95% UTL with 95% Coverage					8.5	
5310	Approx, f used to compute achieved CC					1.52	Approximate Actual Confidence Coefficient achieved by UTL					0.912	
5311							Approximate Sample Size needed to achieve specified CC					234	
5312	95% Percentile Bootstrap UTL with		95% Coverage		8.4	95% BCA Bootstrap UTL with 95% Coverage					8.415		
5313			95% UPL		7.61	90% Percentile					4.8		
5314			90% Chebyshev UPL		8.44	95% Percentile					7.005		
5315			95% Chebyshev UPL		11.03	99% Percentile					8.889		
5316			95% USL		9.9								
5317													
5318	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
5319	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
5320	and consists of observations collected from clean unimpacted locations.												
5321	The use of USL tends to provide a balance between false positives and false negatives provided the data												
5322	represents a background data set and when many onsite observations need to be compared with the BTV.												
5323													
5324	NC_Pb												
5325													

	A	B	C	D	E	F	G	H	I	J	K	L
5326	General Statistics											
5327	Total Number of Observations					249	Number of Distinct Observations					175
5328	Minimum					1.5	First Quartile					11.3
5329	Second Largest					74.5	Median					17.6
5330	Maximum					114	Third Quartile					24.1
5331	Mean					19.41	SD					12.22
5332	Coefficient of Variation					0.63	Skewness					2.652
5333	Mean of logged Data					2.788	SD of logged Data					0.631
5334												
5335	Critical Values for Background Threshold Values (BTVs)											
5336	Tolerance Factor K (For UTL)					1.815	d2max (for USL)					3.498
5337												
5338	Normal GOF Test											
5339	Shapiro Wilk Test Statistic					0.849	Normal GOF Test					
5340	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
5341	Lilliefors Test Statistic					0.107	Lilliefors GOF Test					
5342	1% Lilliefors Critical Value					0.0654	Data Not Normal at 1% Significance Level					
5343	Data Not Normal at 1% Significance Level											
5344												
5345	Background Statistics Assuming Normal Distribution											
5346	95% UTL with	95% Coverage			41.59	90% Percentile (z)					35.07	
5347		95% UPL (t)			39.63	95% Percentile (z)					39.52	
5348		95% USL			62.17	99% Percentile (z)					47.85	
5349												
5350	Gamma GOF Test											
5351	A-D Test Statistic					0.557	Anderson-Darling Gamma GOF Test					
5352	5% A-D Critical Value					0.76	Detected data appear Gamma Distributed at 5% Significance Level					
5353	K-S Test Statistic					0.0401	Kolmogorov-Smirnov Gamma GOF Test					
5354	5% K-S Critical Value					0.0584	Detected data appear Gamma Distributed at 5% Significance Level					
5355	Detected data appear Gamma Distributed at 5% Significance Level											
5356												
5357	Gamma Statistics											
5358	k hat (MLE)					2.963	k star (bias corrected MLE)					2.93
5359	Theta hat (MLE)					6.551	Theta star (bias corrected MLE)					6.625
5360	nu hat (MLE)					1475	nu star (bias corrected)					1459
5361	MLE Mean (bias corrected)					19.41	MLE Sd (bias corrected)					11.34
5362												
5363	Background Statistics Assuming Gamma Distribution											
5364	95% Wilson Hilferty (WH) Approx. Gamma UPL				40.83	90% Percentile					34.61	
5365	95% Hawkins Wixley (HW) Approx. Gamma UPL				41.65	95% Percentile					41.01	
5366	95% WH Approx. Gamma UTL with	95% Coverage			43.86	99% Percentile					54.9	
5367	95% HW Approx. Gamma UTL with	95% Coverage			44.98							
5368		95% WH USL			85.12	95% HW USL					93.24	
5369												
5370	Lognormal GOF Test											
5371	Shapiro Wilk Test Statistic					0.967	Shapiro Wilk Lognormal GOF Test					
5372	10% Shapiro Wilk P Value					0.00142	Data Not Lognormal at 10% Significance Level					
5373	Lilliefors Test Statistic					0.066	Lilliefors Lognormal GOF Test					
5374	10% Lilliefors Critical Value					0.0518	Data Not Lognormal at 10% Significance Level					
5375	Data Not Lognormal at 10% Significance Level											
5376												
5377	Background Statistics assuming Lognormal Distribution											
5378	95% UTL with	95% Coverage			51	90% Percentile (z)					36.44	
5379		95% UPL (t)			46.09	95% Percentile (z)					45.82	
5380		95% USL			147.4	99% Percentile (z)					70.42	
5381												
5382	Nonparametric Distribution Free Background Statistics											
5383	Data appear Gamma Distributed at 5% Significance Level											
5384												
5385	Nonparametric Upper Limits for Background Threshold Values											
5386	Order of Statistic, order					243	95% UTL with 95% Coverage					45.2
5387	Approx, f used to compute achieved CC					1.592	Approximate Actual Confidence Coefficient achieved by UTL					0.933
5388							Approximate Sample Size needed to achieve specified CC					234
5389	95% Percentile Bootstrap UTL with	95% Coverage			44.58	95% BCA Bootstrap UTL with 95% Coverage					44.54	
5390		95% UPL			41.4	90% Percentile					32.14	
5391		90% Chebyshev UPL			56.16	95% Percentile					40.92	
5392		95% Chebyshev UPL			72.8	99% Percentile					51.94	
5393		95% USL			114							
5394												
5395	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
5396	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											

	A	B	C	D	E	F	G	H	I	J	K	L
5397	and consists of observations collected from clean unimpacted locations.											
5398	The use of USL tends to provide a balance between false positives and false negatives provided the data											
5399	represents a background data set and when many onsite observations need to be compared with the BTV.											
5400												
5401	NC_Pb <75											
5402												
5403	General Statistics											
5404	Total Number of Observations					248	Number of Distinct Observations					174
5405	Minimum					1.5	First Quartile					11.28
5406	Second Largest					52.9	Median					17.6
5407	Maximum					74.5	Third Quartile					23.95
5408	Mean					19.03	SD					10.66
5409	Coefficient of Variation					0.56	Skewness					1.271
5410	Mean of logged Data					2.78	SD of logged Data					0.619
5411												
5412	Critical Values for Background Threshold Values (BTVs)											
5413	Tolerance Factor K (For UTL)					1.815	d2max (for USL)					3.497
5414												
5415	Normal GOF Test											
5416	Shapiro Wilk Test Statistic					0.926	Normal GOF Test					
5417	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
5418	Lilliefors Test Statistic					0.0825	Lilliefors GOF Test					
5419	1% Lilliefors Critical Value					0.0655	Data Not Normal at 1% Significance Level					
5420	Data Not Normal at 1% Significance Level											
5421												
5422	Background Statistics Assuming Normal Distribution											
5423	95% UTL with	95% Coverage		38.38				90% Percentile (z)		32.69		
5424		95% UPL (t)		36.67				95% Percentile (z)		36.56		
5425		95% USL		56.31				99% Percentile (z)		43.83		
5426												
5427	Gamma GOF Test											
5428	A-D Test Statistic					0.356	Anderson-Darling Gamma GOF Test					
5429	5% A-D Critical Value					0.76	Detected data appear Gamma Distributed at 5% Significance Level					
5430	K-S Test Statistic					0.0335	Kolmogorov-Smirnov Gamma GOF Test					
5431	5% K-S Critical Value					0.0585	Detected data appear Gamma Distributed at 5% Significance Level					
5432	Detected data appear Gamma Distributed at 5% Significance Level											
5433												
5434	Gamma Statistics											
5435	k hat (MLE)					3.166	k star (bias corrected MLE)					3.13
5436	Theta hat (MLE)					6.01	Theta star (bias corrected MLE)					6.079
5437	nu hat (MLE)					1570	nu star (bias corrected)					1553
5438	MLE Mean (bias corrected)					19.03	MLE Sd (bias corrected)					10.75
5439												
5440	Background Statistics Assuming Gamma Distribution											
5441	95% Wilson Hilferty (WH) Approx. Gamma UPL					39.39	90% Percentile					33.45
5442	95% Hawkins Wixley (HW) Approx. Gamma UPL					40.3	95% Percentile					39.45
5443	95% WH Approx. Gamma UTL with 95% Coverage					42.24	99% Percentile					52.43
5444	95% HW Approx. Gamma UTL with 95% Coverage					43.45						
5445	95% WH USL					80.7	95% HW USL					88.65
5446												
5447	Lognormal GOF Test											
5448	Shapiro Wilk Test Statistic					0.958	Shapiro Wilk Lognormal GOF Test					
5449	10% Shapiro Wilk P Value					5.4404E-6	Data Not Lognormal at 10% Significance Level					
5450	Lilliefors Test Statistic					0.0698	Lilliefors Lognormal GOF Test					
5451	10% Lilliefors Critical Value					0.0519	Data Not Lognormal at 10% Significance Level					
5452	Data Not Lognormal at 10% Significance Level											
5453												
5454	Background Statistics assuming Lognormal Distribution											
5455	95% UTL with	95% Coverage		49.6				90% Percentile (z)		35.65		
5456		95% UPL (t)		44.91				95% Percentile (z)		44.64		
5457		95% USL		140.6				99% Percentile (z)		68.09		
5458												
5459	Nonparametric Distribution Free Background Statistics											
5460	Data appear Gamma Distributed at 5% Significance Level											
5461												
5462	Nonparametric Upper Limits for Background Threshold Values											
5463	Order of Statistic, order					242	95% UTL with 95% Coverage					44.9
5464	Approx, f used to compute achieved CC					1.586	Approximate Actual Confidence Coefficient achieved by UTL					0.932
5465							Approximate Sample Size needed to achieve specified CC					234
5466	95% Percentile Bootstrap UTL with 95% Coverage					44	95% BCA Bootstrap UTL with 95% Coverage					44
5467	95% UPL					40.89	90% Percentile					31.96

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	A	B	C	D	E	F	G	H	I	J	K	L
5468				90% Chebyshev UPL		51.08					95% Percentile	39.7
5469				95% Chebyshev UPL		65.59					99% Percentile	50.52
5470				95% USL		74.5						
5471												
5472				Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.								
5473				Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers								
5474				and consists of observations collected from clean unimpacted locations.								
5475				The use of USL tends to provide a balance between false positives and false negatives provided the data								
5476				represents a background data set and when many onsite observations need to be compared with the BTV.								
5477												
5478	NC_Pb <45											
5479												
5480	General Statistics											
5481				Total Number of Observations		242				Number of Distinct Observations		168
5482				Minimum		1.5				First Quartile		11.2
5483				Second Largest		44.1				Median		17.4
5484				Maximum		44.9				Third Quartile		23.48
5485				Mean		18.18				SD		9.166
5486				Coefficient of Variation		0.504				Skewness		0.644
5487				Mean of logged Data		2.75				SD of logged Data		0.597
5488												
5489				Critical Values for Background Threshold Values (BTVs)								
5490				Tolerance Factor K (For UTL)		1.817				d2max (for USL)		3.49
5491												
5492				Normal GOF Test								
5493				Shapiro Wilk Test Statistic		0.949				Normal GOF Test		
5494				1% Shapiro Wilk P Value		1.4265E-8				Data Not Normal at 1% Significance Level		
5495				Lilliefors Test Statistic		0.0816				Lilliefors GOF Test		
5496				1% Lilliefors Critical Value		0.0663				Data Not Normal at 1% Significance Level		
5497				Data Not Normal at 1% Significance Level								
5498												
5499				Background Statistics Assuming Normal Distribution								
5500				95% UTL with 95% Coverage		34.83				90% Percentile (z)		29.92
5501				95% UPL (t)		33.34				95% Percentile (z)		33.25
5502				95% USL		50.16				99% Percentile (z)		39.5
5503												
5504				Gamma GOF Test								
5505				A-D Test Statistic		0.51				Anderson-Darling Gamma GOF Test		
5506				5% A-D Critical Value		0.759				Detected data appear Gamma Distributed at 5% Significance Level		
5507				K-S Test Statistic		0.0476				Kolmogorov-Smirnov Gamma GOF Test		
5508				5% K-S Critical Value		0.0591				Detected data appear Gamma Distributed at 5% Significance Level		
5509				Detected data appear Gamma Distributed at 5% Significance Level								
5510												
5511				Gamma Statistics								
5512				k hat (MLE)		3.497				k star (bias corrected MLE)		3.457
5513				Theta hat (MLE)		5.197				Theta star (bias corrected MLE)		5.258
5514				nu hat (MLE)		1693				nu star (bias corrected)		1673
5515				MLE Mean (bias corrected)		18.18				MLE Sd (bias corrected)		9.776
5516												
5517				Background Statistics Assuming Gamma Distribution								
5518				95% Wilson Hiferty (WH) Approx. Gamma UPL		36.65				90% Percentile		31.28
5519				95% Hawkins Wixley (HW) Approx. Gamma UPL		37.57				95% Percentile		36.65
5520				95% WH Approx. Gamma UTL with 95% Coverage		39.23				99% Percentile		48.2
5521				95% HW Approx. Gamma UTL with 95% Coverage		40.43						
5522				95% WH USL		73.02				95% HW USL		80.18
5523												
5524				Lognormal GOF Test								
5525				Shapiro Wilk Test Statistic		0.938				Shapiro Wilk Lognormal GOF Test		
5526				10% Shapiro Wilk P Value		5.506E-13				Data Not Lognormal at 10% Significance Level		
5527				Lilliefors Test Statistic		0.0791				Lilliefors Lognormal GOF Test		
5528				10% Lilliefors Critical Value		0.0525				Data Not Lognormal at 10% Significance Level		
5529				Data Not Lognormal at 10% Significance Level								
5530												
5531				Background Statistics assuming Lognormal Distribution								
5532				95% UTL with 95% Coverage		46.34				90% Percentile (z)		33.65
5533				95% UPL (t)		42.05				95% Percentile (z)		41.81
5534				95% USL		125.9				99% Percentile (z)		62.82
5535												
5536				Nonparametric Distribution Free Background Statistics								
5537				Data appear Gamma Distributed at 5% Significance Level								
5538												

	A	B	C	D	E	F	G	H	I	J	K	L	
5539	Nonparametric Upper Limits for Background Threshold Values												
5540	Order of Statistic, order					236	95% UTL with 95% Coverage					40.5	
5541	Approx, f used to compute achieved CC					1.546	Approximate Actual Confidence Coefficient achieved by UTL					0.92	
5542							Approximate Sample Size needed to achieve specified CC					234	
5543	95% Percentile Bootstrap UTL with 95% Coverage					38.16	95% BCA Bootstrap UTL with 95% Coverage					38.16	
5544						95% UPL	36.08	90% Percentile					31.4
5545						90% Chebyshev UPL	45.73	95% Percentile					35.3
5546						95% Chebyshev UPL	58.21	99% Percentile					43.71
5547						95% USL	44.9						
5548													
5549	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
5550	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
5551	and consists of observations collected from clean unimpacted locations.												
5552	The use of USL tends to provide a balance between false positives and false negatives provided the data												
5553	represents a background data set and when many onsite observations need to be compared with the BTV.												
5554													
5555	NC_Pb <40												
5556													
5557	General Statistics												
5558	Total Number of Observations					235	Number of Distinct Observations					161	
5559	Minimum					1.5	First Quartile					11.2	
5560	Second Largest					37.3	Median					17.1	
5561	Maximum					38.2	Third Quartile					22.85	
5562	Mean					17.44	SD					8.233	
5563	Coefficient of Variation					0.472	Skewness					0.368	
5564	Mean of logged Data					2.72	SD of logged Data					0.58	
5565													
5566	Critical Values for Background Threshold Values (BTVs)												
5567	Tolerance Factor K (For UTL)					1.82	d2max (for USL)					3.481	
5568													
5569	Normal GOF Test												
5570	Shapiro Wilk Test Statistic					0.959	Normal GOF Test						
5571	1% Shapiro Wilk P Value					1.8577E-5	Data Not Normal at 1% Significance Level						
5572	Lilliefors Test Statistic					0.0787	Lilliefors GOF Test						
5573	1% Lilliefors Critical Value					0.0673	Data Not Normal at 1% Significance Level						
5574	Data Not Normal at 1% Significance Level												
5575													
5576	Background Statistics Assuming Normal Distribution												
5577	95% UTL with 95% Coverage					32.43	90% Percentile (z)					27.99	
5578						95% UPL (t)	31.07	95% Percentile (z)					30.98
5579						95% USL	46.1	99% Percentile (z)					36.6
5580													
5581	Gamma GOF Test												
5582	A-D Test Statistic					0.944	Anderson-Darling Gamma GOF Test						
5583	5% A-D Critical Value					0.758	Data Not Gamma Distributed at 5% Significance Level						
5584	K-S Test Statistic					0.0602	Kolmogorov-Smirnov Gamma GOF Test						
5585	5% K-S Critical Value					0.0599	Data Not Gamma Distributed at 5% Significance Level						
5586	Data Not Gamma Distributed at 5% Significance Level												
5587													
5588	Gamma Statistics												
5589	k hat (MLE)					3.769	k star (bias corrected MLE)					3.724	
5590	Theta hat (MLE)					4.628	Theta star (bias corrected MLE)					4.684	
5591	nu hat (MLE)					1772	nu star (bias corrected)					1750	
5592	MLE Mean (bias corrected)					17.44	MLE Sd (bias corrected)					9.039	
5593													
5594	Background Statistics Assuming Gamma Distribution												
5595	95% Wilson Hilferty (WH) Approx. Gamma UPL					34.48	90% Percentile					29.56	
5596	95% Hawkins Wixley (HW) Approx. Gamma UPL					35.38	95% Percentile					34.46	
5597	95% WH Approx. Gamma UTL with 95% Coverage					36.87	99% Percentile					44.97	
5598	95% HW Approx. Gamma UTL with 95% Coverage					38.03							
5599	95% WH USL					67.22	95% HW USL					73.72	
5600													
5601	Lognormal GOF Test												
5602	Shapiro Wilk Test Statistic					0.922	Shapiro Wilk Lognormal GOF Test						
5603	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level						
5604	Lilliefors Test Statistic					0.0867	Lilliefors Lognormal GOF Test						
5605	10% Lilliefors Critical Value					0.0533	Data Not Lognormal at 10% Significance Level						
5606	Data Not Lognormal at 10% Significance Level												
5607													
5608	Background Statistics assuming Lognormal Distribution												
5609	95% UTL with 95% Coverage					43.64	90% Percentile (z)					31.94	

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	A	B	C	D	E	F	G	H	I	J	K	L
5610					95% UPL (t)	39.66					95% Percentile (z)	39.43
5611					95% USL	114.4					99% Percentile (z)	58.54
5612												
5613					Nonparametric Distribution Free Background Statistics							
5614					Data do not follow a Discernible Distribution							
5615												
5616					Nonparametric Upper Limits for Background Threshold Values							
5617					Order of Statistic, order	229				95% UTL with 95% Coverage		33.4
5618					Approx, f used to compute achieved CC	1.5				Approximate Actual Confidence Coefficient achieved by UTL		0.905
5619										Approximate Sample Size needed to achieve specified CC		234
5620					95% Percentile Bootstrap UTL with 95% Coverage	33.2				95% BCA Bootstrap UTL with 95% Coverage		33.2
5621					95% UPL	32.14				90% Percentile		30.06
5622					90% Chebyshev UPL	42.19				95% Percentile		31.96
5623					95% Chebyshev UPL	53.41				99% Percentile		36.6
5624					95% USL	38.2						
5625												
5626					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
5627					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
5628					and consists of observations collected from clean unimpacted locations.							
5629					The use of USL tends to provide a balance between false positives and false negatives provided the data							
5630					represents a background data set and when many onsite observations need to be compared with the BTV.							
5631												
5632					ND_As							
5633												
5634					General Statistics							
5635					Total Number of Observations	353				Number of Distinct Observations		99
5636					Minimum	1.9				First Quartile		5.8
5637					Second Largest	16.6				Median		7.2
5638					Maximum	17.3				Third Quartile		8.5
5639					Mean	7.241				SD		2.334
5640					Coefficient of Variation	0.322				Skewness		0.475
5641					Mean of logged Data	1.923				SD of logged Data		0.355
5642												
5643					Critical Values for Background Threshold Values (BTVs)							
5644					Tolerance Factor K (For UTL)	1.786				d2max (for USL)		3.599
5645												
5646					Normal GOF Test							
5647					Shapiro Wilk Test Statistic	0.972				Normal GOF Test		
5648					1% Shapiro Wilk P Value	0.00207				Data Not Normal at 1% Significance Level		
5649					Lilliefors Test Statistic	0.0517				Lilliefors GOF Test		
5650					1% Lilliefors Critical Value	0.055				Data appear Normal at 1% Significance Level		
5651					Data appear Approximate Normal at 1% Significance Level							
5652												
5653					Background Statistics Assuming Normal Distribution							
5654					95% UTL with 95% Coverage	11.41				90% Percentile (z)		10.23
5655					95% UPL (t)	11.1				95% Percentile (z)		11.08
5656					95% USL	15.64				99% Percentile (z)		12.67
5657												
5658					Gamma GOF Test							
5659					A-D Test Statistic	2.998				Anderson-Darling Gamma GOF Test		
5660					5% A-D Critical Value	0.755				Data Not Gamma Distributed at 5% Significance Level		
5661					K-S Test Statistic	0.0826				Kolmogorov-Smirnov Gamma GOF Test		
5662					5% K-S Critical Value	0.0485				Data Not Gamma Distributed at 5% Significance Level		
5663					Data Not Gamma Distributed at 5% Significance Level							
5664												
5665					Gamma Statistics							
5666					k hat (MLE)	8.891				k star (bias corrected MLE)		8.818
5667					Theta hat (MLE)	0.814				Theta star (bias corrected MLE)		0.821
5668					nu hat (MLE)	6277				nu star (bias corrected)		6225
5669					MLE Mean (bias corrected)	7.241				MLE Sd (bias corrected)		2.439
5670												
5671					Background Statistics Assuming Gamma Distribution							
5672					95% Wilson Hilferty (WH) Approx. Gamma UPL	11.67				90% Percentile		10.49
5673					95% Hawkins Wixley (HW) Approx. Gamma UPL	11.79				95% Percentile		11.66
5674					95% WH Approx. Gamma UTL with 95% Coverage	12.12				99% Percentile		14.08
5675					95% HW Approx. Gamma UTL with 95% Coverage	12.28						
5676					95% WH USL	19.45				95% HW USL		20.36
5677												
5678					Lognormal GOF Test							
5679					Shapiro Wilk Test Statistic	0.945				Shapiro Wilk Lognormal GOF Test		
5680					10% Shapiro Wilk P Value	1.110E-16				Data Not Lognormal at 10% Significance Level		

	A	B	C	D	E	F	G	H	I	J	K	L	
5681	Lilliefors Test Statistic					0.104	Lilliefors Lognormal GOF Test						
5682	10% Lilliefors Critical Value					0.0435	Data Not Lognormal at 10% Significance Level						
5683	Data Not Lognormal at 10% Significance Level												
5684													
5685	Background Statistics assuming Lognormal Distribution												
5686	95% UTL with		95% Coverage		12.88	90% Percentile (z)					10.77		
5687			95% UPL (t)		12.28	95% Percentile (z)					12.25		
5688			95% USL		24.5	99% Percentile (z)					15.6		
5689													
5690	Nonparametric Distribution Free Background Statistics												
5691	Data appear Approximate Normal at 1% Significance Level												
5692													
5693	Nonparametric Upper Limits for Background Threshold Values												
5694	Order of Statistic, order				343	95% UTL with 95% Coverage				12			
5695	Approx, f used to compute achieved CC				1.5	Approximate Actual Confidence Coefficient achieved by UTL				0.941			
5696						Approximate Sample Size needed to achieve specified CC				336			
5697	95% Percentile Bootstrap UTL with		95% Coverage		11.58	95% BCA Bootstrap UTL with 95% Coverage				11.58			
5698			95% UPL		10.9	90% Percentile				10.1			
5699			90% Chebyshev UPL		14.25	95% Percentile				10.84			
5700			95% Chebyshev UPL		17.43	99% Percentile				13.5			
5701			95% USL		17.3								
5702													
5703	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
5704	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
5705	and consists of observations collected from clean unimpacted locations.												
5706	The use of USL tends to provide a balance between false positives and false negatives provided the data												
5707	represents a background data set and when many onsite observations need to be compared with the BTV.												
5708													
5709	ND_As <14												
5710													
5711	General Statistics												
5712	Total Number of Observations				350	Number of Distinct Observations				96			
5713	Minimum				1.9	First Quartile				5.8			
5714	Second Largest				13.4	Median				7.2			
5715	Maximum				13.6	Third Quartile				8.5			
5716	Mean				7.164	SD				2.188			
5717	Coefficient of Variation				0.305	Skewness				0.0638			
5718	Mean of logged Data				1.915	SD of logged Data				0.347			
5719													
5720	Critical Values for Background Threshold Values (BTVs)												
5721	Tolerance Factor K (For UTL)				1.787	d2max (for USL)				3.596			
5722													
5723	Normal GOF Test												
5724	Shapiro Wilk Test Statistic				0.977	Normal GOF Test							
5725	1% Shapiro Wilk P Value				0.0539	Data appear Normal at 1% Significance Level							
5726	Lilliefors Test Statistic				0.0444	Lilliefors GOF Test							
5727	1% Lilliefors Critical Value				0.0552	Data appear Normal at 1% Significance Level							
5728	Data appear Normal at 1% Significance Level												
5729													
5730	Background Statistics Assuming Normal Distribution												
5731	95% UTL with		95% Coverage		11.07	90% Percentile (z)					9.968		
5732			95% UPL (t)		10.78	95% Percentile (z)					10.76		
5733			95% USL		15.03	99% Percentile (z)					12.25		
5734													
5735	Gamma GOF Test												
5736	A-D Test Statistic				3.361	Anderson-Darling Gamma GOF Test							
5737	5% A-D Critical Value				0.755	Data Not Gamma Distributed at 5% Significance Level							
5738	K-S Test Statistic				0.0895	Kolmogorov-Smirnov Gamma GOF Test							
5739	5% K-S Critical Value				0.0487	Data Not Gamma Distributed at 5% Significance Level							
5740	Data Not Gamma Distributed at 5% Significance Level												
5741													
5742	Gamma Statistics												
5743	k hat (MLE)				9.426	k star (bias corrected MLE)				9.347			
5744	Theta hat (MLE)				0.76	Theta star (bias corrected MLE)				0.766			
5745	nu hat (MLE)				6598	nu star (bias corrected)				6543			
5746	MLE Mean (bias corrected)				7.164	MLE Sd (bias corrected)				2.343			
5747													
5748	Background Statistics Assuming Gamma Distribution												
5749	95% Wilson Hilferty (WH) Approx. Gamma UPL				11.41	90% Percentile					10.28		
5750	95% Hawkins Wixley (HW) Approx. Gamma UPL				11.54	95% Percentile					11.4		
5751	95% WH Approx. Gamma UTL with		95% Coverage		11.85	99% Percentile					13.71		

	A	B	C	D	E	F	G	H	I	J	K	L	
5752	95% HW Approx. Gamma UTL with 95% Coverage					12							
5753	95% WH USL					18.79	95% HW USL						19.67
5754													
5755	Lognormal GOF Test												
5756	Shapiro Wilk Test Statistic					0.931	Shapiro Wilk Lognormal GOF Test						
5757	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level						
5758	Lilliefors Test Statistic					0.11	Lilliefors Lognormal GOF Test						
5759	10% Lilliefors Critical Value					0.0437	Data Not Lognormal at 10% Significance Level						
5760	Data Not Lognormal at 10% Significance Level												
5761													
5762	Background Statistics assuming Lognormal Distribution												
5763	95% UTL with	95% Coverage			12.61	90% Percentile (z)						10.59	
5764		95% UPL (t)			12.04	95% Percentile (z)						12.01	
5765		95% USL			23.63	99% Percentile (z)						15.21	
5766													
5767	Nonparametric Distribution Free Background Statistics												
5768	Data appear Normal at 1% Significance Level												
5769													
5770	Nonparametric Upper Limits for Background Threshold Values												
5771	Order of Statistic, order				340	95% UTL with 95% Coverage				11.4			
5772	Approx, f used to compute achieved CC				1.487	Approximate Actual Confidence Coefficient achieved by UTL				0.936			
5773						Approximate Sample Size needed to achieve specified CC				336			
5774	95% Percentile Bootstrap UTL with	95% Coverage			11.21	95% BCA Bootstrap UTL with 95% Coverage				11.1			
5775		95% UPL			10.7	90% Percentile				9.92			
5776		90% Chebyshev UPL			13.74	95% Percentile				10.66			
5777		95% Chebyshev UPL			16.71	99% Percentile				12.81			
5778		95% USL			13.6								
5779													
5780	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
5781	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
5782	and consists of observations collected from clean unimpacted locations.												
5783	The use of USL tends to provide a balance between false positives and false negatives provided the data												
5784	represents a background data set and when many onsite observations need to be compared with the BTV.												
5785													
5786	ND_As <13												
5787													
5788	General Statistics												
5789	Total Number of Observations				346	Number of Distinct Observations				92			
5790	Minimum				1.9	First Quartile				5.725			
5791	Second Largest				12.1	Median				7.2			
5792	Maximum				12.5	Third Quartile				8.4			
5793	Mean				7.093	SD				2.097			
5794	Coefficient of Variation				0.296	Skewness				-0.121			
5795	Mean of logged Data				1.907	SD of logged Data				0.341			
5796													
5797	Critical Values for Background Threshold Values (BTVs)												
5798	Tolerance Factor K (For UTL)				1.787	d2max (for USL)				3.593			
5799													
5800	Normal GOF Test												
5801	Shapiro Wilk Test Statistic					0.975	Normal GOF Test						
5802	1% Shapiro Wilk P Value					0.018	Data appear Normal at 1% Significance Level						
5803	Lilliefors Test Statistic					0.0517	Lilliefors GOF Test						
5804	1% Lilliefors Critical Value					0.0555	Data appear Normal at 1% Significance Level						
5805	Data appear Normal at 1% Significance Level												
5806													
5807	Background Statistics Assuming Normal Distribution												
5808	95% UTL with	95% Coverage			10.84	90% Percentile (z)				9.78			
5809		95% UPL (t)			10.56	95% Percentile (z)				10.54			
5810		95% USL			14.63	99% Percentile (z)				11.97			
5811													
5812	Gamma GOF Test												
5813	A-D Test Statistic					3.934	Anderson-Darling Gamma GOF Test						
5814	5% A-D Critical Value					0.755	Data Not Gamma Distributed at 5% Significance Level						
5815	K-S Test Statistic					0.0955	Kolmogorov-Smirnov Gamma GOF Test						
5816	5% K-S Critical Value					0.0489	Data Not Gamma Distributed at 5% Significance Level						
5817	Data Not Gamma Distributed at 5% Significance Level												
5818													
5819	Gamma Statistics												
5820	k hat (MLE)				9.819	k star (bias corrected MLE)				9.736			
5821	Theta hat (MLE)				0.722	Theta star (bias corrected MLE)				0.729			
5822	nu hat (MLE)				6795	nu star (bias corrected)				6737			

	A	B	C	D	E	F	G	H	I	J	K	L
5823	MLE Mean (bias corrected)					7.093	MLE Sd (bias corrected)					2.273
5824												
5825	Background Statistics Assuming Gamma Distribution											
5826	95% Wilson Hilferty (WH) Approx. Gamma UPL					11.21	90% Percentile					10.12
5827	95% Hawkins Wixley (HW) Approx. Gamma UPL					11.34	95% Percentile					11.2
5828	95% WH Approx. Gamma UTL with 95% Coverage					11.63	99% Percentile					13.42
5829	95% HW Approx. Gamma UTL with 95% Coverage					11.79						
5830	95% WH USL					18.29	95% HW USL					19.14
5831												
5832	Lognormal GOF Test											
5833	Shapiro Wilk Test Statistic					0.92	Shapiro Wilk Lognormal GOF Test					
5834	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
5835	Lilliefors Test Statistic					0.114	Lilliefors Lognormal GOF Test					
5836	10% Lilliefors Critical Value					0.0439	Data Not Lognormal at 10% Significance Level					
5837	Data Not Lognormal at 10% Significance Level											
5838												
5839	Background Statistics assuming Lognormal Distribution											
5840	95% UTL with 95% Coverage					12.39	90% Percentile (z)					10.43
5841	95% UPL (t)					11.83	95% Percentile (z)					11.8
5842	95% USL					22.94	99% Percentile (z)					14.89
5843												
5844	Nonparametric Distribution Free Background Statistics											
5845	Data appear Normal at 1% Significance Level											
5846												
5847	Nonparametric Upper Limits for Background Threshold Values											
5848	Order of Statistic, order					336	95% UTL with 95% Coverage					10.9
5849	Approx, f used to compute achieved CC					1.469	Approximate Actual Confidence Coefficient achieved by UTL					0.931
5850							Approximate Sample Size needed to achieve specified CC					336
5851	95% Percentile Bootstrap UTL with 95% Coverage					10.78	95% BCA Bootstrap UTL with 95% Coverage					10.4
5852	95% UPL					10.47	90% Percentile					9.8
5853	90% Chebyshev UPL					13.39	95% Percentile					10.4
5854	95% Chebyshev UPL					16.25	99% Percentile					11.87
5855	95% USL					12.5						
5856												
5857	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
5858	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
5859	and consists of observations collected from clean unimpacted locations.											
5860	The use of USL tends to provide a balance between false positives and false negatives provided the data											
5861	represents a background data set and when many onsite observations need to be compared with the BTV.											
5862												
5863	ND_As <11											
5864												
5865	General Statistics											
5866	Total Number of Observations					337	Number of Distinct Observations					84
5867	Minimum					1.9	First Quartile					5.7
5868	Second Largest					10.9	Median					7.2
5869	Maximum					10.9	Third Quartile					8.3
5870	Mean					6.969	SD					1.979
5871	Coefficient of Variation					0.284	Skewness					-0.315
5872	Mean of logged Data					1.893	SD of logged Data					0.333
5873												
5874	Critical Values for Background Threshold Values (BTVs)											
5875	Tolerance Factor K (For UTL)					1.789	d2max (for USL)					3.586
5876												
5877	Normal GOF Test											
5878	Shapiro Wilk Test Statistic					0.963	Normal GOF Test					
5879	1% Shapiro Wilk P Value					2.1796E-6	Data Not Normal at 1% Significance Level					
5880	Lilliefors Test Statistic					0.0641	Lilliefors GOF Test					
5881	1% Lilliefors Critical Value					0.0563	Data Not Normal at 1% Significance Level					
5882	Data Not Normal at 1% Significance Level											
5883												
5884	Background Statistics Assuming Normal Distribution											
5885	95% UTL with 95% Coverage					10.51	90% Percentile (z)					9.505
5886	95% UPL (t)					10.24	95% Percentile (z)					10.22
5887	95% USL					14.07	99% Percentile (z)					11.57
5888												
5889	Gamma GOF Test											
5890	A-D Test Statistic					5.056	Anderson-Darling Gamma GOF Test					
5891	5% A-D Critical Value					0.755	Data Not Gamma Distributed at 5% Significance Level					
5892	K-S Test Statistic					0.105	Kolmogorov-Smirnov Gamma GOF Test					
5893	5% K-S Critical Value					0.0495	Data Not Gamma Distributed at 5% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L	
5894	Data Not Gamma Distributed at 5% Significance Level												
5895													
5896	Gamma Statistics												
5897	k hat (MLE)				10.37				k star (bias corrected MLE)				10.28
5898	Theta hat (MLE)				0.672				Theta star (bias corrected MLE)				0.678
5899	nu hat (MLE)				6993				nu star (bias corrected)				6932
5900	MLE Mean (bias corrected)				6.969				MLE Sd (bias corrected)				2.173
5901													
5902	Background Statistics Assuming Gamma Distribution												
5903	95% Wilson Hilferty (WH) Approx. Gamma UPL				10.9				90% Percentile				9.859
5904	95% Hawkins Wixley (HW) Approx. Gamma UPL				11.02				95% Percentile				10.89
5905	95% WH Approx. Gamma UTL with 95% Coverage				11.3				99% Percentile				12.99
5906	95% HW Approx. Gamma UTL with 95% Coverage				11.46								
5907	95% WH USL				17.56				95% HW USL				18.36
5908													
5909	Lognormal GOF Test												
5910	Shapiro Wilk Test Statistic				0.903				Shapiro Wilk Lognormal GOF Test				
5911	10% Shapiro Wilk P Value				0				Data Not Lognormal at 10% Significance Level				
5912	Lilliefors Test Statistic				0.122				Lilliefors Lognormal GOF Test				
5913	10% Lilliefors Critical Value				0.0445				Data Not Lognormal at 10% Significance Level				
5914	Data Not Lognormal at 10% Significance Level												
5915													
5916	Background Statistics assuming Lognormal Distribution												
5917	95% UTL with		95% Coverage		12.05				90% Percentile (z)		10.17		
5918			95% UPL (t)		11.51				95% Percentile (z)		11.48		
5919			95% USL		21.91				99% Percentile (z)		14.41		
5920													
5921	Nonparametric Distribution Free Background Statistics												
5922	Data do not follow a Discernible Distribution												
5923													
5924	Nonparametric Upper Limits for Background Threshold Values												
5925	Order of Statistic, order				327				95% UTL with 95% Coverage		10.4		
5926	Approx, f used to compute achieved CC				1.43				Approximate Actual Confidence Coefficient achieved by UTL		0.915		
5927									Approximate Sample Size needed to achieve specified CC		336		
5928	95% Percentile Bootstrap UTL with		95% Coverage		10.4				95% BCA Bootstrap UTL with 95% Coverage		10.1		
5929			95% UPL		10.11				90% Percentile		9.5		
5930			90% Chebyshev UPL		12.92				95% Percentile		10.1		
5931			95% Chebyshev UPL		15.61				99% Percentile		10.7		
5932			95% USL		10.9								
5933													
5934	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
5935	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
5936	and consists of observations collected from clean unimpacted locations.												
5937	The use of USL tends to provide a balance between false positives and false negatives provided the data												
5938	represents a background data set and when many onsite observations need to be compared with the BTV.												
5939													
5940	ND_Pb												
5941													
5942	General Statistics												
5943	Total Number of Observations				353				Number of Distinct Observations		100		
5944	Minimum				7.4				First Quartile		11.5		
5945	Second Largest				22.2				Median		12.8		
5946	Maximum				25.1				Third Quartile		14.1		
5947	Mean				12.89				SD		2.414		
5948	Coefficient of Variation				0.187				Skewness		0.759		
5949	Mean of logged Data				2.539				SD of logged Data		0.186		
5950													
5951	Critical Values for Background Threshold Values (BTVs)												
5952	Tolerance Factor K (For UTL)				1.786				d2max (for USL)		3.599		
5953													
5954	Normal GOF Test												
5955	Shapiro Wilk Test Statistic				0.967				Normal GOF Test				
5956	1% Shapiro Wilk P Value				3.6313E-5				Data Not Normal at 1% Significance Level				
5957	Lilliefors Test Statistic				0.0616				Lilliefors GOF Test				
5958	1% Lilliefors Critical Value				0.055				Data Not Normal at 1% Significance Level				
5959	Data Not Normal at 1% Significance Level												
5960													
5961	Background Statistics Assuming Normal Distribution												
5962	95% UTL with		95% Coverage		17.2				90% Percentile (z)		15.98		
5963			95% UPL (t)		16.87				95% Percentile (z)		16.86		
5964			95% USL		21.57				99% Percentile (z)		18.5		

	A	B	C	D	E	F	G	H	I	J	K	L	
5965													
5966	Gamma GOF Test												
5967	A-D Test Statistic					0.97	Anderson-Darling Gamma GOF Test						
5968	5% A-D Critical Value					0.751	Data Not Gamma Distributed at 5% Significance Level						
5969	K-S Test Statistic					0.0516	Kolmogorov-Smirnov Gamma GOF Test						
5970	5% K-S Critical Value					0.0483	Data Not Gamma Distributed at 5% Significance Level						
5971	Data Not Gamma Distributed at 5% Significance Level												
5972													
5973	Gamma Statistics												
5974	k hat (MLE)					29.35	k star (bias corrected MLE)					29.1	
5975	Theta hat (MLE)					0.439	Theta star (bias corrected MLE)					0.443	
5976	nu hat (MLE)					20721	nu star (bias corrected)					20546	
5977	MLE Mean (bias corrected)					12.89	MLE Sd (bias corrected)					2.389	
5978													
5979	Background Statistics Assuming Gamma Distribution												
5980	95% Wilson Hilferty (WH) Approx. Gamma UPL					17.05	90% Percentile					16.03	
5981	95% Hawkins Wixley (HW) Approx. Gamma UPL					17.09	95% Percentile					17.05	
5982	95% WH Approx. Gamma UTL with 95% Coverage					17.44	99% Percentile					19.08	
5983	95% HW Approx. Gamma UTL with 95% Coverage					17.49							
5984	95% WH USL					23.28	95% HW USL					23.58	
5985													
5986	Lognormal GOF Test												
5987	Shapiro Wilk Test Statistic					0.982	Shapiro Wilk Lognormal GOF Test						
5988	10% Shapiro Wilk P Value					0.337	Data appear Lognormal at 10% Significance Level						
5989	Lilliefors Test Statistic					0.06	Lilliefors Lognormal GOF Test						
5990	10% Lilliefors Critical Value					0.0435	Data Not Lognormal at 10% Significance Level						
5991	Data appear Approximate Lognormal at 10% Significance Level												
5992													
5993	Background Statistics assuming Lognormal Distribution												
5994	95% UTL with 95% Coverage					17.65	90% Percentile (z)					16.07	
5995	95% UPL (t)					17.21	95% Percentile (z)					17.19	
5996	95% USL					24.71	99% Percentile (z)					19.51	
5997													
5998	Nonparametric Distribution Free Background Statistics												
5999	Data appear Approximate Lognormal at 10% Significance Level												
6000													
6001	Nonparametric Upper Limits for Background Threshold Values												
6002	Order of Statistic, order					343	95% UTL with 95% Coverage					18	
6003	Approx, f used to compute achieved CC					1.5	Approximate Actual Confidence Coefficient achieved by UTL					0.941	
6004							Approximate Sample Size needed to achieve specified CC					336	
6005	95% Percentile Bootstrap UTL with 95% Coverage					17.84	95% BCA Bootstrap UTL with 95% Coverage					17.84	
6006	95% UPL					17.1	90% Percentile					15.6	
6007	90% Chebyshev UPL					20.14	95% Percentile					17.04	
6008	95% Chebyshev UPL					23.42	99% Percentile					19.62	
6009	95% USL					25.1							
6010													
6011	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
6012	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
6013	and consists of observations collected from clean unimpacted locations.												
6014	The use of USL tends to provide a balance between false positives and false negatives provided the data												
6015	represents a background data set and when many onsite observations need to be compared with the BTV.												
6016													
6017	ND_Pb <23												
6018													
6019	General Statistics												
6020	Total Number of Observations					352	Number of Distinct Observations					99	
6021	Minimum					7.4	First Quartile					11.5	
6022	Second Largest					21.2	Median					12.8	
6023	Maximum					22.2	Third Quartile					14.1	
6024	Mean					12.85	SD					2.328	
6025	Coefficient of Variation					0.181	Skewness					0.48	
6026	Mean of logged Data					2.537	SD of logged Data					0.182	
6027													
6028	Critical Values for Background Threshold Values (BTVs)												
6029	Tolerance Factor K (For UTL)					1.786	d2max (for USL)					3.598	
6030													
6031	Normal GOF Test												
6032	Shapiro Wilk Test Statistic					0.975	Normal GOF Test						
6033	1% Shapiro Wilk P Value					0.0142	Data appear Normal at 1% Significance Level						
6034	Lilliefors Test Statistic					0.0523	Lilliefors GOF Test						
6035	1% Lilliefors Critical Value					0.0551	Data appear Normal at 1% Significance Level						

	A	B	C	D	E	F	G	H	I	J	K	L
6036	Data appear Normal at 1% Significance Level											
6037												
6038	Background Statistics Assuming Normal Distribution											
6039	95% UTL with	95% Coverage	17.01						90% Percentile (z)		15.83	
6040		95% UPL (t)	16.7						95% Percentile (z)		16.68	
6041		95% USL	21.23						99% Percentile (z)		18.27	
6042												
6043	Gamma GOF Test											
6044	A-D Test Statistic	0.771							Anderson-Darling Gamma GOF Test			
6045	5% A-D Critical Value	0.751							Data Not Gamma Distributed at 5% Significance Level			
6046	K-S Test Statistic	0.051							Kolmogorov-Smirnov Gamma GOF Test			
6047	5% K-S Critical Value	0.0484							Data Not Gamma Distributed at 5% Significance Level			
6048	Data Not Gamma Distributed at 5% Significance Level											
6049												
6050	Gamma Statistics											
6051	k hat (MLE)	30.69							k star (bias corrected MLE)		30.43	
6052	Theta hat (MLE)	0.419							Theta star (bias corrected MLE)		0.422	
6053	nu hat (MLE)	21608							nu star (bias corrected)		21425	
6054	MLE Mean (bias corrected)	12.85							MLE Sd (bias corrected)		2.33	
6055												
6056	Background Statistics Assuming Gamma Distribution											
6057	95% Wilson Hilferty (WH) Approx. Gamma UPL	16.91							90% Percentile		15.91	
6058	95% Hawkins Wixley (HW) Approx. Gamma UPL	16.95							95% Percentile		16.91	
6059	95% WH Approx. Gamma UTL with	95% Coverage	17.29						99% Percentile		18.88	
6060	95% HW Approx. Gamma UTL with	95% Coverage	17.34									
6061		95% WH USL	22.94						95% HW USL		23.25	
6062												
6063	Lognormal GOF Test											
6064	Shapiro Wilk Test Statistic	0.98							Shapiro Wilk Lognormal GOF Test			
6065	10% Shapiro Wilk P Value	0.145							Data appear Lognormal at 10% Significance Level			
6066	Lilliefors Test Statistic	0.0599							Lilliefors Lognormal GOF Test			
6067	10% Lilliefors Critical Value	0.0436							Data Not Lognormal at 10% Significance Level			
6068	Data appear Approximate Lognormal at 10% Significance Level											
6069												
6070	Background Statistics assuming Lognormal Distribution											
6071	95% UTL with	95% Coverage	17.51						90% Percentile (z)		15.97	
6072		95% UPL (t)	17.08						95% Percentile (z)		17.06	
6073		95% USL	24.36						99% Percentile (z)		19.32	
6074												
6075	Nonparametric Distribution Free Background Statistics											
6076	Data appear Normal at 1% Significance Level											
6077												
6078	Nonparametric Upper Limits for Background Threshold Values											
6079	Order of Statistic, order	342							95% UTL with	95% Coverage	17.9	
6080	Approx, f used to compute achieved CC	1.496							Approximate Actual Confidence Coefficient achieved by UTL		0.939	
6081									Approximate Sample Size needed to achieve specified CC		336	
6082	95% Percentile Bootstrap UTL with	95% Coverage	17.8						95% BCA Bootstrap UTL with	95% Coverage	17.8	
6083		95% UPL	17.04						90% Percentile		15.6	
6084		90% Chebyshev UPL	19.84						95% Percentile		16.89	
6085		95% Chebyshev UPL	23.01						99% Percentile		18.8	
6086		95% USL	22.2									
6087												
6088	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
6089	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
6090	and consists of observations collected from clean unimpacted locations.											
6091	The use of USL tends to provide a balance between false positives and false negatives provided the data											
6092	represents a background data set and when many onsite observations need to be compared with the BTV.											
6093												
6094	ND_Pb <19											
6095												
6096	General Statistics											
6097	Total Number of Observations	349							Number of Distinct Observations		96	
6098	Minimum	7.4							First Quartile		11.5	
6099	Second Largest	18.7							Median		12.8	
6100	Maximum	18.9							Third Quartile		14.1	
6101	Mean	12.78							SD		2.201	
6102	Coefficient of Variation	0.172							Skewness		0.176	
6103	Mean of logged Data	2.533							SD of logged Data		0.177	
6104												
6105	Critical Values for Background Threshold Values (BTVs)											
6106	Tolerance Factor K (For UTL)	1.787							d2max (for USL)		3.596	

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	A	B	C	D	E	F	G	H	I	J	K	L						
6107																		
6108	Normal GOF Test																	
6109	Shapiro Wilk Test Statistic					0.977	Normal GOF Test											
6110	1% Shapiro Wilk P Value					0.0386	Data appear Normal at 1% Significance Level											
6111	Lilliefors Test Statistic					0.0374	Lilliefors GOF Test											
6112	1% Lilliefors Critical Value					0.0553	Data appear Normal at 1% Significance Level											
6113	Data appear Normal at 1% Significance Level																	
6114																		
6115	Background Statistics Assuming Normal Distribution																	
6116	95% UTL with		95% Coverage		16.71	90% Percentile (z)					15.6							
6117			95% UPL (t)		16.41	95% Percentile (z)					16.4							
6118			95% USL		20.69	99% Percentile (z)					17.9							
6119																		
6120	Gamma GOF Test																	
6121	A-D Test Statistic					0.674	Anderson-Darling Gamma GOF Test											
6122	5% A-D Critical Value					0.752	Detected data appear Gamma Distributed at 5% Significance Level											
6123	K-S Test Statistic					0.0516	Kolmogorov-Smirnov Gamma GOF Test											
6124	5% K-S Critical Value					0.0486	Data Not Gamma Distributed at 5% Significance Level											
6125	Detected data follow Appr. Gamma Distribution at 5% Significance Level																	
6126																		
6127	Gamma Statistics																	
6128	k hat (MLE)					33.06	k star (bias corrected MLE)					32.78						
6129	Theta hat (MLE)					0.387	Theta star (bias corrected MLE)					0.39						
6130	nu hat (MLE)					23077	nu star (bias corrected)					22880						
6131	MLE Mean (bias corrected)					12.78	MLE Sd (bias corrected)					2.232						
6132																		
6133	Background Statistics Assuming Gamma Distribution																	
6134	95% Wilson Hilferty (WH) Approx. Gamma UPL					16.66	90% Percentile					15.71						
6135	95% Hawkins Wixley (HW) Approx. Gamma UPL					16.71	95% Percentile					16.66						
6136	95% WH Approx. Gamma UTL with		95% Coverage		17.03	99% Percentile					18.54							
6137	95% HW Approx. Gamma UTL with		95% Coverage		17.08													
6138			95% WH USL		22.38	95% HW USL					22.68							
6139																		
6140	Lognormal GOF Test																	
6141	Shapiro Wilk Test Statistic					0.971	Shapiro Wilk Lognormal GOF Test											
6142	10% Shapiro Wilk P Value					0.00131	Data Not Lognormal at 10% Significance Level											
6143	Lilliefors Test Statistic					0.0612	Lilliefors Lognormal GOF Test											
6144	10% Lilliefors Critical Value					0.0438	Data Not Lognormal at 10% Significance Level											
6145	Data Not Lognormal at 10% Significance Level																	
6146																		
6147	Background Statistics assuming Lognormal Distribution																	
6148	95% UTL with		95% Coverage		17.25	90% Percentile (z)					15.78							
6149			95% UPL (t)		16.85	95% Percentile (z)					16.83							
6150			95% USL		23.74	99% Percentile (z)					18.98							
6151																		
6152	Nonparametric Distribution Free Background Statistics																	
6153	Data appear Normal at 1% Significance Level																	
6154																		
6155	Nonparametric Upper Limits for Background Threshold Values																	
6156	Order of Statistic, order					339	95% UTL with 95% Coverage					17.6						
6157	Approx, f used to compute achieved CC					1.482	Approximate Actual Confidence Coefficient achieved by UTL					0.935						
6158							Approximate Sample Size needed to achieve specified CC					336						
6159	95% Percentile Bootstrap UTL with		95% Coverage		17.16	95% BCA Bootstrap UTL with 95% Coverage					17.1							
6160			95% UPL		16.7	90% Percentile					15.52							
6161			90% Chebyshev UPL		19.39	95% Percentile					16.56							
6162			95% Chebyshev UPL		22.39	99% Percentile					18.51							
6163			95% USL		18.9													
6164																		
6165	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.																	
6166	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers																	
6167	and consists of observations collected from clean unimpacted locations.																	
6168	The use of USL tends to provide a balance between false positives and false negatives provided the data																	
6169	represents a background data set and when many onsite observations need to be compared with the BTV.																	
6170																		
6171	ND_Pb <17																	
6172																		
6173	General Statistics																	
6174	Total Number of Observations					334	Number of Distinct Observations					86						
6175	Minimum					7.4	First Quartile					11.4						
6176	Second Largest					16.8	Median					12.65						
6177	Maximum					16.8	Third Quartile					14						

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	A	B	C	D	E	F	G	H	I	J	K	L	
6178					Mean	12.55					SD	1.95	
6179					Coefficient of Variation	0.155					Skewness	-0.243	
6180					Mean of logged Data	2.517					SD of logged Data	0.163	
6181													
6182					Critical Values for Background Threshold Values (BTVs)								
6183					Tolerance Factor K (For UTL)	1.79					d2max (for USL)	3.583	
6184													
6185					Normal GOF Test								
6186					Shapiro Wilk Test Statistic	0.973					Normal GOF Test		
6187					1% Shapiro Wilk P Value	0.00509					Data Not Normal at 1% Significance Level		
6188					Lilliefors Test Statistic	0.041					Lilliefors GOF Test		
6189					1% Lilliefors Critical Value	0.0565					Data appear Normal at 1% Significance Level		
6190					Data appear Approximate Normal at 1% Significance Level								
6191													
6192					Background Statistics Assuming Normal Distribution								
6193					95% UTL with	95% Coverage	16.04				90% Percentile (z)	15.05	
6194						95% UPL (t)	15.77				95% Percentile (z)	15.76	
6195						95% USL	19.54				99% Percentile (z)	17.08	
6196													
6197					Gamma GOF Test								
6198					A-D Test Statistic	1.557					Anderson-Darling Gamma GOF Test		
6199					5% A-D Critical Value	0.752					Data Not Gamma Distributed at 5% Significance Level		
6200					K-S Test Statistic	0.0605					Kolmogorov-Smirnov Gamma GOF Test		
6201					5% K-S Critical Value	0.0496					Data Not Gamma Distributed at 5% Significance Level		
6202					Data Not Gamma Distributed at 5% Significance Level								
6203													
6204					Gamma Statistics								
6205					k hat (MLE)	39.21					k star (bias corrected MLE)	38.86	
6206					Theta hat (MLE)	0.32					Theta star (bias corrected MLE)	0.323	
6207					nu hat (MLE)	26190					nu star (bias corrected)	25956	
6208					MLE Mean (bias corrected)	12.55					MLE Sd (bias corrected)	2.013	
6209													
6210					Background Statistics Assuming Gamma Distribution								
6211					95% Wilson Hilferty (WH) Approx. Gamma UPL	16.04					90% Percentile	15.19	
6212					95% Hawkins Wixley (HW) Approx. Gamma UPL	16.08					95% Percentile	16.03	
6213					95% WH Approx. Gamma UTL with	95% Coverage	16.37				99% Percentile	17.7	
6214					95% HW Approx. Gamma UTL with	95% Coverage	16.42						
6215						95% WH USL	21.05				95% HW USL	21.31	
6216													
6217					Lognormal GOF Test								
6218					Shapiro Wilk Test Statistic	0.952					Shapiro Wilk Lognormal GOF Test		
6219					10% Shapiro Wilk P Value	1.105E-11					Data Not Lognormal at 10% Significance Level		
6220					Lilliefors Test Statistic	0.0712					Lilliefors Lognormal GOF Test		
6221					10% Lilliefors Critical Value	0.0447					Data Not Lognormal at 10% Significance Level		
6222					Data Not Lognormal at 10% Significance Level								
6223													
6224					Background Statistics assuming Lognormal Distribution								
6225					95% UTL with	95% Coverage	16.59				90% Percentile (z)	15.27	
6226						95% UPL (t)	16.22				95% Percentile (z)	16.2	
6227						95% USL	22.24				99% Percentile (z)	18.11	
6228													
6229					Nonparametric Distribution Free Background Statistics								
6230					Data appear Approximate Normal at 1% Significance Level								
6231													
6232					Nonparametric Upper Limits for Background Threshold Values								
6233					Order of Statistic, order	325					95% UTL with	95% Coverage	16.2
6234					Approx, f used to compute achieved CC	1.55					Approximate Actual Confidence Coefficient achieved by UTL		0.948
6235											Approximate Sample Size needed to achieve specified CC		311
6236					95% Percentile Bootstrap UTL with	95% Coverage	16				95% BCA Bootstrap UTL with	95% Coverage	15.7
6237						95% UPL	15.63				90% Percentile	15	
6238						90% Chebyshev UPL	18.41				95% Percentile	15.6	
6239						95% Chebyshev UPL	21.06				99% Percentile	16.5	
6240						95% USL	16.8						
6241													
6242					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.								
6243					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers								
6244					and consists of observations collected from clean unimpacted locations.								
6245					The use of USL tends to provide a balance between false positives and false negatives provided the data								
6246					represents a background data set and when many onsite observations need to be compared with the BTV.								
6247													
6248					NE As								

	A	B	C	D	E	F	G	H	I	J	K	L	
6249													
6250	General Statistics												
6251	Total Number of Observations					390	Number of Distinct Observations					109	
6252	Minimum					0.8	First Quartile					2	
6253	Second Largest					18	Median					4.2	
6254	Maximum					20.6	Third Quartile					6.775	
6255	Mean					4.892	SD					3.496	
6256	Coefficient of Variation					0.715	Skewness					1.176	
6257	Mean of logged Data					1.323	SD of logged Data					0.757	
6258													
6259	Critical Values for Background Threshold Values (BTVs)												
6260	Tolerance Factor K (For UTL)					1.779	d2max (for USL)					3.627	
6261													
6262	Normal GOF Test												
6263	Shapiro Wilk Test Statistic					0.885	Normal GOF Test						
6264	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
6265	Lilliefors Test Statistic					0.121	Lilliefors GOF Test						
6266	1% Lilliefors Critical Value					0.0523	Data Not Normal at 1% Significance Level						
6267	Data Not Normal at 1% Significance Level												
6268													
6269	Background Statistics Assuming Normal Distribution												
6270	95% UTL with	95% Coverage		11.11				90% Percentile (z)		9.372			
6271		95% UPL (t)		10.66				95% Percentile (z)		10.64			
6272		95% USL		17.57				99% Percentile (z)		13.03			
6273													
6274	Gamma GOF Test												
6275	A-D Test Statistic					2.758	Anderson-Darling Gamma GOF Test						
6276	5% A-D Critical Value					0.766	Data Not Gamma Distributed at 5% Significance Level						
6277	K-S Test Statistic					0.0737	Kolmogorov-Smirnov Gamma GOF Test						
6278	5% K-S Critical Value					0.0464	Data Not Gamma Distributed at 5% Significance Level						
6279	Data Not Gamma Distributed at 5% Significance Level												
6280													
6281	Gamma Statistics												
6282	k hat (MLE)					2.039	k star (bias corrected MLE)					2.025	
6283	Theta hat (MLE)					2.399	Theta star (bias corrected MLE)					2.416	
6284	nu hat (MLE)					1590	nu star (bias corrected)					1579	
6285	MLE Mean (bias corrected)					4.892	MLE Sd (bias corrected)					3.438	
6286													
6287	Background Statistics Assuming Gamma Distribution												
6288	95% Wilson Hilferty (WH) Approx.	Gamma UPL		11.51				90% Percentile		9.486			
6289	95% Hawkins Wixley (HW) Approx.	Gamma UPL		11.78				95% Percentile		11.56			
6290	95% WH Approx.	Gamma UTL with	95% Coverage	12.3				99% Percentile		16.15			
6291	95% HW Approx.	Gamma UTL with	95% Coverage	12.67									
6292		95% WH USL		28.13				95% HW USL		31.8			
6293													
6294	Lognormal GOF Test												
6295	Shapiro Wilk Test Statistic					0.95	Shapiro Wilk Lognormal GOF Test						
6296	10% Shapiro Wilk P Value					1.443E-15	Data Not Lognormal at 10% Significance Level						
6297	Lilliefors Test Statistic					0.0735	Lilliefors Lognormal GOF Test						
6298	10% Lilliefors Critical Value					0.0414	Data Not Lognormal at 10% Significance Level						
6299	Data Not Lognormal at 10% Significance Level												
6300													
6301	Background Statistics assuming Lognormal Distribution												
6302	95% UTL with	95% Coverage		14.43				90% Percentile (z)		9.904			
6303		95% UPL (t)		13.1				95% Percentile (z)		13.04			
6304		95% USL		58.47				99% Percentile (z)		21.84			
6305													
6306	Nonparametric Distribution Free Background Statistics												
6307	Data do not follow a Discernible Distribution												
6308													
6309	Nonparametric Upper Limits for Background Threshold Values												
6310	Order of Statistic, order					378	95% UTL with					95% Coverage	12.4
6311	Approx, f used to compute achieved CC					1.417	Approximate Actual Confidence Coefficient achieved by UTL					0.924	
6312							Approximate Sample Size needed to achieve specified CC					385	
6313	95% Percentile Bootstrap UTL with	95% Coverage		12.3				95% BCA Bootstrap UTL with	95% Coverage	12.2			
6314		95% UPL		11.8					90% Percentile	10.02			
6315		90% Chebyshev UPL		15.39					95% Percentile	11.76			
6316		95% Chebyshev UPL		20.15					99% Percentile	14.27			
6317		95% USL		20.6									
6318													
6319	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												

	A	B	C	D	E	F	G	H	I	J	K	L
6320	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
6321	and consists of observations collected from clean unimpacted locations.											
6322	The use of USL tends to provide a balance between false positives and false negatives provided the data											
6323	represents a background data set and when many onsite observations need to be compared with the BTV.											
6324												
6325	NE_As <18											
6326												
6327	General Statistics											
6328	Total Number of Observations					389	Number of Distinct Observations					108
6329	Minimum					0.8	First Quartile					2
6330	Second Largest					17.7	Median					4.2
6331	Maximum					18	Third Quartile					6.7
6332	Mean					4.851	SD					3.409
6333	Coefficient of Variation					0.703	Skewness					1.054
6334	Mean of logged Data					1.318	SD of logged Data					0.753
6335												
6336	Critical Values for Background Threshold Values (BTVs)											
6337	Tolerance Factor K (For UTL)					1.779	d2max (for USL)					3.626
6338												
6339	Normal GOF Test											
6340	Shapiro Wilk Test Statistic					0.888	Normal GOF Test					
6341	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
6342	Lilliefors Test Statistic					0.117	Lilliefors GOF Test					
6343	1% Lilliefors Critical Value					0.0524	Data Not Normal at 1% Significance Level					
6344	Data Not Normal at 1% Significance Level											
6345												
6346	Background Statistics Assuming Normal Distribution											
6347	95% UTL with	95% Coverage		10.91				90% Percentile (z)		9.219		
6348		95% UPL (t)		10.48				95% Percentile (z)		10.46		
6349		95% USL		17.21				99% Percentile (z)		12.78		
6350												
6351	Gamma GOF Test											
6352	A-D Test Statistic					2.853	Anderson-Darling Gamma GOF Test					
6353	5% A-D Critical Value					0.766	Data Not Gamma Distributed at 5% Significance Level					
6354	K-S Test Statistic					0.0743	Kolmogorov-Smirnov Gamma GOF Test					
6355	5% K-S Critical Value					0.0465	Data Not Gamma Distributed at 5% Significance Level					
6356	Data Not Gamma Distributed at 5% Significance Level											
6357												
6358	Gamma Statistics											
6359	k hat (MLE)					2.067	k star (bias corrected MLE)					2.053
6360	Theta hat (MLE)					2.347	Theta star (bias corrected MLE)					2.363
6361	nu hat (MLE)					1608	nu star (bias corrected)					1597
6362	MLE Mean (bias corrected)					4.851	MLE Sd (bias corrected)					3.386
6363												
6364	Background Statistics Assuming Gamma Distribution											
6365	95% Wilson Hilferty (WH) Approx. Gamma UPL					11.37	90% Percentile					9.377
6366	95% Hawkins Wixley (HW) Approx. Gamma UPL					11.65	95% Percentile					11.41
6367	95% WH Approx. Gamma UTL with 95% Coverage					12.15	99% Percentile					15.92
6368	95% HW Approx. Gamma UTL with 95% Coverage					12.52						
6369	95% WH USL					27.67	95% HW USL					31.28
6370												
6371	Lognormal GOF Test											
6372	Shapiro Wilk Test Statistic					0.947	Shapiro Wilk Lognormal GOF Test					
6373	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
6374	Lilliefors Test Statistic					0.075	Lilliefors Lognormal GOF Test					
6375	10% Lilliefors Critical Value					0.0415	Data Not Lognormal at 10% Significance Level					
6376	Data Not Lognormal at 10% Significance Level											
6377												
6378	Background Statistics assuming Lognormal Distribution											
6379	95% UTL with 95% Coverage					14.27	90% Percentile (z)					9.81
6380						12.96	95% Percentile (z)					12.9
6381						57.35	99% Percentile (z)					21.55
6382												
6383	Nonparametric Distribution Free Background Statistics											
6384	Data do not follow a Discernible Distribution											
6385												
6386	Nonparametric Upper Limits for Background Threshold Values											
6387	Order of Statistic, order					377	95% UTL with 95% Coverage					12.3
6388	Approx, f used to compute achieved CC					1.414	Approximate Actual Confidence Coefficient achieved by UTL					0.923
6389							Approximate Sample Size needed to achieve specified CC					385
6390	95% Percentile Bootstrap UTL with 95% Coverage					12.12	95% BCA Bootstrap UTL with 95% Coverage					12

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	A	B	C	D	E	F	G	H	I	J	K	L
6391					95% UPL	11.75					90% Percentile	10
6392					90% Chebyshev UPL	15.09					95% Percentile	11.7
6393					95% Chebyshev UPL	19.73					99% Percentile	13.81
6394					95% USL	18						
6395												
6396					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
6397					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
6398					and consists of observations collected from clean unimpacted locations.							
6399					The use of USL tends to provide a balance between false positives and false negatives provided the data							
6400					represents a background data set and when many onsite observations need to be compared with the BTV.							
6401												
6402					NE_As <13							
6403												
6404					General Statistics							
6405					Total Number of Observations	382				Number of Distinct Observations		101
6406					Minimum	0.8				First Quartile		1.9
6407					Second Largest	12.6				Median		4.15
6408					Maximum	12.8				Third Quartile		6.5
6409					Mean	4.659				SD		3.113
6410					Coefficient of Variation	0.668				Skewness		0.806
6411					Mean of logged Data	1.293				SD of logged Data		0.735
6412												
6413					Critical Values for Background Threshold Values (BTVs)							
6414					Tolerance Factor K (For UTL)	1.78				d2max (for USL)		3.621
6415												
6416					Normal GOF Test							
6417					Shapiro Wilk Test Statistic	0.89				Normal GOF Test		
6418					1% Shapiro Wilk P Value	0				Data Not Normal at 1% Significance Level		
6419					Lilliefors Test Statistic	0.12				Lilliefors GOF Test		
6420					1% Lilliefors Critical Value	0.0529				Data Not Normal at 1% Significance Level		
6421					Data Not Normal at 1% Significance Level							
6422												
6423					Background Statistics Assuming Normal Distribution							
6424					95% UTL with 95% Coverage	10.2				90% Percentile (z)		8.648
6425					95% UPL (t)	9.798				95% Percentile (z)		9.779
6426					95% USL	15.93				99% Percentile (z)		11.9
6427												
6428					Gamma GOF Test							
6429					A-D Test Statistic	3.211				Anderson-Darling Gamma GOF Test		
6430					5% A-D Critical Value	0.765				Data Not Gamma Distributed at 5% Significance Level		
6431					K-S Test Statistic	0.0761				Kolmogorov-Smirnov Gamma GOF Test		
6432					5% K-S Critical Value	0.047				Data Not Gamma Distributed at 5% Significance Level		
6433					Data Not Gamma Distributed at 5% Significance Level							
6434												
6435					Gamma Statistics							
6436					k hat (MLE)	2.183				k star (bias corrected MLE)		2.167
6437					Theta hat (MLE)	2.134				Theta star (bias corrected MLE)		2.149
6438					nu hat (MLE)	1668				nu star (bias corrected)		1656
6439					MLE Mean (bias corrected)	4.659				MLE Sd (bias corrected)		3.164
6440												
6441					Background Statistics Assuming Gamma Distribution							
6442					95% Wilson Hilferty (WH) Approx. Gamma UPL	10.75				90% Percentile		8.892
6443					95% Hawkins Wixley (HW) Approx. Gamma UPL	11.02				95% Percentile		10.77
6444					95% WH Approx. Gamma UTL with 95% Coverage	11.48				99% Percentile		14.93
6445					95% HW Approx. Gamma UTL with 95% Coverage	11.83						
6446					95% WH USL	25.69				95% HW USL		28.97
6447												
6448					Lognormal GOF Test							
6449					Shapiro Wilk Test Statistic	0.937				Shapiro Wilk Lognormal GOF Test		
6450					10% Shapiro Wilk P Value	0				Data Not Lognormal at 10% Significance Level		
6451					Lilliefors Test Statistic	0.0808				Lilliefors Lognormal GOF Test		
6452					10% Lilliefors Critical Value	0.0418				Data Not Lognormal at 10% Significance Level		
6453					Data Not Lognormal at 10% Significance Level							
6454												
6455					Background Statistics assuming Lognormal Distribution							
6456					95% UTL with 95% Coverage	13.48				90% Percentile (z)		9.343
6457					95% UPL (t)	12.26				95% Percentile (z)		12.2
6458					95% USL	52.17				99% Percentile (z)		20.14
6459												
6460					Nonparametric Distribution Free Background Statistics							
6461					Data do not follow a Discernible Distribution							

	A	B	C	D	E	F	G	H	I	J	K	L
6462												
6463	Nonparametric Upper Limits for Background Threshold Values											
6464	Order of Statistic, order					371	95% UTL with 95% Coverage					11.8
6465	Approx, f used to compute achieved CC					1.498	Approximate Actual Confidence Coefficient achieved by UTL					0.946
6466							Approximate Sample Size needed to achieve specified CC					361
6467	95% Percentile Bootstrap UTL with 95% Coverage					11.7	95% BCA Bootstrap UTL with 95% Coverage					11.7
6468	95% UPL					11.3	90% Percentile					9.78
6469	90% Chebyshev UPL					14.01	95% Percentile					11.29
6470	95% Chebyshev UPL					18.25	99% Percentile					12.42
6471	95% USL					12.8						
6472												
6473	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
6474	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
6475	and consists of observations collected from clean unimpacted locations.											
6476	The use of USL tends to provide a balance between false positives and false negatives provided the data											
6477	represents a background data set and when many onsite observations need to be compared with the BTV.											
6478												
6479	NE_Pb											
6480												
6481	General Statistics											
6482	Total Number of Observations					390	Number of Distinct Observations					163
6483	Minimum					8.9	First Quartile					14.3
6484	Second Largest					70.3	Median					17.9
6485	Maximum					110	Third Quartile					20.98
6486	Mean					18.05	SD					7.159
6487	Coefficient of Variation					0.397	Skewness					6.469
6488	Mean of logged Data					2.842	SD of logged Data					0.306
6489												
6490	Critical Values for Background Threshold Values (BTVs)											
6491	Tolerance Factor K (For UTL)					1.779	d2max (for USL)					3.627
6492												
6493	Normal GOF Test											
6494	Shapiro Wilk Test Statistic					0.674	Normal GOF Test					
6495	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
6496	Lilliefors Test Statistic					0.134	Lilliefors GOF Test					
6497	1% Lilliefors Critical Value					0.0523	Data Not Normal at 1% Significance Level					
6498	Data Not Normal at 1% Significance Level											
6499												
6500	Background Statistics Assuming Normal Distribution											
6501	95% UTL with 95% Coverage					30.78	90% Percentile (z)					27.22
6502	95% UPL (t)					29.87	95% Percentile (z)					29.82
6503	95% USL					44.01	99% Percentile (z)					34.7
6504												
6505	Gamma GOF Test											
6506	A-D Test Statistic					3.498	Anderson-Darling Gamma GOF Test					
6507	5% A-D Critical Value					0.754	Data Not Gamma Distributed at 5% Significance Level					
6508	K-S Test Statistic					0.0716	Kolmogorov-Smirnov Gamma GOF Test					
6509	5% K-S Critical Value					0.0459	Data Not Gamma Distributed at 5% Significance Level					
6510	Data Not Gamma Distributed at 5% Significance Level											
6511												
6512	Gamma Statistics											
6513	k hat (MLE)					10.05	k star (bias corrected MLE)					9.977
6514	Theta hat (MLE)					1.795	Theta star (bias corrected MLE)					1.809
6515	nu hat (MLE)					7841	nu star (bias corrected)					7782
6516	MLE Mean (bias corrected)					18.05	MLE Sd (bias corrected)					5.714
6517												
6518	Background Statistics Assuming Gamma Distribution											
6519	95% Wilson Hilferty (WH) Approx. Gamma UPL					28.26	90% Percentile					25.65
6520	95% Hawkins Wixley (HW) Approx. Gamma UPL					28.25	95% Percentile					28.36
6521	95% WH Approx. Gamma UTL with 95% Coverage					29.25	99% Percentile					33.92
6522	95% HW Approx. Gamma UTL with 95% Coverage					29.27						
6523	95% WH USL					46.2	95% HW USL					47.23
6524												
6525	Lognormal GOF Test											
6526	Shapiro Wilk Test Statistic					0.945	Shapiro Wilk Lognormal GOF Test					
6527	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
6528	Lilliefors Test Statistic					0.0718	Lilliefors Lognormal GOF Test					
6529	10% Lilliefors Critical Value					0.0414	Data Not Lognormal at 10% Significance Level					
6530	Data Not Lognormal at 10% Significance Level											
6531												
6532	Background Statistics assuming Lognormal Distribution											

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	A	B	C	D	E	F	G	H	I	J	K	L
6533	95% UTL with 95% Coverage					29.57	90% Percentile (z)					25.4
6534	95% UPL (t)					28.44	95% Percentile (z)					28.38
6535	95% USL					52.05	99% Percentile (z)					34.96
6536												
6537	Nonparametric Distribution Free Background Statistics											
6538	Data do not follow a Discernible Distribution											
6539												
6540	Nonparametric Upper Limits for Background Threshold Values											
6541	Order of Statistic, order					378	95% UTL with 95% Coverage					26.4
6542	Approx, f used to compute achieved CC					1.417	Approximate Actual Confidence Coefficient achieved by UTL					0.924
6543							Approximate Sample Size needed to achieve specified CC					385
6544	95% Percentile Bootstrap UTL with 95% Coverage					26.36	95% BCA Bootstrap UTL with 95% Coverage					26.3
6545	95% UPL					25.75	90% Percentile					23.51
6546	90% Chebyshev UPL					39.55	95% Percentile					25.61
6547	95% Chebyshev UPL					49.29	99% Percentile					30.84
6548	95% USL					110						
6549												
6550	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
6551	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
6552	and consists of observations collected from clean unimpacted locations.											
6553	The use of USL tends to provide a balance between false positives and false negatives provided the data											
6554	represents a background data set and when many onsite observations need to be compared with the BTV.											
6555												
6556	NE_Pb <71											
6557												
6558	General Statistics											
6559	Total Number of Observations					389	Number of Distinct Observations					162
6560	Minimum					8.9	First Quartile					14.3
6561	Second Largest					35.8	Median					17.9
6562	Maximum					70.3	Third Quartile					20.9
6563	Mean					17.81	SD					5.434
6564	Coefficient of Variation					0.305	Skewness					2.406
6565	Mean of logged Data					2.838	SD of logged Data					0.291
6566												
6567	Critical Values for Background Threshold Values (BTVs)											
6568	Tolerance Factor K (For UTL)					1.779	d2max (for USL)					3.626
6569												
6570	Normal GOF Test											
6571	Shapiro Wilk Test Statistic					0.892	Normal GOF Test					
6572	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
6573	Lilliefors Test Statistic					0.0614	Lilliefors GOF Test					
6574	1% Lilliefors Critical Value					0.0524	Data Not Normal at 1% Significance Level					
6575	Data Not Normal at 1% Significance Level											
6576												
6577	Background Statistics Assuming Normal Distribution											
6578	95% UTL with 95% Coverage					27.48	90% Percentile (z)					24.78
6579	95% UPL (t)					26.78	95% Percentile (z)					26.75
6580	95% USL					37.52	99% Percentile (z)					30.45
6581												
6582	Gamma GOF Test											
6583	A-D Test Statistic					2.638	Anderson-Darling Gamma GOF Test					
6584	5% A-D Critical Value					0.754	Data Not Gamma Distributed at 5% Significance Level					
6585	K-S Test Statistic					0.0592	Kolmogorov-Smirnov Gamma GOF Test					
6586	5% K-S Critical Value					0.0459	Data Not Gamma Distributed at 5% Significance Level					
6587	Data Not Gamma Distributed at 5% Significance Level											
6588												
6589	Gamma Statistics											
6590	k hat (MLE)					12.03	k star (bias corrected MLE)					11.93
6591	Theta hat (MLE)					1.481	Theta star (bias corrected MLE)					1.493
6592	nu hat (MLE)					9356	nu star (bias corrected)					9285
6593	MLE Mean (bias corrected)					17.81	MLE Sd (bias corrected)					5.156
6594												
6595	Background Statistics Assuming Gamma Distribution											
6596	95% Wilson Hilferty (WH) Approx. Gamma UPL					27.04	90% Percentile					24.66
6597	95% Hawkins Wixley (HW) Approx. Gamma UPL					27.16	95% Percentile					27.05
6598	95% WH Approx. Gamma UTL with 95% Coverage					27.92	99% Percentile					31.94
6599	95% HW Approx. Gamma UTL with 95% Coverage					28.07						
6600	95% WH USL					42.78	95% HW USL					44.01
6601												
6602	Lognormal GOF Test											
6603	Shapiro Wilk Test Statistic					0.96	Shapiro Wilk Lognormal GOF Test					

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	A	B	C	D	E	F	G	H	I	J	K	L	
6604	10% Shapiro Wilk P Value					7.7437E-9	Data Not Lognormal at 10% Significance Level						
6605	Lilliefors Test Statistic					0.0785	Lilliefors Lognormal GOF Test						
6606	10% Lilliefors Critical Value					0.0415	Data Not Lognormal at 10% Significance Level						
6607	Data Not Lognormal at 10% Significance Level												
6608													
6609	Background Statistics assuming Lognormal Distribution												
6610	95% UTL with		95% Coverage		28.68						90% Percentile (z)	24.81	
6611			95% UPL (t)		27.63						95% Percentile (z)	27.58	
6612			95% USL		49.14						99% Percentile (z)	33.64	
6613													
6614	Nonparametric Distribution Free Background Statistics												
6615	Data do not follow a Discernible Distribution												
6616													
6617	Nonparametric Upper Limits for Background Threshold Values												
6618	Order of Statistic, order					377	95% UTL with 95% Coverage					26.4	
6619	Approx, f used to compute achieved CC					1.414	Approximate Actual Confidence Coefficient achieved by UTL					0.923	
6620							Approximate Sample Size needed to achieve specified CC					385	
6621	95% Percentile Bootstrap UTL with		95% Coverage		26.3	95% BCA Bootstrap UTL with 95% Coverage					26.3		
6622			95% UPL		25.6						90% Percentile	23.5	
6623			90% Chebyshev UPL		34.14						95% Percentile	25.5	
6624			95% Chebyshev UPL		41.53						99% Percentile	29.37	
6625			95% USL		70.3								
6626													
6627	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
6628	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
6629	and consists of observations collected from clean unimpacted locations.												
6630	The use of USL tends to provide a balance between false positives and false negatives provided the data												
6631	represents a background data set and when many onsite observations need to be compared with the BTV.												
6632													
6633	NE_Pb <27												
6634													
6635	General Statistics												
6636	Total Number of Observations					379	Number of Distinct Observations					152	
6637	Minimum					8.9	First Quartile					14.1	
6638	Second Largest					26.4	Median					17.8	
6639	Maximum					26.8	Third Quartile					20.8	
6640	Mean					17.39	SD					4.395	
6641	Coefficient of Variation					0.253	Skewness					-0.125	
6642	Mean of logged Data					2.821	SD of logged Data					0.273	
6643													
6644	Critical Values for Background Threshold Values (BTVs)												
6645	Tolerance Factor K (For UTL)					1.781	d2max (for USL)					3.619	
6646													
6647	Normal GOF Test												
6648	Shapiro Wilk Test Statistic					0.952	Normal GOF Test						
6649	1% Shapiro Wilk P Value					2.168E-13	Data Not Normal at 1% Significance Level						
6650	Lilliefors Test Statistic					0.0575	Lilliefors GOF Test						
6651	1% Lilliefors Critical Value					0.0531	Data Not Normal at 1% Significance Level						
6652	Data Not Normal at 1% Significance Level												
6653													
6654	Background Statistics Assuming Normal Distribution												
6655	95% UTL with		95% Coverage		25.22						90% Percentile (z)	23.03	
6656			95% UPL (t)		24.65						95% Percentile (z)	24.62	
6657			95% USL		33.3						99% Percentile (z)	27.62	
6658													
6659	Gamma GOF Test												
6660	A-D Test Statistic					4.466	Anderson-Darling Gamma GOF Test						
6661	5% A-D Critical Value					0.753	Data Not Gamma Distributed at 5% Significance Level						
6662	K-S Test Statistic					0.0795	Kolmogorov-Smirnov Gamma GOF Test						
6663	5% K-S Critical Value					0.0466	Data Not Gamma Distributed at 5% Significance Level						
6664	Data Not Gamma Distributed at 5% Significance Level												
6665													
6666	Gamma Statistics												
6667	k hat (MLE)					14.43	k star (bias corrected MLE)					14.32	
6668	Theta hat (MLE)					1.205	Theta star (bias corrected MLE)					1.215	
6669	nu hat (MLE)					10938	nu star (bias corrected)					10853	
6670	MLE Mean (bias corrected)					17.39	MLE Sd (bias corrected)					4.596	
6671													
6672	Background Statistics Assuming Gamma Distribution												
6673	95% Wilson Hilferty (WH) Approx. Gamma UPL					25.6	90% Percentile					23.48	
6674	95% Hawkins Wixley (HW) Approx. Gamma UPL					25.76	95% Percentile					25.58	

	A	B	C	D	E	F	G	H	I	J	K	L
6675	95% WH Approx. Gamma UTL with 95% Coverage					26.38	99% Percentile					29.83
6676	95% HW Approx. Gamma UTL with 95% Coverage					26.58						
6677	95% WH USL					39.14	95% HW USL					40.31
6678												
6679	Lognormal GOF Test											
6680	Shapiro Wilk Test Statistic					0.927	Shapiro Wilk Lognormal GOF Test					
6681	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
6682	Lilliefors Test Statistic					0.0934	Lilliefors Lognormal GOF Test					
6683	10% Lilliefors Critical Value					0.042	Data Not Lognormal at 10% Significance Level					
6684	Data Not Lognormal at 10% Significance Level											
6685												
6686	Background Statistics assuming Lognormal Distribution											
6687	95% UTL with	95% Coverage				27.29	90% Percentile (z)					23.81
6688		95% UPL (t)				26.34	95% Percentile (z)					26.29
6689		95% USL				45.03	99% Percentile (z)					31.66
6690												
6691	Nonparametric Distribution Free Background Statistics											
6692	Data do not follow a Discernible Distribution											
6693												
6694	Nonparametric Upper Limits for Background Threshold Values											
6695	Order of Statistic, order					368	95% UTL with 95% Coverage					25.2
6696	Approx, f used to compute achieved CC					1.486	Approximate Actual Confidence Coefficient achieved by UTL					0.943
6697							Approximate Sample Size needed to achieve specified CC					361
6698	95% Percentile Bootstrap UTL with	95% Coverage				24.91	95% BCA Bootstrap UTL with	95% Coverage				24.81
6699		95% UPL				24.2		90% Percentile				22.72
6700		90% Chebyshev UPL				30.6		95% Percentile				24.11
6701		95% Chebyshev UPL				36.58		99% Percentile				26.3
6702		95% USL				26.8						
6703												
6704	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
6705	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
6706	and consists of observations collected from clean unimpacted locations.											
6707	The use of USL tends to provide a balance between false positives and false negatives provided the data											
6708	represents a background data set and when many onsite observations need to be compared with the BTV.											
6709												
6710	NH_As											
6711												
6712	General Statistics											
6713	Total Number of Observations					43	Number of Distinct Observations					37
6714	Minimum					0.8	First Quartile					2.9
6715	Second Largest					54	Median					5.1
6716	Maximum					103	Third Quartile					8.5
6717	Mean					8.986	SD					16.83
6718	Coefficient of Variation					1.872	Skewness					4.805
6719	Mean of logged Data					1.618	SD of logged Data					0.938
6720												
6721	Critical Values for Background Threshold Values (BTVs)											
6722	Tolerance Factor K (For UTL)					2.097	d2max (for USL)					2.897
6723												
6724	Normal GOF Test											
6725	Shapiro Wilk Test Statistic					0.413	Shapiro Wilk GOF Test					
6726	1% Shapiro Wilk Critical Value					0.923	Data Not Normal at 1% Significance Level					
6727	Lilliefors Test Statistic					0.331	Lilliefors GOF Test					
6728	1% Lilliefors Critical Value					0.156	Data Not Normal at 1% Significance Level					
6729	Data Not Normal at 1% Significance Level											
6730												
6731	Background Statistics Assuming Normal Distribution											
6732	95% UTL with	95% Coverage				44.27	90% Percentile (z)					30.55
6733		95% UPL (t)				37.61	95% Percentile (z)					36.66
6734		95% USL				57.73	99% Percentile (z)					48.13
6735												
6736	Gamma GOF Test											
6737	A-D Test Statistic					2.468	Anderson-Darling Gamma GOF Test					
6738	5% A-D Critical Value					0.778	Data Not Gamma Distributed at 5% Significance Level					
6739	K-S Test Statistic					0.18	Kolmogorov-Smirnov Gamma GOF Test					
6740	5% K-S Critical Value					0.139	Data Not Gamma Distributed at 5% Significance Level					
6741	Data Not Gamma Distributed at 5% Significance Level											
6742												
6743	Gamma Statistics											
6744	k hat (MLE)					0.999	k star (bias corrected MLE)					0.945
6745	Theta hat (MLE)					8.993	Theta star (bias corrected MLE)					9.509

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6746	nu hat (MLE)					85.93	nu star (bias corrected)					81.27
6747	MLE Mean (bias corrected)					8.986	MLE Sd (bias corrected)					9.244
6748												
6749	Background Statistics Assuming Gamma Distribution											
6750	95% Wilson Hiferty (WH) Approx. Gamma UPL					25.74	90% Percentile					20.98
6751	95% Hawkins Wixley (HW) Approx. Gamma UPL					25.03	95% Percentile					27.47
6752	95% WH Approx. Gamma UTL with 95% Coverage					33.36	99% Percentile					42.58
6753	95% HW Approx. Gamma UTL with 95% Coverage					33.09						
6754	95% WH USL					53.07	95% HW USL					55.14
6755												
6756	Lognormal GOF Test											
6757	Shapiro Wilk Test Statistic					0.953	Shapiro Wilk Lognormal GOF Test					
6758	10% Shapiro Wilk Critical Value					0.951	Data appear Lognormal at 10% Significance Level					
6759	Lilliefors Test Statistic					0.085	Lilliefors Lognormal GOF Test					
6760	10% Lilliefors Critical Value					0.123	Data appear Lognormal at 10% Significance Level					
6761	Data appear Lognormal at 10% Significance Level											
6762												
6763	Background Statistics assuming Lognormal Distribution											
6764	95% UTL with 95% Coverage					36.02	90% Percentile (z)					16.77
6765	95% UPL (t)					24.86	95% Percentile (z)					23.57
6766	95% USL					76.26	99% Percentile (z)					44.66
6767												
6768	Nonparametric Distribution Free Background Statistics											
6769	Data appear Lognormal at 10% Significance Level											
6770												
6771	Nonparametric Upper Limits for Background Threshold Values											
6772	Order of Statistic, order					43	95% UTL with 95% Coverage					103
6773	Approx, f used to compute achieved CC					2.263	Approximate Actual Confidence Coefficient achieved by UTL					0.89
6774							Approximate Sample Size needed to achieve specified CC					59
6775	95% Percentile Bootstrap UTL with 95% Coverage					98.1	95% BCA Bootstrap UTL with 95% Coverage					94.1
6776	95% UPL					46.08	90% Percentile					13.36
6777	90% Chebyshev UPL					60.05	95% Percentile					14.36
6778	95% Chebyshev UPL					83.18	99% Percentile					82.42
6779	95% USL					103						
6780												
6781	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
6782	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
6783	and consists of observations collected from clean unimpacted locations.											
6784	The use of USL tends to provide a balance between false positives and false negatives provided the data											
6785	represents a background data set and when many onsite observations need to be compared with the BTV.											
6786												
6787	NH_As <55											
6788												
6789	General Statistics											
6790	Total Number of Observations					42	Number of Distinct Observations					36
6791	Minimum					0.8	First Quartile					2.85
6792	Second Largest					14.4	Median					5.1
6793	Maximum					54	Third Quartile					7.825
6794	Mean					6.748	SD					8.326
6795	Coefficient of Variation					1.234	Skewness					4.674
6796	Mean of logged Data					1.546	SD of logged Data					0.821
6797												
6798	Critical Values for Background Threshold Values (BTVs)											
6799	Tolerance Factor K (For UTL)					2.104	d2max (for USL)					2.887
6800												
6801	Normal GOF Test											
6802	Shapiro Wilk Test Statistic					0.526	Shapiro Wilk GOF Test					
6803	1% Shapiro Wilk Critical Value					0.922	Data Not Normal at 1% Significance Level					
6804	Lilliefors Test Statistic					0.238	Lilliefors GOF Test					
6805	1% Lilliefors Critical Value					0.157	Data Not Normal at 1% Significance Level					
6806	Data Not Normal at 1% Significance Level											
6807												
6808	Background Statistics Assuming Normal Distribution											
6809	95% UTL with 95% Coverage					24.26	90% Percentile (z)					17.42
6810	95% UPL (t)					20.92	95% Percentile (z)					20.44
6811	95% USL					30.79	99% Percentile (z)					26.12
6812												
6813	Gamma GOF Test											
6814	A-D Test Statistic					0.76	Anderson-Darling Gamma GOF Test					
6815	5% A-D Critical Value					0.766	Detected data appear Gamma Distributed at 5% Significance Level					
6816	K-S Test Statistic					0.113	Kolmogorov-Smirnov Gamma GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L	
6817	5% K-S Critical Value					0.139	Detected data appear Gamma Distributed at 5% Significance Level						
6818	Detected data appear Gamma Distributed at 5% Significance Level												
6819													
6820	Gamma Statistics												
6821	k hat (MLE)					1.522	k star (bias corrected MLE)					1.429	
6822	Theta hat (MLE)					4.432	Theta star (bias corrected MLE)					4.72	
6823	nu hat (MLE)					127.9	nu star (bias corrected)					120.1	
6824	MLE Mean (bias corrected)					6.748	MLE Sd (bias corrected)					5.644	
6825													
6826	Background Statistics Assuming Gamma Distribution												
6827	95% Wilson Hilferty (WH) Approx. Gamma UPL					17.62	90% Percentile					14.23	
6828	95% Hawkins Wixley (HW) Approx. Gamma UPL					17.67	95% Percentile					17.86	
6829	95% WH Approx. Gamma UTL with 95% Coverage					22.08	99% Percentile					26.1	
6830	95% HW Approx. Gamma UTL with 95% Coverage					22.55							
6831	95% WH USL					32.86	95% HW USL					34.93	
6832													
6833	Lognormal GOF Test												
6834	Shapiro Wilk Test Statistic					0.941	Shapiro Wilk Lognormal GOF Test						
6835	10% Shapiro Wilk Critical Value					0.951	Data Not Lognormal at 10% Significance Level						
6836	Lilliefors Test Statistic					0.0642	Lilliefors Lognormal GOF Test						
6837	10% Lilliefors Critical Value					0.124	Data appear Lognormal at 10% Significance Level						
6838	Data appear Approximate Lognormal at 10% Significance Level												
6839													
6840	Background Statistics assuming Lognormal Distribution												
6841	95% UTL with 95% Coverage					26.37	90% Percentile (z)					13.43	
6842	95% UPL (t)					18.98	95% Percentile (z)					18.1	
6843	95% USL					50.16	99% Percentile (z)					31.65	
6844													
6845	Nonparametric Distribution Free Background Statistics												
6846	Data appear Gamma Distributed at 5% Significance Level												
6847													
6848	Nonparametric Upper Limits for Background Threshold Values												
6849	Order of Statistic, order					42	95% UTL with 95% Coverage					54	
6850	Approx, f used to compute achieved CC					2.211	Approximate Actual Confidence Coefficient achieved by UTL					0.884	
6851							Approximate Sample Size needed to achieve specified CC					59	
6852	95% Percentile Bootstrap UTL with 95% Coverage					52	95% BCA Bootstrap UTL with 95% Coverage					52	
6853	95% UPL					14.34	90% Percentile					11.18	
6854	90% Chebyshev UPL					32.02	95% Percentile					14	
6855	95% Chebyshev UPL					43.47	99% Percentile					37.76	
6856	95% USL					54							
6857													
6858	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
6859	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
6860	and consists of observations collected from clean unimpacted locations.												
6861	The use of USL tends to provide a balance between false positives and false negatives provided the data												
6862	represents a background data set and when many onsite observations need to be compared with the BTV.												
6863													
6864	NH_As <14												
6865													
6866	General Statistics												
6867	Total Number of Observations					39	Number of Distinct Observations					33	
6868	Minimum					0.8	First Quartile					2.75	
6869	Second Largest					11.2	Median					4.5	
6870	Maximum					13.9	Third Quartile					6.8	
6871	Mean					5.154	SD					3.241	
6872	Coefficient of Variation					0.629	Skewness					0.87	
6873	Mean of logged Data					1.427	SD of logged Data					0.7	
6874													
6875	Critical Values for Background Threshold Values (BTVs)												
6876	Tolerance Factor K (For UTL)					2.124	d2max (for USL)					2.857	
6877													
6878	Normal GOF Test												
6879	Shapiro Wilk Test Statistic					0.923	Shapiro Wilk GOF Test						
6880	1% Shapiro Wilk Critical Value					0.917	Data appear Normal at 1% Significance Level						
6881	Lilliefors Test Statistic					0.125	Lilliefors GOF Test						
6882	1% Lilliefors Critical Value					0.163	Data appear Normal at 1% Significance Level						
6883	Data appear Normal at 1% Significance Level												
6884													
6885	Background Statistics Assuming Normal Distribution												
6886	95% UTL with 95% Coverage					12.04	90% Percentile (z)					9.307	
6887	95% UPL (t)					10.69	95% Percentile (z)					10.48	

	A	B	C	D	E	F	G	H	I	J	K	L
6888	95% USL					14.41	99% Percentile (z)					12.69
6889												
6890	Gamma GOF Test											
6891	A-D Test Statistic					0.194	Anderson-Darling Gamma GOF Test					
6892	5% A-D Critical Value					0.757	Detected data appear Gamma Distributed at 5% Significance Level					
6893	K-S Test Statistic					0.0649	Kolmogorov-Smirnov Gamma GOF Test					
6894	5% K-S Critical Value					0.143	Detected data appear Gamma Distributed at 5% Significance Level					
6895	Detected data appear Gamma Distributed at 5% Significance Level											
6896												
6897	Gamma Statistics											
6898	k hat (MLE)					2.501	k star (bias corrected MLE)					2.326
6899	Theta hat (MLE)					2.061	Theta star (bias corrected MLE)					2.216
6900	nu hat (MLE)					195.1	nu star (bias corrected)					181.4
6901	MLE Mean (bias corrected)					5.154	MLE Sd (bias corrected)					3.38
6902												
6903	Background Statistics Assuming Gamma Distribution											
6904	95% Wilson Hilferty (WH) Approx. Gamma UPL					11.84	90% Percentile					9.678
6905	95% Hawkins Wixley (HW) Approx. Gamma UPL					12.17	95% Percentile					11.66
6906	95% WH Approx. Gamma UTL with 95% Coverage					14.4	99% Percentile					16.03
6907	95% HW Approx. Gamma UTL with 95% Coverage					15.06						
6908	95% WH USL					19.75	95% HW USL					21.35
6909												
6910	Lognormal GOF Test											
6911	Shapiro Wilk Test Statistic					0.967	Shapiro Wilk Lognormal GOF Test					
6912	10% Shapiro Wilk Critical Value					0.948	Data appear Lognormal at 10% Significance Level					
6913	Lilliefors Test Statistic					0.101	Lilliefors Lognormal GOF Test					
6914	10% Lilliefors Critical Value					0.129	Data appear Lognormal at 10% Significance Level					
6915	Data appear Lognormal at 10% Significance Level											
6916												
6917	Background Statistics assuming Lognormal Distribution											
6918	95% UTL with 95% Coverage					18.43	90% Percentile (z)					10.22
6919	95% UPL (t)					13.76	95% Percentile (z)					13.17
6920	95% USL					30.79	99% Percentile (z)					21.23
6921												
6922	Nonparametric Distribution Free Background Statistics											
6923	Data appear Normal at 1% Significance Level											
6924												
6925	Nonparametric Upper Limits for Background Threshold Values											
6926	Order of Statistic, order					39	95% UTL with 95% Coverage					13.9
6927	Approx, f used to compute achieved CC					2.053	Approximate Actual Confidence Coefficient achieved by UTL					0.865
6928							Approximate Sample Size needed to achieve specified CC					59
6929	95% Percentile Bootstrap UTL with 95% Coverage					13.9	95% BCA Bootstrap UTL with 95% Coverage					13.9
6930	95% UPL					11.2	90% Percentile					10.28
6931	90% Chebyshev UPL					15	95% Percentile					11.02
6932	95% Chebyshev UPL					19.46	99% Percentile					12.87
6933	95% USL					13.9						
6934												
6935	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
6936	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
6937	and consists of observations collected from clean unimpacted locations.											
6938	The use of USL tends to provide a balance between false positives and false negatives provided the data											
6939	represents a background data set and when many onsite observations need to be compared with the BTV.											
6940												
6941	NH_Pb											
6942												
6943	General Statistics											
6944	Total Number of Observations					43	Number of Distinct Observations					43
6945	Minimum					17.8	First Quartile					25.7
6946	Second Largest					153	Median					33.7
6947	Maximum					174	Third Quartile					42
6948	Mean					44.84	SD					33.86
6949	Coefficient of Variation					0.755	Skewness					2.429
6950	Mean of logged Data					3.625	SD of logged Data					0.55
6951												
6952	Critical Values for Background Threshold Values (BTVs)											
6953	Tolerance Factor K (For UTL)					2.097	d2max (for USL)					2.897
6954												
6955	Normal GOF Test											
6956	Shapiro Wilk Test Statistic					0.69	Shapiro Wilk GOF Test					
6957	1% Shapiro Wilk Critical Value					0.923	Data Not Normal at 1% Significance Level					
6958	Lilliefors Test Statistic					0.302	Lilliefors GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L	
6959	1% Lilliefors Critical Value					0.156	Data Not Normal at 1% Significance Level						
6960	Data Not Normal at 1% Significance Level												
6961													
6962	Background Statistics Assuming Normal Distribution												
6963	95% UTL with		95% Coverage	115.9							90% Percentile (z)	88.23	
6964			95% UPL (t)	102.5							95% Percentile (z)	100.5	
6965			95% USL	142.9							99% Percentile (z)	123.6	
6966													
6967	Gamma GOF Test												
6968			A-D Test Statistic	2.465		Anderson-Darling Gamma GOF Test							
6969			5% A-D Critical Value	0.755		Data Not Gamma Distributed at 5% Significance Level							
6970			K-S Test Statistic	0.228		Kolmogorov-Smirnov Gamma GOF Test							
6971			5% K-S Critical Value	0.136		Data Not Gamma Distributed at 5% Significance Level							
6972	Data Not Gamma Distributed at 5% Significance Level												
6973													
6974	Gamma Statistics												
6975			k hat (MLE)	2.965							k star (bias corrected MLE)	2.774	
6976			Theta hat (MLE)	15.12							Theta star (bias corrected MLE)	16.17	
6977			nu hat (MLE)	255							nu star (bias corrected)	238.5	
6978			MLE Mean (bias corrected)	44.84							MLE Sd (bias corrected)	26.92	
6979													
6980	Background Statistics Assuming Gamma Distribution												
6981	95% Wilson Hilferty (WH) Approx.		Gamma UPL	96.49							90% Percentile	80.93	
6982	95% Hawkins Wixley (HW) Approx.		Gamma UPL	96.09							95% Percentile	96.27	
6983	95% WH Approx.		Gamma UTL with	95% Coverage	114.9							99% Percentile	129.7
6984	95% HW Approx.		Gamma UTL with	95% Coverage	115.4								
6985			95% WH USL	158.8							95% HW USL	163.3	
6986													
6987	Lognormal GOF Test												
6988			Shapiro Wilk Test Statistic	0.894		Shapiro Wilk Lognormal GOF Test							
6989			10% Shapiro Wilk Critical Value	0.951		Data Not Lognormal at 10% Significance Level							
6990			Lilliefors Test Statistic	0.178		Lilliefors Lognormal GOF Test							
6991			10% Lilliefors Critical Value	0.123		Data Not Lognormal at 10% Significance Level							
6992	Data Not Lognormal at 10% Significance Level												
6993													
6994	Background Statistics assuming Lognormal Distribution												
6995	95% UTL with		95% Coverage	118.8							90% Percentile (z)	75.91	
6996			95% UPL (t)	95.61							95% Percentile (z)	92.68	
6997			95% USL	184.5							99% Percentile (z)	134.8	
6998													
6999	Nonparametric Distribution Free Background Statistics												
7000	Data do not follow a Discernible Distribution												
7001													
7002	Nonparametric Upper Limits for Background Threshold Values												
7003	Order of Statistic, order			43		95% UTL with 95% Coverage					174		
7004	Approx, f used to compute achieved CC			2.263		Approximate Actual Confidence Coefficient achieved by UTL					0.89		
7005						Approximate Sample Size needed to achieve specified CC					59		
7006	95% Percentile Bootstrap UTL with		95% Coverage	171.9		95% BCA Bootstrap UTL with 95% Coverage					167.8		
7007			95% UPL	144.8							90% Percentile	80.3	
7008			90% Chebyshev UPL	147.6							95% Percentile	110.2	
7009			95% Chebyshev UPL	194.1							99% Percentile	165.2	
7010			95% USL	174									
7011													
7012	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
7013	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
7014	and consists of observations collected from clean unimpacted locations.												
7015	The use of USL tends to provide a balance between false positives and false negatives provided the data												
7016	represents a background data set and when many onsite observations need to be compared with the BTV.												
7017													
7018	NH_Pb <94												
7019													
7020	General Statistics												
7021	Total Number of Observations			40		Number of Distinct Observations					40		
7022	Minimum			17.8		First Quartile					25.18		
7023	Second Largest			81.5		Median					32.25		
7024	Maximum			93.7		Third Quartile					40.63		
7025	Mean			37.23		SD					18.22		
7026	Coefficient of Variation			0.489		Skewness					1.635		
7027	Mean of logged Data			3.524		SD of logged Data					0.416		
7028													
7029	Critical Values for Background Threshold Values (BTVs)												

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	A	B	C	D	E	F	G	H	I	J	K	L
7030	Tolerance Factor K (For UTL)					2.117	d2max (for USL)					2.868
7031												
7032	Normal GOF Test											
7033	Shapiro Wilk Test Statistic					0.806	Shapiro Wilk GOF Test					
7034	1% Shapiro Wilk Critical Value					0.919	Data Not Normal at 1% Significance Level					
7035	Lilliefors Test Statistic					0.214	Lilliefors GOF Test					
7036	1% Lilliefors Critical Value					0.162	Data Not Normal at 1% Significance Level					
7037	Data Not Normal at 1% Significance Level											
7038												
7039	Background Statistics Assuming Normal Distribution											
7040	95% UTL with		95% Coverage		75.8	90% Percentile (z)					60.58	
7041			95% UPL (t)		68.31	95% Percentile (z)					67.2	
7042			95% USL		89.47	99% Percentile (z)					79.61	
7043												
7044	Gamma GOF Test											
7045	A-D Test Statistic					1.336	Anderson-Darling Gamma GOF Test					
7046	5% A-D Critical Value					0.751	Data Not Gamma Distributed at 5% Significance Level					
7047	K-S Test Statistic					0.151	Kolmogorov-Smirnov Gamma GOF Test					
7048	5% K-S Critical Value					0.14	Data Not Gamma Distributed at 5% Significance Level					
7049	Data Not Gamma Distributed at 5% Significance Level											
7050												
7051	Gamma Statistics											
7052	k hat (MLE)					5.55	k star (bias corrected MLE)					5.15
7053	Theta hat (MLE)					6.708	Theta star (bias corrected MLE)					7.228
7054	nu hat (MLE)					444	nu star (bias corrected)					412
7055	MLE Mean (bias corrected)					37.23	MLE Sd (bias corrected)					16.4
7056												
7057	Background Statistics Assuming Gamma Distribution											
7058	95% Wilson Hilferty (WH) Approx. Gamma UPL					68.15	90% Percentile					59.18
7059	95% Hawkins Wixley (HW) Approx. Gamma UPL					68.29	95% Percentile					67.66
7060	95% WH Approx. Gamma UTL with		95% Coverage		78.49	99% Percentile					85.54	
7061	95% HW Approx. Gamma UTL with		95% Coverage		79.15							
7062			95% WH USL		99.92	95% HW USL					102.2	
7063												
7064	Lognormal GOF Test											
7065	Shapiro Wilk Test Statistic					0.932	Shapiro Wilk Lognormal GOF Test					
7066	10% Shapiro Wilk Critical Value					0.949	Data Not Lognormal at 10% Significance Level					
7067	Lilliefors Test Statistic					0.12	Lilliefors Lognormal GOF Test					
7068	10% Lilliefors Critical Value					0.128	Data appear Lognormal at 10% Significance Level					
7069	Data appear Approximate Lognormal at 10% Significance Level											
7070												
7071	Background Statistics assuming Lognormal Distribution											
7072	95% UTL with		95% Coverage		81.91	90% Percentile (z)					57.85	
7073			95% UPL (t)		69.02	95% Percentile (z)					67.29	
7074			95% USL		111.9	99% Percentile (z)					89.37	
7075												
7076	Nonparametric Distribution Free Background Statistics											
7077	Data appear Approximate Lognormal at 10% Significance Level											
7078												
7079	Nonparametric Upper Limits for Background Threshold Values											
7080	Order of Statistic, order					40	95% UTL with 95% Coverage					93.7
7081	Approx, f used to compute achieved CC					2.105	Approximate Actual Confidence Coefficient achieved by UTL					0.871
7082							Approximate Sample Size needed to achieve specified CC					59
7083	95% Percentile Bootstrap UTL with		95% Coverage		93.7	95% BCA Bootstrap UTL with		95% Coverage		93.7		
7084			95% UPL		81.2			90% Percentile		68.73		
7085			90% Chebyshev UPL		92.56			95% Percentile		75.8		
7086			95% Chebyshev UPL		117.6			99% Percentile		88.94		
7087			95% USL		93.7							
7088												
7089	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
7090	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
7091	and consists of observations collected from clean unimpacted locations.											
7092	The use of USL tends to provide a balance between false positives and false negatives provided the data											
7093	represents a background data set and when many onsite observations need to be compared with the BTV.											
7094												
7095	NH_Pb <62											
7096												
7097	General Statistics											
7098	Total Number of Observations					35	Number of Distinct Observations					35
7099	Minimum					17.8	First Quartile					24.6
7100	Second Largest					43.9	Median					30.9

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	A	B	C	D	E	F	G	H	I	J	K	L	
7101					Maximum	61.4					Third Quartile	36.45	
7102					Mean	31.33					SD	9.141	
7103					Coefficient of Variation	0.292					Skewness	0.95	
7104					Mean of logged Data	3.405					SD of logged Data	0.284	
7105													
7106	Critical Values for Background Threshold Values (BTVs)												
7107	Tolerance Factor K (For UTL)					2.157						d2max (for USL)	2.812
7108													
7109	Normal GOF Test												
7110	Shapiro Wilk Test Statistic					0.94	Shapiro Wilk GOF Test						
7111	1% Shapiro Wilk Critical Value					0.91	Data appear Normal at 1% Significance Level						
7112	Lilliefors Test Statistic					0.0694	Lilliefors GOF Test						
7113	1% Lilliefors Critical Value					0.172	Data appear Normal at 1% Significance Level						
7114	Data appear Normal at 1% Significance Level												
7115													
7116	Background Statistics Assuming Normal Distribution												
7117	95% UTL with		95% Coverage		51.05						90% Percentile (z)	43.05	
7118			95% UPL (t)		47.01						95% Percentile (z)	46.37	
7119			95% USL		57.04						99% Percentile (z)	52.6	
7120													
7121	Gamma GOF Test												
7122	A-D Test Statistic					0.219	Anderson-Darling Gamma GOF Test						
7123	5% A-D Critical Value					0.748	Detected data appear Gamma Distributed at 5% Significance Level						
7124	K-S Test Statistic					0.0615	Kolmogorov-Smirnov Gamma GOF Test						
7125	5% K-S Critical Value					0.149	Detected data appear Gamma Distributed at 5% Significance Level						
7126	Detected data appear Gamma Distributed at 5% Significance Level												
7127													
7128	Gamma Statistics												
7129	k hat (MLE)					12.85	k star (bias corrected MLE)					11.77	
7130	Theta hat (MLE)					2.438	Theta star (bias corrected MLE)					2.662	
7131	nu hat (MLE)					899.7	nu star (bias corrected)					823.9	
7132	MLE Mean (bias corrected)					31.33	MLE Sd (bias corrected)					9.133	
7133													
7134	Background Statistics Assuming Gamma Distribution												
7135	95% Wilson Hilferty (WH) Approx.		Gamma UPL		48.04						90% Percentile	43.46	
7136	95% Hawkins Wixley (HW) Approx.		Gamma UPL		48.24						95% Percentile	47.71	
7137	95% WH Approx.		Gamma UTL with 95% Coverage		53.44						99% Percentile	56.39	
7138	95% HW Approx.		Gamma UTL with 95% Coverage		53.9								
7139			95% WH USL		62.16						95% HW USL	63.15	
7140													
7141	Lognormal GOF Test												
7142	Shapiro Wilk Test Statistic					0.978	Shapiro Wilk Lognormal GOF Test						
7143	10% Shapiro Wilk Critical Value					0.944	Data appear Lognormal at 10% Significance Level						
7144	Lilliefors Test Statistic					0.0637	Lilliefors Lognormal GOF Test						
7145	10% Lilliefors Critical Value					0.136	Data appear Lognormal at 10% Significance Level						
7146	Data appear Lognormal at 10% Significance Level												
7147													
7148	Background Statistics assuming Lognormal Distribution												
7149	95% UTL with		95% Coverage		55.57						90% Percentile (z)	43.34	
7150			95% UPL (t)		49.01						95% Percentile (z)	48.05	
7151			95% USL		66.91						99% Percentile (z)	58.3	
7152													
7153	Nonparametric Distribution Free Background Statistics												
7154	Data appear Normal at 1% Significance Level												
7155													
7156	Nonparametric Upper Limits for Background Threshold Values												
7157	Order of Statistic, order					35	95% UTL with 95% Coverage					61.4	
7158	Approx, f used to compute achieved CC					1.842	Approximate Actual Confidence Coefficient achieved by UTL					0.834	
7159							Approximate Sample Size needed to achieve specified CC					59	
7160	95% Percentile Bootstrap UTL with		95% Coverage		61.4	95% BCA Bootstrap UTL with 95% Coverage					61.4		
7161			95% UPL		47.4						90% Percentile	41.12	
7162			90% Chebyshev UPL		59.15						95% Percentile	43.13	
7163			95% Chebyshev UPL		71.74						99% Percentile	55.45	
7164			95% USL		61.4								
7165													
7166	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
7167	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
7168	and consists of observations collected from clean unimpacted locations.												
7169	The use of USL tends to provide a balance between false positives and false negatives provided the data												
7170	represents a background data set and when many onsite observations need to be compared with the BTV.												
7171													

	A	B	C	D	E	F	G	H	I	J	K	L
7172	NH_Pb <41											
7173												
7174	General Statistics											
7175	Total Number of Observations					30	Number of Distinct Observations					30
7176	Minimum					17.8	First Quartile					24.03
7177	Second Largest					40	Median					28.6
7178	Maximum					40.5	Third Quartile					34
7179	Mean					28.88	SD					6.634
7180	Coefficient of Variation					0.23	Skewness					0.0715
7181	Mean of logged Data					3.337	SD of logged Data					0.237
7182												
7183	Critical Values for Background Threshold Values (BTVs)											
7184	Tolerance Factor K (For UTL)					2.22	d2max (for USL)					2.745
7185												
7186	Normal GOF Test											
7187	Shapiro Wilk Test Statistic					0.961	Shapiro Wilk GOF Test					
7188	1% Shapiro Wilk Critical Value					0.9	Data appear Normal at 1% Significance Level					
7189	Lilliefors Test Statistic					0.0799	Lilliefors GOF Test					
7190	1% Lilliefors Critical Value					0.185	Data appear Normal at 1% Significance Level					
7191	Data appear Normal at 1% Significance Level											
7192												
7193	Background Statistics Assuming Normal Distribution											
7194	95% UTL with	95% Coverage		43.61				90% Percentile (z)		37.38		
7195		95% UPL (t)		40.34				95% Percentile (z)		39.79		
7196		95% USL		47.09				99% Percentile (z)		44.31		
7197												
7198	Gamma GOF Test											
7199	A-D Test Statistic					0.302	Anderson-Darling Gamma GOF Test					
7200	5% A-D Critical Value					0.744	Detected data appear Gamma Distributed at 5% Significance Level					
7201	K-S Test Statistic					0.0837	Kolmogorov-Smirnov Gamma GOF Test					
7202	5% K-S Critical Value					0.16	Detected data appear Gamma Distributed at 5% Significance Level					
7203	Detected data appear Gamma Distributed at 5% Significance Level											
7204												
7205	Gamma Statistics											
7206	k hat (MLE)					18.99	k star (bias corrected MLE)					17.12
7207	Theta hat (MLE)					1.52	Theta star (bias corrected MLE)					1.687
7208	nu hat (MLE)					1140	nu star (bias corrected)					1027
7209	MLE Mean (bias corrected)					28.88	MLE Sd (bias corrected)					6.981
7210												
7211	Background Statistics Assuming Gamma Distribution											
7212	95% Wilson Hilferty (WH) Approx.	Gamma UPL		41.51				90% Percentile		38.11		
7213	95% Hawkins Wixley (HW) Approx.	Gamma UPL		41.71				95% Percentile		41.24		
7214	95% WH Approx.	Gamma UTL with	95% Coverage	45.89				99% Percentile		47.55		
7215	95% HW Approx.	Gamma UTL with	95% Coverage	46.28								
7216			95% WH USL	50.89				95% HW USL		51.55		
7217												
7218	Lognormal GOF Test											
7219	Shapiro Wilk Test Statistic					0.957	Shapiro Wilk Lognormal GOF Test					
7220	10% Shapiro Wilk Critical Value					0.939	Data appear Lognormal at 10% Significance Level					
7221	Lilliefors Test Statistic					0.0876	Lilliefors Lognormal GOF Test					
7222	10% Lilliefors Critical Value					0.146	Data appear Lognormal at 10% Significance Level					
7223	Data appear Lognormal at 10% Significance Level											
7224												
7225	Background Statistics assuming Lognormal Distribution											
7226	95% UTL with	95% Coverage		47.62				90% Percentile (z)		38.12		
7227		95% UPL (t)		42.37				95% Percentile (z)		41.55		
7228		95% USL		53.94				99% Percentile (z)		48.84		
7229												
7230	Nonparametric Distribution Free Background Statistics											
7231	Data appear Normal at 1% Significance Level											
7232												
7233	Nonparametric Upper Limits for Background Threshold Values											
7234	Order of Statistic, order			30				95% UTL with	95% Coverage		40.5	
7235	Approx, f used to compute achieved CC			1.579				Approximate Actual Confidence Coefficient achieved by UTL			0.785	
7236								Approximate Sample Size needed to achieve specified CC			59	
7237	95% Percentile Bootstrap UTL with	95% Coverage		40.5				95% BCA Bootstrap UTL with	95% Coverage		40.5	
7238		95% UPL		40.23					90% Percentile		36.76	
7239		90% Chebyshev UPL		49.11					95% Percentile		39.6	
7240		95% Chebyshev UPL		58.27					99% Percentile		40.36	
7241		95% USL		40.5								
7242												

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	A	B	C	D	E	F	G	H	I	J	K	L
7243	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
7244	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
7245	and consists of observations collected from clean unimpacted locations.											
7246	The use of USL tends to provide a balance between false positives and false negatives provided the data											
7247	represents a background data set and when many onsite observations need to be compared with the BTV.											
7248												
7249	NJ_As											
7250												
7251	General Statistics											
7252	Total Number of Observations					36	Number of Distinct Observations					31
7253	Minimum					0.3	First Quartile					2.625
7254	Second Largest					44.5	Median					4.2
7255	Maximum					72.2	Third Quartile					10.58
7256	Mean					9.097	SD					13.52
7257	Coefficient of Variation					1.486	Skewness					3.563
7258	Mean of logged Data					1.566	SD of logged Data					1.152
7259												
7260	Critical Values for Background Threshold Values (BTVs)											
7261	Tolerance Factor K (For UTL)					2.148	d2max (for USL)					2.824
7262												
7263	Normal GOF Test											
7264	Shapiro Wilk Test Statistic					0.576	Shapiro Wilk GOF Test					
7265	1% Shapiro Wilk Critical Value					0.912	Data Not Normal at 1% Significance Level					
7266	Lilliefors Test Statistic					0.258	Lilliefors GOF Test					
7267	1% Lilliefors Critical Value					0.17	Data Not Normal at 1% Significance Level					
7268	Data Not Normal at 1% Significance Level											
7269												
7270	Background Statistics Assuming Normal Distribution											
7271	95% UTL with		95% Coverage		38.14	90% Percentile (z)					26.42	
7272			95% UPL (t)		32.26	95% Percentile (z)					31.34	
7273			95% USL		47.28	99% Percentile (z)					40.55	
7274												
7275	Gamma GOF Test											
7276	A-D Test Statistic					0.886	Anderson-Darling Gamma GOF Test					
7277	5% A-D Critical Value					0.781	Data Not Gamma Distributed at 5% Significance Level					
7278	K-S Test Statistic					0.166	Kolmogorov-Smirnov Gamma GOF Test					
7279	5% K-S Critical Value					0.152	Data Not Gamma Distributed at 5% Significance Level					
7280	Data Not Gamma Distributed at 5% Significance Level											
7281												
7282	Gamma Statistics											
7283	k hat (MLE)					0.909	k star (bias corrected MLE)					0.852
7284	Theta hat (MLE)					10.01	Theta star (bias corrected MLE)					10.68
7285	nu hat (MLE)					65.45	nu star (bias corrected)					61.33
7286	MLE Mean (bias corrected)					9.097	MLE Sd (bias corrected)					9.857
7287												
7288	Background Statistics Assuming Gamma Distribution											
7289	95% Wilson Hilferty (WH) Approx. Gamma UPL					28.18	90% Percentile					21.79
7290	95% Hawkins Wixley (HW) Approx. Gamma UPL					28.67	95% Percentile					28.85
7291	95% WH Approx. Gamma UTL with		95% Coverage		37.82	99% Percentile					45.46	
7292	95% HW Approx. Gamma UTL with		95% Coverage		39.74							
7293			95% WH USL		56.75	95% HW USL					62.88	
7294												
7295	Lognormal GOF Test											
7296	Shapiro Wilk Test Statistic					0.985	Shapiro Wilk Lognormal GOF Test					
7297	10% Shapiro Wilk Critical Value					0.945	Data appear Lognormal at 10% Significance Level					
7298	Lilliefors Test Statistic					0.0891	Lilliefors Lognormal GOF Test					
7299	10% Lilliefors Critical Value					0.134	Data appear Lognormal at 10% Significance Level					
7300	Data appear Lognormal at 10% Significance Level											
7301												
7302	Background Statistics assuming Lognormal Distribution											
7303	95% UTL with		95% Coverage		56.81	90% Percentile (z)					20.94	
7304			95% UPL (t)		34.4	95% Percentile (z)					31.81	
7305			95% USL		123.6	99% Percentile (z)					69.73	
7306												
7307	Nonparametric Distribution Free Background Statistics											
7308	Data appear Lognormal at 10% Significance Level											
7309												
7310	Nonparametric Upper Limits for Background Threshold Values											
7311	Order of Statistic, order					36	95% UTL with 95% Coverage					72.2
7312	Approx, f used to compute achieved CC					1.895	Approximate Actual Confidence Coefficient achieved by UTL					0.842
7313							Approximate Sample Size needed to achieve specified CC					59

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	A	B	C	D	E	F	G	H	I	J	K	L
7314	95% Percentile Bootstrap UTL with 95% Coverage					72.2	95% BCA Bootstrap UTL with 95% Coverage					72.2
7315	95% UPL					48.66	90% Percentile					16
7316	90% Chebyshev UPL					50.22	95% Percentile					24.55
7317	95% Chebyshev UPL					68.85	99% Percentile					62.51
7318	95% USL					72.2						
7319												
7320	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
7321	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
7322	and consists of observations collected from clean unimpacted locations.											
7323	The use of USL tends to provide a balance between false positives and false negatives provided the data											
7324	represents a background data set and when many onsite observations need to be compared with the BTV.											
7325												
7326	NJ_As <45											
7327												
7328	General Statistics											
7329	Total Number of Observations					35	Number of Distinct Observations					30
7330	Minimum					0.3	First Quartile					2.55
7331	Second Largest					17.9	Median					3.9
7332	Maximum					44.5	Third Quartile					9.8
7333	Mean					7.294	SD					8.229
7334	Coefficient of Variation					1.128	Skewness					2.938
7335	Mean of logged Data					1.488	SD of logged Data					1.069
7336												
7337	Critical Values for Background Threshold Values (BTVs)											
7338	Tolerance Factor K (For UTL)					2.157	d2max (for USL)					2.812
7339												
7340	Normal GOF Test											
7341	Shapiro Wilk Test Statistic					0.706	Shapiro Wilk GOF Test					
7342	1% Shapiro Wilk Critical Value					0.91	Data Not Normal at 1% Significance Level					
7343	Lilliefors Test Statistic					0.234	Lilliefors GOF Test					
7344	1% Lilliefors Critical Value					0.172	Data Not Normal at 1% Significance Level					
7345	Data Not Normal at 1% Significance Level											
7346												
7347	Background Statistics Assuming Normal Distribution											
7348	95% UTL with 95% Coverage					25.05	90% Percentile (z)					17.84
7349	95% UPL (t)					21.41	95% Percentile (z)					20.83
7350	95% USL					30.43	99% Percentile (z)					26.44
7351												
7352	Gamma GOF Test											
7353	A-D Test Statistic					0.47	Anderson-Darling Gamma GOF Test					
7354	5% A-D Critical Value					0.773	Detected data appear Gamma Distributed at 5% Significance Level					
7355	K-S Test Statistic					0.143	Kolmogorov-Smirnov Gamma GOF Test					
7356	5% K-S Critical Value					0.153	Detected data appear Gamma Distributed at 5% Significance Level					
7357	Detected data appear Gamma Distributed at 5% Significance Level											
7358												
7359	Gamma Statistics											
7360	k hat (MLE)					1.14	k star (bias corrected MLE)					1.061
7361	Theta hat (MLE)					6.4	Theta star (bias corrected MLE)					6.874
7362	nu hat (MLE)					79.79	nu star (bias corrected)					74.28
7363	MLE Mean (bias corrected)					7.294	MLE Sd (bias corrected)					7.081
7364												
7365	Background Statistics Assuming Gamma Distribution											
7366	95% Wilson Hilferty (WH) Approx. Gamma UPL					21.49	90% Percentile					16.55
7367	95% Hawkins Wixley (HW) Approx. Gamma UPL					22.23	95% Percentile					21.4
7368	95% WH Approx. Gamma UTL with 95% Coverage					28.31	99% Percentile					32.61
7369	95% HW Approx. Gamma UTL with 95% Coverage					30.21						
7370	95% WH USL					40.84	95% HW USL					45.74
7371												
7372	Lognormal GOF Test											
7373	Shapiro Wilk Test Statistic					0.98	Shapiro Wilk Lognormal GOF Test					
7374	10% Shapiro Wilk Critical Value					0.944	Data appear Lognormal at 10% Significance Level					
7375	Lilliefors Test Statistic					0.086	Lilliefors Lognormal GOF Test					
7376	10% Lilliefors Critical Value					0.136	Data appear Lognormal at 10% Significance Level					
7377	Data appear Lognormal at 10% Significance Level											
7378												
7379	Background Statistics assuming Lognormal Distribution											
7380	95% UTL with 95% Coverage					44.42	90% Percentile (z)					17.42
7381	95% UPL (t)					27.69	95% Percentile (z)					25.69
7382	95% USL					89.41	99% Percentile (z)					53.22
7383												
7384	Nonparametric Distribution Free Background Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L		
7385	Data appear Gamma Distributed at 5% Significance Level													
7386														
7387	Nonparametric Upper Limits for Background Threshold Values													
7388	Order of Statistic, order					35	95% UTL with 95% Coverage					44.5		
7389	Approx. f used to compute achieved CC					1.842	Approximate Actual Confidence Coefficient achieved by UTL					0.834		
7390							Approximate Sample Size needed to achieve specified CC					59		
7391	95% Percentile Bootstrap UTL with 95% Coverage					44.5	95% BCA Bootstrap UTL with 95% Coverage					25.88		
7392						95% UPL	23.22						90% Percentile	15
7393						90% Chebyshev UPL	32.33						95% Percentile	17.27
7394						95% Chebyshev UPL	43.67						99% Percentile	35.46
7395						95% USL	44.5							
7396														
7397	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.													
7398	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers													
7399	and consists of observations collected from clean unimpacted locations.													
7400	The use of USL tends to provide a balance between false positives and false negatives provided the data													
7401	represents a background data set and when many onsite observations need to be compared with the BTV.													
7402														
7403	NJ_As <18													
7404														
7405	General Statistics													
7406	Total Number of Observations					34	Number of Distinct Observations					29		
7407	Minimum					0.3	First Quartile					2.475		
7408	Second Largest					17	Median					3.85		
7409	Maximum					17.9	Third Quartile					9.475		
7410	Mean					6.2	SD					5.157		
7411	Coefficient of Variation					0.832	Skewness					0.918		
7412	Mean of logged Data					1.42	SD of logged Data					1.005		
7413														
7414	Critical Values for Background Threshold Values (BTVs)													
7415	Tolerance Factor K (For UTL)					2.166	d2max (for USL)					2.799		
7416														
7417	Normal GOF Test													
7418	Shapiro Wilk Test Statistic					0.863	Shapiro Wilk GOF Test							
7419	1% Shapiro Wilk Critical Value					0.908	Data Not Normal at 1% Significance Level							
7420	Lilliefors Test Statistic					0.232	Lilliefors GOF Test							
7421	1% Lilliefors Critical Value					0.175	Data Not Normal at 1% Significance Level							
7422	Data Not Normal at 1% Significance Level													
7423														
7424	Background Statistics Assuming Normal Distribution													
7425	95% UTL with 95% Coverage					17.37	90% Percentile (z)					12.81		
7426						95% UPL (t)	15.05	95% Percentile (z)					14.68	
7427						95% USL	20.64	99% Percentile (z)					18.2	
7428														
7429	Gamma GOF Test													
7430	A-D Test Statistic					0.465	Anderson-Darling Gamma GOF Test							
7431	5% A-D Critical Value					0.768	Detected data appear Gamma Distributed at 5% Significance Level							
7432	K-S Test Statistic					0.12	Kolmogorov-Smirnov Gamma GOF Test							
7433	5% K-S Critical Value					0.154	Detected data appear Gamma Distributed at 5% Significance Level							
7434	Detected data appear Gamma Distributed at 5% Significance Level													
7435														
7436	Gamma Statistics													
7437	k hat (MLE)					1.38	k star (bias corrected MLE)					1.277		
7438	Theta hat (MLE)					4.494	Theta star (bias corrected MLE)					4.853		
7439	nu hat (MLE)					93.81	nu star (bias corrected)					86.87		
7440	MLE Mean (bias corrected)					6.2	MLE Sd (bias corrected)					5.486		
7441														
7442	Background Statistics Assuming Gamma Distribution													
7443	95% Wilson Hilferty (WH) Approx. Gamma UPL					17.41	90% Percentile					13.44		
7444	95% Hawkins Wixley (HW) Approx. Gamma UPL					18.23	95% Percentile					17.05		
7445	95% WH Approx. Gamma UTL with 95% Coverage					22.61	99% Percentile					25.3		
7446	95% HW Approx. Gamma UTL with 95% Coverage					24.41								
7447						95% WH USL	31.56	95% HW USL					35.63	
7448														
7449	Lognormal GOF Test													
7450	Shapiro Wilk Test Statistic					0.952	Shapiro Wilk Lognormal GOF Test							
7451	10% Shapiro Wilk Critical Value					0.943	Data appear Lognormal at 10% Significance Level							
7452	Lilliefors Test Statistic					0.101	Lilliefors Lognormal GOF Test							
7453	10% Lilliefors Critical Value					0.137	Data appear Lognormal at 10% Significance Level							
7454	Data appear Lognormal at 10% Significance Level													
7455														

	A	B	C	D	E	F	G	H	I	J	K	L
7456	Background Statistics assuming Lognormal Distribution											
7457	95% UTL with		95% Coverage		36.54				90% Percentile (z)		15.01	
7458			95% UPL (t)		23.26				95% Percentile (z)		21.63	
7459			95% USL		69.05				99% Percentile (z)		42.91	
7460												
7461	Nonparametric Distribution Free Background Statistics											
7462	Data appear Gamma Distributed at 5% Significance Level											
7463												
7464	Nonparametric Upper Limits for Background Threshold Values											
7465	Order of Statistic, order				34				95% UTL with 95% Coverage		17.9	
7466	Approx, f used to compute achieved CC				1.789	Approximate Actual Confidence Coefficient achieved by UTL			0.825			
7467						Approximate Sample Size needed to achieve specified CC			59			
7468	95% Percentile Bootstrap UTL with		95% Coverage		17.9	95% BCA Bootstrap UTL with 95% Coverage			17.32			
7469			95% UPL		17.23				90% Percentile		14.46	
7470			90% Chebyshev UPL		21.9				95% Percentile		15.7	
7471			95% Chebyshev UPL		29.01				99% Percentile		17.6	
7472			95% USL		17.9							
7473												
7474	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
7475	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
7476	and consists of observations collected from clean unpacted locations.											
7477	The use of USL tends to provide a balance between false positives and false negatives provided the data											
7478	represents a background data set and when many onsite observations need to be compared with the BTV.											
7479												
7480	NJ_Pb											
7481												
7482	General Statistics											
7483	Total Number of Observations				36				Number of Distinct Observations		32	
7484	Minimum				1.7				First Quartile		12.58	
7485	Second Largest				325				Median		21.95	
7486	Maximum				398				Third Quartile		39.65	
7487	Mean				50.59				SD		84.31	
7488	Coefficient of Variation				1.666				Skewness		3.18	
7489	Mean of logged Data				3.171				SD of logged Data		1.179	
7490												
7491	Critical Values for Background Threshold Values (BTVs)											
7492	Tolerance Factor K (For UTL)				2.148				d2max (for USL)		2.824	
7493												
7494	Normal GOF Test											
7495	Shapiro Wilk Test Statistic				0.544				Shapiro Wilk GOF Test			
7496	1% Shapiro Wilk Critical Value				0.912				Data Not Normal at 1% Significance Level			
7497	Lilliefors Test Statistic				0.328				Lilliefors GOF Test			
7498	1% Lilliefors Critical Value				0.17				Data Not Normal at 1% Significance Level			
7499	Data Not Normal at 1% Significance Level											
7500												
7501	Background Statistics Assuming Normal Distribution											
7502	95% UTL with		95% Coverage		231.7				90% Percentile (z)		158.6	
7503			95% UPL (t)		195				95% Percentile (z)		189.3	
7504			95% USL		288.7				99% Percentile (z)		246.7	
7505												
7506	Gamma GOF Test											
7507	A-D Test Statistic				2.007				Anderson-Darling Gamma GOF Test			
7508	5% A-D Critical Value				0.786				Data Not Gamma Distributed at 5% Significance Level			
7509	K-S Test Statistic				0.22				Kolmogorov-Smirnov Gamma GOF Test			
7510	5% K-S Critical Value				0.152				Data Not Gamma Distributed at 5% Significance Level			
7511	Data Not Gamma Distributed at 5% Significance Level											
7512												
7513	Gamma Statistics											
7514	k hat (MLE)				0.79				k star (bias corrected MLE)		0.743	
7515	Theta hat (MLE)				64.03				Theta star (bias corrected MLE)		68.11	
7516	nu hat (MLE)				56.89				nu star (bias corrected)		53.48	
7517	MLE Mean (bias corrected)				50.59				MLE Sd (bias corrected)		58.7	
7518												
7519	Background Statistics Assuming Gamma Distribution											
7520	95% Wilson Hilferty (WH) Approx. Gamma UPL				161				90% Percentile		125.2	
7521	95% Hawkins Wixley (HW) Approx. Gamma UPL				160.8				95% Percentile		168.6	
7522	95% WH Approx. Gamma UTL with		95% Coverage		219.5				99% Percentile		271.5	
7523	95% HW Approx. Gamma UTL with		95% Coverage		226.6							
7524			95% WH USL		335.7				95% HW USL		365.9	
7525												
7526	Lognormal GOF Test											

	A	B	C	D	E	F	G	H	I	J	K	L	
7527	Shapiro Wilk Test Statistic					0.96	Shapiro Wilk Lognormal GOF Test						
7528	10% Shapiro Wilk Critical Value					0.945	Data appear Lognormal at 10% Significance Level						
7529	Lilliefors Test Statistic					0.135	Lilliefors Lognormal GOF Test						
7530	10% Lilliefors Critical Value					0.134	Data Not Lognormal at 10% Significance Level						
7531	Data appear Approximate Lognormal at 10% Significance Level												
7532													
7533	Background Statistics assuming Lognormal Distribution												
7534	95% UTL with		95% Coverage	300.5						90% Percentile (z)	108.1		
7535			95% UPL (t)	179.8						95% Percentile (z)	165.9		
7536			95% USL	666.4						99% Percentile (z)	370.7		
7537													
7538	Nonparametric Distribution Free Background Statistics												
7539	Data appear Approximate Lognormal at 10% Significance Level												
7540													
7541	Nonparametric Upper Limits for Background Threshold Values												
7542	Order of Statistic, order			36	95% UTL with		95% Coverage	398					
7543	Approx, f used to compute achieved CC			1.895	Approximate Actual Confidence Coefficient achieved by UTL		0.842						
7544					Approximate Sample Size needed to achieve specified CC		59						
7545	95% Percentile Bootstrap UTL with		95% Coverage	398	95% BCA Bootstrap UTL with		95% Coverage	398					
7546			95% UPL	336			90% Percentile	116					
7547			90% Chebyshev UPL	307			95% Percentile	190.8					
7548			95% Chebyshev UPL	423.2			99% Percentile	372.5					
7549			95% USL	398									
7550													
7551	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
7552	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
7553	and consists of observations collected from clean unimpacted locations.												
7554	The use of USL tends to provide a balance between false positives and false negatives provided the data												
7555	represents a background data set and when many onsite observations need to be compared with the BTV.												
7556													
7557	NJ_Pb <147												
7558													
7559	General Statistics												
7560	Total Number of Observations			34	Number of Distinct Observations			30					
7561	Minimum			1.7	First Quartile			12.53					
7562	Second Largest			126	Median			21.45					
7563	Maximum			146	Third Quartile			34.18					
7564	Mean			32.3	SD			35.43					
7565	Coefficient of Variation			1.097	Skewness			2.094					
7566	Mean of logged Data			3.012	SD of logged Data			1.001					
7567													
7568	Critical Values for Background Threshold Values (BTVs)												
7569	Tolerance Factor K (For UTL)			2.166	d2max (for USL)			2.799					
7570													
7571	Normal GOF Test												
7572	Shapiro Wilk Test Statistic			0.704	Shapiro Wilk GOF Test								
7573	1% Shapiro Wilk Critical Value			0.908	Data Not Normal at 1% Significance Level								
7574	Lilliefors Test Statistic			0.274	Lilliefors GOF Test								
7575	1% Lilliefors Critical Value			0.175	Data Not Normal at 1% Significance Level								
7576	Data Not Normal at 1% Significance Level												
7577													
7578	Background Statistics Assuming Normal Distribution												
7579	95% UTL with		95% Coverage	109.1						90% Percentile (z)	77.7		
7580			95% UPL (t)	93.13						95% Percentile (z)	90.58		
7581			95% USL	131.5						99% Percentile (z)	114.7		
7582													
7583	Gamma GOF Test												
7584	A-D Test Statistic			0.991	Anderson-Darling Gamma GOF Test								
7585	5% A-D Critical Value			0.771	Data Not Gamma Distributed at 5% Significance Level								
7586	K-S Test Statistic			0.175	Kolmogorov-Smirnov Gamma GOF Test								
7587	5% K-S Critical Value			0.155	Data Not Gamma Distributed at 5% Significance Level								
7588	Data Not Gamma Distributed at 5% Significance Level												
7589													
7590	Gamma Statistics												
7591	k hat (MLE)			1.219						k star (bias corrected MLE)	1.131		
7592	Theta hat (MLE)			26.5						Theta star (bias corrected MLE)	28.56		
7593	nu hat (MLE)			82.88						nu star (bias corrected)	76.9		
7594	MLE Mean (bias corrected)			32.3						MLE Sd (bias corrected)	30.38		
7595													
7596	Background Statistics Assuming Gamma Distribution												
7597	95% Wilson Hilferty (WH) Approx. Gamma UPL			92.99						90% Percentile	72.16		

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	A	B	C	D	E	F	G	H	I	J	K	L	
7598	95% Hawkins Wixley (HW) Approx. Gamma UPL					95.31						95% Percentile	92.68
7599	95% WH Approx. Gamma UTL with 95% Coverage					122.2						99% Percentile	139.9
7600	95% HW Approx. Gamma UTL with 95% Coverage					128.9							
7601	95% WH USL					173						95% HW USL	190.5
7602													
7603	Lognormal GOF Test												
7604	Shapiro Wilk Test Statistic					0.962						Shapiro Wilk Lognormal GOF Test	
7605	10% Shapiro Wilk Critical Value					0.943						Data appear Lognormal at 10% Significance Level	
7606	Lilliefors Test Statistic					0.115						Lilliefors Lognormal GOF Test	
7607	10% Lilliefors Critical Value					0.137						Data appear Lognormal at 10% Significance Level	
7608	Data appear Lognormal at 10% Significance Level												
7609													
7610	Background Statistics assuming Lognormal Distribution												
7611	95% UTL with 95% Coverage					177.8						90% Percentile (z)	73.32
7612	95% UPL (t)					113.4						95% Percentile (z)	105.5
7613	95% USL					335.1						99% Percentile (z)	208.7
7614													
7615	Nonparametric Distribution Free Background Statistics												
7616	Data appear Lognormal at 10% Significance Level												
7617													
7618	Nonparametric Upper Limits for Background Threshold Values												
7619	Order of Statistic, order					34						95% UTL with 95% Coverage	146
7620	Approx, f used to compute achieved CC					1.789						Approximate Actual Confidence Coefficient achieved by UTL	0.825
7621												Approximate Sample Size needed to achieve specified CC	59
7622	95% Percentile Bootstrap UTL with 95% Coverage					146						95% BCA Bootstrap UTL with 95% Coverage	146
7623	95% UPL					131						90% Percentile	89.54
7624	90% Chebyshev UPL					140.1						95% Percentile	113
7625	95% Chebyshev UPL					189						99% Percentile	139.4
7626	95% USL					146							
7627													
7628	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
7629	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
7630	and consists of observations collected from clean unimpacted locations.												
7631	The use of USL tends to provide a balance between false positives and false negatives provided the data												
7632	represents a background data set and when many onsite observations need to be compared with the BTV.												
7633													
7634	NJ_Pb <56												
7635													
7636	General Statistics												
7637	Total Number of Observations					30						Number of Distinct Observations	26
7638	Minimum					1.7						First Quartile	12.2
7639	Second Largest					45.9						Median	20.5
7640	Maximum					55.8						Third Quartile	24.08
7641	Mean					20.54						SD	13.12
7642	Coefficient of Variation					0.639						Skewness	0.898
7643	Mean of logged Data					2.776						SD of logged Data	0.805
7644													
7645	Critical Values for Background Threshold Values (BTVs)												
7646	Tolerance Factor K (For UTL)					2.22						d2max (for USL)	2.745
7647													
7648	Normal GOF Test												
7649	Shapiro Wilk Test Statistic					0.93						Shapiro Wilk GOF Test	
7650	1% Shapiro Wilk Critical Value					0.9						Data appear Normal at 1% Significance Level	
7651	Lilliefors Test Statistic					0.16						Lilliefors GOF Test	
7652	1% Lilliefors Critical Value					0.185						Data appear Normal at 1% Significance Level	
7653	Data appear Normal at 1% Significance Level												
7654													
7655	Background Statistics Assuming Normal Distribution												
7656	95% UTL with 95% Coverage					49.67						90% Percentile (z)	37.36
7657	95% UPL (t)					43.2						95% Percentile (z)	42.12
7658	95% USL					56.56						99% Percentile (z)	51.06
7659													
7660	Gamma GOF Test												
7661	A-D Test Statistic					0.359						Anderson-Darling Gamma GOF Test	
7662	5% A-D Critical Value					0.757						Detected data appear Gamma Distributed at 5% Significance Level	
7663	K-S Test Statistic					0.147						Kolmogorov-Smirnov Gamma GOF Test	
7664	5% K-S Critical Value					0.162						Detected data appear Gamma Distributed at 5% Significance Level	
7665	Detected data appear Gamma Distributed at 5% Significance Level												
7666													
7667	Gamma Statistics												
7668	k hat (MLE)					2.179						k star (bias corrected MLE)	1.983

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	A	B	C	D	E	F	G	H	I	J	K	L
7669	Theta hat (MLE)					9.429	Theta star (bias corrected MLE)					10.36
7670	nu hat (MLE)					130.7	nu star (bias corrected)					119
7671	MLE Mean (bias corrected)					20.54	MLE Sd (bias corrected)					14.59
7672												
7673	Background Statistics Assuming Gamma Distribution											
7674	95% Wilson Hilferty (WH) Approx. Gamma UPL					49.93	90% Percentile					40.03
7675	95% Hawkins Wixley (HW) Approx. Gamma UPL					52.14	95% Percentile					48.86
7676	95% WH Approx. Gamma UTL with 95% Coverage					63.52	99% Percentile					68.44
7677	95% HW Approx. Gamma UTL with 95% Coverage					68.05						
7678	95% WH USL					80.49	95% HW USL					88.75
7679												
7680	Lognormal GOF Test											
7681	Shapiro Wilk Test Statistic					0.92	Shapiro Wilk Lognormal GOF Test					
7682	10% Shapiro Wilk Critical Value					0.939	Data Not Lognormal at 10% Significance Level					
7683	Lilliefors Test Statistic					0.179	Lilliefors Lognormal GOF Test					
7684	10% Lilliefors Critical Value					0.146	Data Not Lognormal at 10% Significance Level					
7685	Data Not Lognormal at 10% Significance Level											
7686												
7687	Background Statistics assuming Lognormal Distribution											
7688	95% UTL with 95% Coverage					95.86	90% Percentile (z)					45.04
7689	95% UPL (t)					64.47	95% Percentile (z)					60.34
7690	95% USL					146.3	99% Percentile (z)					104.4
7691												
7692	Nonparametric Distribution Free Background Statistics											
7693	Data appear Normal at 1% Significance Level											
7694												
7695	Nonparametric Upper Limits for Background Threshold Values											
7696	Order of Statistic, order					30	95% UTL with 95% Coverage					55.8
7697	Approx, f used to compute achieved CC					1.579	Approximate Actual Confidence Coefficient achieved by UTL					0.785
7698							Approximate Sample Size needed to achieve specified CC					59
7699	95% Percentile Bootstrap UTL with 95% Coverage					55.8	95% BCA Bootstrap UTL with 95% Coverage					55.8
7700	95% UPL					50.36	90% Percentile					39.2
7701	90% Chebyshev UPL					60.55	95% Percentile					44.1
7702	95% Chebyshev UPL					78.67	99% Percentile					52.93
7703	95% USL					55.8						
7704												
7705	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
7706	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
7707	and consists of observations collected from clean unimpacted locations.											
7708	The use of USL tends to provide a balance between false positives and false negatives provided the data											
7709	represents a background data set and when many onsite observations need to be compared with the BTV.											
7710												
7711	NJ_Pb <39											
7712												
7713	General Statistics											
7714	Total Number of Observations					27	Number of Distinct Observations					23
7715	Minimum					1.7	First Quartile					10.9
7716	Second Largest					34.3	Median					20.2
7717	Maximum					38.9	Third Quartile					22.7
7718	Mean					17.51	SD					9.607
7719	Coefficient of Variation					0.549	Skewness					0.356
7720	Mean of logged Data					2.655	SD of logged Data					0.755
7721												
7722	Critical Values for Background Threshold Values (BTVs)											
7723	Tolerance Factor K (For UTL)					2.26	d2max (for USL)					2.698
7724												
7725	Normal GOF Test											
7726	Shapiro Wilk Test Statistic					0.957	Shapiro Wilk GOF Test					
7727	1% Shapiro Wilk Critical Value					0.894	Data appear Normal at 1% Significance Level					
7728	Lilliefors Test Statistic					0.129	Lilliefors GOF Test					
7729	1% Lilliefors Critical Value					0.194	Data appear Normal at 1% Significance Level					
7730	Data appear Normal at 1% Significance Level											
7731												
7732	Background Statistics Assuming Normal Distribution											
7733	95% UTL with 95% Coverage					39.22	90% Percentile (z)					29.82
7734	95% UPL (t)					34.19	95% Percentile (z)					33.31
7735	95% USL					43.43	99% Percentile (z)					39.86
7736												
7737	Gamma GOF Test											
7738	A-D Test Statistic					0.611	Anderson-Darling Gamma GOF Test					
7739	5% A-D Critical Value					0.754	Detected data appear Gamma Distributed at 5% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L							
7740	K-S Test Statistic					0.189	Kolmogorov-Smirnov Gamma GOF Test												
7741	5% K-S Critical Value					0.17	Data Not Gamma Distributed at 5% Significance Level												
7742	Detected data follow Appr. Gamma Distribution at 5% Significance Level																		
7743																			
7744	Gamma Statistics																		
7745	k hat (MLE)					2.565	k star (bias corrected MLE)					2.305							
7746	Theta hat (MLE)					6.825	Theta star (bias corrected MLE)					7.596							
7747	nu hat (MLE)					138.5	nu star (bias corrected)					124.5							
7748	MLE Mean (bias corrected)					17.51	MLE Sd (bias corrected)					11.53							
7749																			
7750	Background Statistics Assuming Gamma Distribution																		
7751	95% Wilson Hilferty (WH) Approx. Gamma UPL					40.71	90% Percentile					32.95							
7752	95% Hawkins Wixley (HW) Approx. Gamma UPL					42.62	95% Percentile					39.73							
7753	95% WH Approx. Gamma UTL with 95% Coverage					51.72	99% Percentile					54.66							
7754	95% HW Approx. Gamma UTL with 95% Coverage					55.56													
7755	95% WH USL					62.34	95% HW USL					68.51							
7756																			
7757	Lognormal GOF Test																		
7758	Shapiro Wilk Test Statistic					0.88	Shapiro Wilk Lognormal GOF Test												
7759	10% Shapiro Wilk Critical Value					0.935	Data Not Lognormal at 10% Significance Level												
7760	Lilliefors Test Statistic					0.197	Lilliefors Lognormal GOF Test												
7761	10% Lilliefors Critical Value					0.153	Data Not Lognormal at 10% Significance Level												
7762	Data Not Lognormal at 10% Significance Level																		
7763																			
7764	Background Statistics assuming Lognormal Distribution																		
7765	95% UTL with 95% Coverage					78.39	90% Percentile (z)					37.45							
7766	95% UPL (t)					52.81	95% Percentile (z)					49.26							
7767	95% USL					109.1	99% Percentile (z)					82.42							
7768																			
7769	Nonparametric Distribution Free Background Statistics																		
7770	Data appear Normal at 1% Significance Level																		
7771																			
7772	Nonparametric Upper Limits for Background Threshold Values																		
7773	Order of Statistic, order					27	95% UTL with 95% Coverage					38.9							
7774	Approx, f used to compute achieved CC					1.421	Approximate Actual Confidence Coefficient achieved by UTL					0.75							
7775							Approximate Sample Size needed to achieve specified CC					59							
7776	95% Percentile Bootstrap UTL with 95% Coverage					38.9	95% BCA Bootstrap UTL with 95% Coverage					38.9							
7777	95% UPL					37.06	90% Percentile					29.24							
7778	90% Chebyshev UPL					46.86	95% Percentile					34.15							
7779	95% Chebyshev UPL					60.15	99% Percentile					37.7							
7780	95% USL					38.9													
7781																			
7782	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.																		
7783	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers																		
7784	and consists of observations collected from clean unimpacted locations.																		
7785	The use of USL tends to provide a balance between false positives and false negatives provided the data																		
7786	represents a background data set and when many onsite observations need to be compared with the BTV.																		
7787																			
7788	NM_As																		
7789																			
7790	General Statistics																		
7791	Total Number of Observations					608	Number of Distinct Observations					97							
7792	Minimum					0.3	First Quartile					3.075							
7793	Second Largest					16.8	Median					4.4							
7794	Maximum					17.5	Third Quartile					5.7							
7795	Mean					4.649	SD					2.238							
7796	Coefficient of Variation					0.481	Skewness					1.3							
7797	Mean of logged Data					1.42	SD of logged Data					0.508							
7798																			
7799	Critical Values for Background Threshold Values (BTVs)																		
7800	Tolerance Factor K (For UTL)					1.751	d2max (for USL)					3.748							
7801																			
7802	Normal GOF Test																		
7803	Shapiro Wilk Test Statistic					0.925	Normal GOF Test												
7804	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level												
7805	Lilliefors Test Statistic					0.0924	Lilliefors GOF Test												
7806	1% Lilliefors Critical Value					0.0419	Data Not Normal at 1% Significance Level												
7807	Data Not Normal at 1% Significance Level																		
7808																			
7809	Background Statistics Assuming Normal Distribution																		
7810	95% UTL with 95% Coverage					8.569	90% Percentile (z)					7.518							

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	A	B	C	D	E	F	G	H	I	J	K	L
7811					95% UPL (t)	8.34					95% Percentile (z)	8.331
7812					95% USL	13.04					99% Percentile (z)	9.857
7813												
7814	Gamma GOF Test											
7815					A-D Test Statistic	0.825	Anderson-Darling Gamma GOF Test					
7816					5% A-D Critical Value	0.758	Data Not Gamma Distributed at 5% Significance Level					
7817					K-S Test Statistic	0.0391	Kolmogorov-Smirnov Gamma GOF Test					
7818					5% K-S Critical Value	0.0381	Data Not Gamma Distributed at 5% Significance Level					
7819	Data Not Gamma Distributed at 5% Significance Level											
7820												
7821	Gamma Statistics											
7822					k hat (MLE)	4.448				k star (bias corrected MLE)		4.428
7823					Theta hat (MLE)	1.045				Theta star (bias corrected MLE)		1.05
7824					nu hat (MLE)	5409				nu star (bias corrected)		5384
7825					MLE Mean (bias corrected)	4.649				MLE Sd (bias corrected)		2.21
7826												
7827	Background Statistics Assuming Gamma Distribution											
7828					95% Wilson Hilferty (WH) Approx. Gamma UPL	8.756					90% Percentile	7.61
7829					95% Hawkins Wixley (HW) Approx. Gamma UPL	8.892					95% Percentile	8.777
7830					95% WH Approx. Gamma UTL with 95% Coverage	9.104					99% Percentile	11.26
7831					95% HW Approx. Gamma UTL with 95% Coverage	9.268						
7832					95% WH USL	17.84					95% HW USL	19.28
7833												
7834	Lognormal GOF Test											
7835					Shapiro Wilk Test Statistic	0.963	Shapiro Wilk Lognormal GOF Test					
7836					10% Shapiro Wilk P Value	1.178E-13	Data Not Lognormal at 10% Significance Level					
7837					Lilliefors Test Statistic	0.0598	Lilliefors Lognormal GOF Test					
7838					10% Lilliefors Critical Value	0.0332	Data Not Lognormal at 10% Significance Level					
7839	Data Not Lognormal at 10% Significance Level											
7840												
7841	Background Statistics assuming Lognormal Distribution											
7842					95% UTL with 95% Coverage	10.07					90% Percentile (z)	7.933
7843					95% UPL (t)	9.559					95% Percentile (z)	9.54
7844					95% USL	27.75					99% Percentile (z)	13.48
7845												
7846	Nonparametric Distribution Free Background Statistics											
7847	Data do not follow a Discernible Distribution											
7848												
7849	Nonparametric Upper Limits for Background Threshold Values											
7850					Order of Statistic, order	587				95% UTL with 95% Coverage		9.4
7851					Approx, f used to compute achieved CC	1.341	Approximate Actual Confidence Coefficient achieved by UTL				0.934	
7852							Approximate Sample Size needed to achieve specified CC				600	
7853					95% Percentile Bootstrap UTL with 95% Coverage	9.165	95% BCA Bootstrap UTL with 95% Coverage				9.1	
7854					95% UPL	8.9				90% Percentile		7.53
7855					90% Chebyshev UPL	11.37				95% Percentile		8.9
7856					95% Chebyshev UPL	14.41				99% Percentile		11.4
7857					95% USL	17.5						
7858												
7859	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
7860	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
7861	and consists of observations collected from clean unimpacted locations.											
7862	The use of USL tends to provide a balance between false positives and false negatives provided the data											
7863	represents a background data set and when many onsite observations need to be compared with the BTV.											
7864												
7865	NM_As <13											
7866												
7867	General Statistics											
7868					Total Number of Observations	606				Number of Distinct Observations		95
7869					Minimum	0.3				First Quartile		3.025
7870					Second Largest	12.4				Median		4.4
7871					Maximum	12.9				Third Quartile		5.6
7872					Mean	4.608				SD		2.123
7873					Coefficient of Variation	0.461				Skewness		0.909
7874					Mean of logged Data	1.415				SD of logged Data		0.502
7875												
7876	Critical Values for Background Threshold Values (BTVs)											
7877					Tolerance Factor K (For UTL)	1.751				d2max (for USL)		3.747
7878												
7879	Normal GOF Test											
7880					Shapiro Wilk Test Statistic	0.94	Normal GOF Test					
7881					1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L	
7882	Lilliefors Test Statistic					0.0816	Lilliefors GOF Test						
7883	1% Lilliefors Critical Value					0.042	Data Not Normal at 1% Significance Level						
7884	Data Not Normal at 1% Significance Level												
7885													
7886	Background Statistics Assuming Normal Distribution												
7887	95% UTL with	95% Coverage			8.327		90% Percentile (z)					7.329	
7888		95% UPL (t)			8.109		95% Percentile (z)					8.101	
7889		95% USL			12.56		99% Percentile (z)					9.548	
7890													
7891	Gamma GOF Test												
7892	A-D Test Statistic					0.65	Anderson-Darling Gamma GOF Test						
7893	5% A-D Critical Value					0.758	Detected data appear Gamma Distributed at 5% Significance Level						
7894	K-S Test Statistic					0.0333	Kolmogorov-Smirnov Gamma GOF Test						
7895	5% K-S Critical Value					0.0381	Detected data appear Gamma Distributed at 5% Significance Level						
7896	Detected data appear Gamma Distributed at 5% Significance Level												
7897													
7898	Gamma Statistics												
7899	k hat (MLE)					4.61	k star (bias corrected MLE)					4.588	
7900	Theta hat (MLE)					1	Theta star (bias corrected MLE)					1.004	
7901	nu hat (MLE)					5587	nu star (bias corrected)					5561	
7902	MLE Mean (bias corrected)					4.608	MLE Sd (bias corrected)					2.151	
7903													
7904	Background Statistics Assuming Gamma Distribution												
7905	95% Wilson Hilferty (WH) Approx. Gamma UPL					8.605	90% Percentile					7.49	
7906	95% Hawkins Wixley (HW) Approx. Gamma UPL					8.747	95% Percentile					8.62	
7907	95% WH Approx. Gamma UTL with	95% Coverage			8.942	99% Percentile					11.02		
7908	95% HW Approx. Gamma UTL with	95% Coverage			9.112								
7909	95% WH USL					17.37	95% HW USL					18.77	
7910													
7911	Lognormal GOF Test												
7912	Shapiro Wilk Test Statistic					0.956	Shapiro Wilk Lognormal GOF Test						
7913	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level						
7914	Lilliefors Test Statistic					0.061	Lilliefors Lognormal GOF Test						
7915	10% Lilliefors Critical Value					0.0332	Data Not Lognormal at 10% Significance Level						
7916	Data Not Lognormal at 10% Significance Level												
7917													
7918	Background Statistics assuming Lognormal Distribution												
7919	95% UTL with	95% Coverage			9.921	90% Percentile (z)					7.837		
7920		95% UPL (t)			9.423	95% Percentile (z)					9.405		
7921		95% USL			27.02	99% Percentile (z)					13.24		
7922													
7923	Nonparametric Distribution Free Background Statistics												
7924	Data appear Gamma Distributed at 5% Significance Level												
7925													
7926	Nonparametric Upper Limits for Background Threshold Values												
7927	Order of Statistic, order					585	95% UTL with 95% Coverage					9.1	
7928	Approx, f used to compute achieved CC					1.336	Approximate Actual Confidence Coefficient achieved by UTL					0.932	
7929							Approximate Sample Size needed to achieve specified CC					600	
7930	95% Percentile Bootstrap UTL with	95% Coverage			9.075	95% BCA Bootstrap UTL with 95% Coverage					8.975		
7931		95% UPL			8.865	90% Percentile					7.45		
7932		90% Chebyshev UPL			10.98	95% Percentile					8.8		
7933		95% Chebyshev UPL			13.87	99% Percentile					11.27		
7934		95% USL			12.9								
7935													
7936	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
7937	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
7938	and consists of observations collected from clean unpacted locations.												
7939	The use of USL tends to provide a balance between false positives and false negatives provided the data												
7940	represents a background data set and when many onsite observations need to be compared with the BTV.												
7941													
7942	NM_As <11												
7943													
7944	General Statistics												
7945	Total Number of Observations					599	Number of Distinct Observations					90	
7946	Minimum					0.3	First Quartile					3	
7947	Second Largest					10.5	Median					4.3	
7948	Maximum					10.6	Third Quartile					5.6	
7949	Mean					4.523	SD					1.983	
7950	Coefficient of Variation					0.438	Skewness					0.668	
7951	Mean of logged Data					1.403	SD of logged Data					0.492	
7952													

	A	B	C	D	E	F	G	H	I	J	K	L	
7953	Critical Values for Background Threshold Values (BTVs)												
7954	Tolerance Factor K (For UTL)					1.752	d2max (for USL)					3.744	
7955													
7956	Normal GOF Test												
7957	Shapiro Wilk Test Statistic					0.95	Normal GOF Test						
7958	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
7959	Lilliefors Test Statistic					0.0659	Lilliefors GOF Test						
7960	1% Lilliefors Critical Value					0.0422	Data Not Normal at 1% Significance Level						
7961	Data Not Normal at 1% Significance Level												
7962													
7963	Background Statistics Assuming Normal Distribution												
7964	95% UTL with	95% Coverage			7.996						90% Percentile (z)	7.064	
7965		95% UPL (t)			7.792						95% Percentile (z)	7.784	
7966		95% USL			11.95						99% Percentile (z)	9.135	
7967													
7968	Gamma GOF Test												
7969	A-D Test Statistic					0.647	Anderson-Darling Gamma GOF Test						
7970	5% A-D Critical Value					0.757	Detected data appear Gamma Distributed at 5% Significance Level						
7971	K-S Test Statistic					0.035	Kolmogorov-Smirnov Gamma GOF Test						
7972	5% K-S Critical Value					0.0383	Detected data appear Gamma Distributed at 5% Significance Level						
7973	Detected data appear Gamma Distributed at 5% Significance Level												
7974													
7975	Gamma Statistics												
7976	k hat (MLE)					4.872	k star (bias corrected MLE)					4.849	
7977	Theta hat (MLE)					0.928	Theta star (bias corrected MLE)					0.933	
7978	nu hat (MLE)					5837	nu star (bias corrected)					5809	
7979	MLE Mean (bias corrected)					4.523	MLE Sd (bias corrected)					2.054	
7980													
7981	Background Statistics Assuming Gamma Distribution												
7982	95% Wilson Hilferty (WH) Approx.	Gamma UPL			8.333						90% Percentile	7.273	
7983	95% Hawkins Wixley (HW) Approx.	Gamma UPL			8.477						95% Percentile	8.344	
7984	95% WH Approx.	Gamma UTL with	95% Coverage		8.654						99% Percentile	10.61	
7985	95% HW Approx.	Gamma UTL with	95% Coverage		8.825								
7986		95% WH USL			16.56						95% HW USL	17.9	
7987													
7988	Lognormal GOF Test												
7989	Shapiro Wilk Test Statistic					0.947	Shapiro Wilk Lognormal GOF Test						
7990	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level						
7991	Lilliefors Test Statistic					0.0647	Lilliefors Lognormal GOF Test						
7992	10% Lilliefors Critical Value					0.0334	Data Not Lognormal at 10% Significance Level						
7993	Data Not Lognormal at 10% Significance Level												
7994													
7995	Background Statistics assuming Lognormal Distribution												
7996	95% UTL with	95% Coverage			9.625						90% Percentile (z)	7.638	
7997		95% UPL (t)			9.149						95% Percentile (z)	9.132	
7998		95% USL			25.63						99% Percentile (z)	12.77	
7999													
8000	Nonparametric Distribution Free Background Statistics												
8001	Data appear Gamma Distributed at 5% Significance Level												
8002													
8003	Nonparametric Upper Limits for Background Threshold Values												
8004	Order of Statistic, order				579	95% UTL with				95% Coverage		8.9	
8005	Approx, f used to compute achieved CC				1.383	Approximate Actual Confidence Coefficient achieved by UTL						0.949	
8006						Approximate Sample Size needed to achieve specified CC						577	
8007	95% Percentile Bootstrap UTL with	95% Coverage			8.9	95% BCA Bootstrap UTL with				95% Coverage		8.81	
8008		95% UPL			8.4					90% Percentile		7.22	
8009		90% Chebyshev UPL			10.48					95% Percentile		8.31	
8010		95% Chebyshev UPL			13.17					99% Percentile		10	
8011		95% USL			10.6								
8012													
8013	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
8014	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
8015	and consists of observations collected from clean unimpacted locations.												
8016	The use of USL tends to provide a balance between false positives and false negatives provided the data												
8017	represents a background data set and when many onsite observations need to be compared with the BTV.												
8018													
8019	NM_As <9												
8020													
8021	General Statistics												
8022	Total Number of Observations				581	Number of Distinct Observations						78	
8023	Minimum				0.3	First Quartile						3	

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	A	B	C	D	E	F	G	H	I	J	K	L	
8024				Second Largest		8.9					Median	4.2	
8025				Maximum		8.9					Third Quartile	5.4	
8026				Mean		4.361					SD	1.781	
8027				Coefficient of Variation		0.408					Skewness	0.415	
8028				Mean of logged Data		1.376					SD of logged Data	0.474	
8029													
8030				Critical Values for Background Threshold Values (BTVs)									
8031				Tolerance Factor K (For UTL)		1.754					d2max (for USL)	3.736	
8032													
8033				Normal GOF Test									
8034				Shapiro Wilk Test Statistic		0.962					Normal GOF Test		
8035				1% Shapiro Wilk P Value		6.617E-14					Data Not Normal at 1% Significance Level		
8036				Lilliefors Test Statistic		0.0458					Lilliefors GOF Test		
8037				1% Lilliefors Critical Value		0.0429					Data Not Normal at 1% Significance Level		
8038				Data Not Normal at 1% Significance Level									
8039													
8040				Background Statistics Assuming Normal Distribution									
8041				95% UTL with	95% Coverage	7.484					90% Percentile (z)	6.643	
8042					95% UPL (t)	7.297					95% Percentile (z)	7.29	
8043					95% USL	11.01					99% Percentile (z)	8.504	
8044													
8045				Gamma GOF Test									
8046				A-D Test Statistic		1.168					Anderson-Darling Gamma GOF Test		
8047				5% A-D Critical Value		0.756					Data Not Gamma Distributed at 5% Significance Level		
8048				K-S Test Statistic		0.049					Kolmogorov-Smirnov Gamma GOF Test		
8049				5% K-S Critical Value		0.0387					Data Not Gamma Distributed at 5% Significance Level		
8050				Data Not Gamma Distributed at 5% Significance Level									
8051													
8052				Gamma Statistics									
8053				k hat (MLE)		5.332					k star (bias corrected MLE)	5.306	
8054				Theta hat (MLE)		0.818					Theta star (bias corrected MLE)	0.822	
8055				nu hat (MLE)		6196					nu star (bias corrected)	6165	
8056				MLE Mean (bias corrected)		4.361					MLE Sd (bias corrected)	1.893	
8057													
8058				Background Statistics Assuming Gamma Distribution									
8059				95% Wilson Hilferty (WH) Approx.	Gamma UPL	7.862					90% Percentile	6.895	
8060				95% Hawkins Wixley (HW) Approx.	Gamma UPL	8.003					95% Percentile	7.869	
8061				95% WH Approx.	Gamma UTL with	95% Coverage	8.157				99% Percentile	9.921	
8062				95% HW Approx.	Gamma UTL with	95% Coverage	8.324						
8063					95% WH USL	15.23					95% HW USL	16.43	
8064													
8065				Lognormal GOF Test									
8066				Shapiro Wilk Test Statistic		0.932					Shapiro Wilk Lognormal GOF Test		
8067				10% Shapiro Wilk P Value		0					Data Not Lognormal at 10% Significance Level		
8068				Lilliefors Test Statistic		0.0733					Lilliefors Lognormal GOF Test		
8069				10% Lilliefors Critical Value		0.0339					Data Not Lognormal at 10% Significance Level		
8070				Data Not Lognormal at 10% Significance Level									
8071													
8072				Background Statistics assuming Lognormal Distribution									
8073				95% UTL with	95% Coverage	9.092					90% Percentile (z)	7.269	
8074					95% UPL (t)	8.652					95% Percentile (z)	8.635	
8075					95% USL	23.27					99% Percentile (z)	11.93	
8076													
8077				Nonparametric Distribution Free Background Statistics									
8078				Data do not follow a Discernible Distribution									
8079													
8080				Nonparametric Upper Limits for Background Threshold Values									
8081				Order of Statistic, order		561					95% UTL with	95% Coverage	8.1
8082				Approx, f used to compute achieved CC		1.34					Approximate Actual Confidence Coefficient achieved by UTL		0.93
8083											Approximate Sample Size needed to achieve specified CC		577
8084				95% Percentile Bootstrap UTL with	95% Coverage	8.1					95% BCA Bootstrap UTL with	95% Coverage	8.1
8085					95% UPL	7.8					90% Percentile		7
8086					90% Chebyshev UPL	9.708					95% Percentile		7.8
8087					95% Chebyshev UPL	12.13					99% Percentile		8.8
8088					95% USL	8.9							
8089													
8090				Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.									
8091				Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers									
8092				and consists of observations collected from clean unimpacted locations.									
8093				The use of USL tends to provide a balance between false positives and false negatives provided the data									
8094				represents a background data set and when many onsite observations need to be compared with the BTV.									

	A	B	C	D	E	F	G	H	I	J	K	L
8095												
8096	NM_Pb											
8097												
8098	General Statistics											
8099	Total Number of Observations					608	Number of Distinct Observations					230
8100	Minimum					0.7	First Quartile					11.8
8101	Second Largest					40.7	Median					15.45
8102	Maximum					43.9	Third Quartile					18.7
8103	Mean					15.81	SD					6.328
8104	Coefficient of Variation					0.4	Skewness					0.75
8105	Mean of logged Data					2.669	SD of logged Data					0.464
8106												
8107	Critical Values for Background Threshold Values (BTVs)											
8108	Tolerance Factor K (For UTL)					1.751	d2max (for USL)					3.748
8109												
8110	Normal GOF Test											
8111	Shapiro Wilk Test Statistic					0.961	Normal GOF Test					
8112	1% Shapiro Wilk P Value					1.221E-15	Data Not Normal at 1% Significance Level					
8113	Lilliefors Test Statistic					0.0763	Lilliefors GOF Test					
8114	1% Lilliefors Critical Value					0.0419	Data Not Normal at 1% Significance Level					
8115	Data Not Normal at 1% Significance Level											
8116												
8117	Background Statistics Assuming Normal Distribution											
8118	95% UTL with	95% Coverage		26.89				90% Percentile (z)		23.92		
8119		95% UPL (t)		26.24				95% Percentile (z)		26.22		
8120		95% USL		39.53				99% Percentile (z)		30.53		
8121												
8122	Gamma GOF Test											
8123	A-D Test Statistic					3.645	Anderson-Darling Gamma GOF Test					
8124	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level					
8125	K-S Test Statistic					0.0659	Kolmogorov-Smirnov Gamma GOF Test					
8126	5% K-S Critical Value					0.038	Data Not Gamma Distributed at 5% Significance Level					
8127	Data Not Gamma Distributed at 5% Significance Level											
8128												
8129	Gamma Statistics											
8130	k hat (MLE)					5.637	k star (bias corrected MLE)					5.611
8131	Theta hat (MLE)					2.804	Theta star (bias corrected MLE)					2.818
8132	nu hat (MLE)					6855	nu star (bias corrected)					6822
8133	MLE Mean (bias corrected)					15.81	MLE Sd (bias corrected)					6.674
8134												
8135	Background Statistics Assuming Gamma Distribution											
8136	95% Wilson Hilferty (WH) Approx.	Gamma UPL		28.1				90% Percentile		24.74		
8137	95% Hawkins Wixley (HW) Approx.	Gamma UPL		28.61				95% Percentile		28.14		
8138	95% WH Approx.	Gamma UTL with	95% Coverage	29.1				99% Percentile		35.3		
8139	95% HW Approx.	Gamma UTL with	95% Coverage	29.7								
8140		95% WH USL		53.84				95% HW USL		58.01		
8141												
8142	Lognormal GOF Test											
8143	Shapiro Wilk Test Statistic					0.928	Shapiro Wilk Lognormal GOF Test					
8144	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
8145	Lilliefors Test Statistic					0.0958	Lilliefors Lognormal GOF Test					
8146	10% Lilliefors Critical Value					0.0332	Data Not Lognormal at 10% Significance Level					
8147	Data Not Lognormal at 10% Significance Level											
8148												
8149	Background Statistics assuming Lognormal Distribution											
8150	95% UTL with	95% Coverage		32.52				90% Percentile (z)		26.15		
8151		95% UPL (t)		31.01				95% Percentile (z)		30.95		
8152		95% USL		82.13				99% Percentile (z)		42.47		
8153												
8154	Nonparametric Distribution Free Background Statistics											
8155	Data do not follow a Discernible Distribution											
8156												
8157	Nonparametric Upper Limits for Background Threshold Values											
8158	Order of Statistic, order					587	95% UTL with 95% Coverage					28.8
8159	Approx, f used to compute achieved CC					1.341	Approximate Actual Confidence Coefficient achieved by UTL					0.934
8160							Approximate Sample Size needed to achieve specified CC					600
8161	95% Percentile Bootstrap UTL with	95% Coverage		28.63				95% BCA Bootstrap UTL with	95% Coverage	28.53		
8162		95% UPL		27.18					90% Percentile	24.1		
8163		90% Chebyshev UPL		34.81					95% Percentile	26.87		
8164		95% Chebyshev UPL		43.42					99% Percentile	36.2		
8165		95% USL		43.9								

	A	B	C	D	E	F	G	H	I	J	K	L
8166												
8167	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
8168	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
8169	and consists of observations collected from clean unimpacted locations.											
8170	The use of USL tends to provide a balance between false positives and false negatives provided the data											
8171	represents a background data set and when many onsite observations need to be compared with the BTV.											
8172												
8173	NM_Pb <40											
8174												
8175	General Statistics											
8176	Total Number of Observations					606	Number of Distinct Observations					228
8177	Minimum					0.7	First Quartile					11.8
8178	Second Largest					39.1	Median					15.4
8179	Maximum					39.6	Third Quartile					18.68
8180	Mean					15.72	SD					6.152
8181	Coefficient of Variation					0.391	Skewness					0.594
8182	Mean of logged Data					2.666	SD of logged Data					0.461
8183												
8184	Critical Values for Background Threshold Values (BTVs)											
8185	Tolerance Factor K (For UTL)					1.751	d2max (for USL)					3.747
8186												
8187	Normal GOF Test											
8188	Shapiro Wilk Test Statistic					0.967	Normal GOF Test					
8189	1% Shapiro Wilk P Value					1.1568E-9	Data Not Normal at 1% Significance Level					
8190	Lilliefors Test Statistic					0.0691	Lilliefors GOF Test					
8191	1% Lilliefors Critical Value					0.042	Data Not Normal at 1% Significance Level					
8192	Data Not Normal at 1% Significance Level											
8193												
8194	Background Statistics Assuming Normal Distribution											
8195	95% UTL with	95% Coverage			26.49	90% Percentile (z)					23.61	
8196		95% UPL (t)			25.86	95% Percentile (z)					25.84	
8197		95% USL			38.77	99% Percentile (z)					30.03	
8198												
8199	Gamma GOF Test											
8200	A-D Test Statistic					3.69	Anderson-Darling Gamma GOF Test					
8201	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level					
8202	K-S Test Statistic					0.0678	Kolmogorov-Smirnov Gamma GOF Test					
8203	5% K-S Critical Value					0.0381	Data Not Gamma Distributed at 5% Significance Level					
8204	Data Not Gamma Distributed at 5% Significance Level											
8205												
8206	Gamma Statistics											
8207	k hat (MLE)					5.76	k star (bias corrected MLE)					5.732
8208	Theta hat (MLE)					2.729	Theta star (bias corrected MLE)					2.742
8209	nu hat (MLE)					6981	nu star (bias corrected)					6948
8210	MLE Mean (bias corrected)					15.72	MLE Sd (bias corrected)					6.566
8211												
8212	Background Statistics Assuming Gamma Distribution											
8213	95% Wilson Hilferty (WH) Approx.	Gamma UPL			27.8	90% Percentile					24.5	
8214	95% Hawkins Wixley (HW) Approx.	Gamma UPL			28.32	95% Percentile					27.84	
8215	95% WH Approx.	Gamma UTL with	95% Coverage		28.79	99% Percentile					34.86	
8216	95% HW Approx.	Gamma UTL with	95% Coverage		29.39							
8217		95% WH USL			52.99	95% HW USL					57.09	
8218												
8219	Lognormal GOF Test											
8220	Shapiro Wilk Test Statistic					0.923	Shapiro Wilk Lognormal GOF Test					
8221	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
8222	Lilliefors Test Statistic					0.0974	Lilliefors Lognormal GOF Test					
8223	10% Lilliefors Critical Value					0.0332	Data Not Lognormal at 10% Significance Level					
8224	Data Not Lognormal at 10% Significance Level											
8225												
8226	Background Statistics assuming Lognormal Distribution											
8227	95% UTL with	95% Coverage			32.21	90% Percentile (z)					25.95	
8228		95% UPL (t)			30.73	95% Percentile (z)					30.67	
8229		95% USL			80.77	99% Percentile (z)					41.98	
8230												
8231	Nonparametric Distribution Free Background Statistics											
8232	Data do not follow a Discernible Distribution											
8233												
8234	Nonparametric Upper Limits for Background Threshold Values											
8235	Order of Statistic, order					585	95% UTL with 95% Coverage					28.5
8236	Approx. f used to compute achieved CC					1.336	Approximate Actual Confidence Coefficient achieved by UTL					0.932

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	A	B	C	D	E	F	G	H	I	J	K	L
8237							Approximate Sample Size needed to achieve specified CC					600
8238	95% Percentile Bootstrap UTL with 95% Coverage					28.2	95% BCA Bootstrap UTL with 95% Coverage					28.05
8239	95% UPL					26.63	90% Percentile					24
8240	90% Chebyshev UPL					34.19	95% Percentile					26.3
8241	95% Chebyshev UPL					42.56	99% Percentile					32.37
8242	95% USL					39.6						
8243												
8244	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
8245	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
8246	and consists of observations collected from clean unimpacted locations.											
8247	The use of USL tends to provide a balance between false positives and false negatives provided the data											
8248	represents a background data set and when many onsite observations need to be compared with the BTV.											
8249												
8250	NM_Pb <35											
8251												
8252	General Statistics											
8253	Total Number of Observations					601	Number of Distinct Observations					223
8254	Minimum					0.7	First Quartile					11.8
8255	Second Largest					32.4	Median					15.4
8256	Maximum					33.5	Third Quartile					18.6
8257	Mean					15.54	SD					5.827
8258	Coefficient of Variation					0.375	Skewness					0.325
8259	Mean of logged Data					2.658	SD of logged Data					0.454
8260												
8261	Critical Values for Background Threshold Values (BTVs)											
8262	Tolerance Factor K (For UTL)					1.752	d2max (for USL)					3.745
8263												
8264	Normal GOF Test											
8265	Shapiro Wilk Test Statistic					0.974	Normal GOF Test					
8266	1% Shapiro Wilk P Value					1.4741E-4	Data Not Normal at 1% Significance Level					
8267	Lilliefors Test Statistic					0.0549	Lilliefors GOF Test					
8268	1% Lilliefors Critical Value					0.0422	Data Not Normal at 1% Significance Level					
8269	Data Not Normal at 1% Significance Level											
8270												
8271	Background Statistics Assuming Normal Distribution											
8272	95% UTL with 95% Coverage					25.74	90% Percentile (z)					23
8273	95% UPL (t)					25.14	95% Percentile (z)					25.12
8274	95% USL					37.35	99% Percentile (z)					29.09
8275												
8276	Gamma GOF Test											
8277	A-D Test Statistic					4.034	Anderson-Darling Gamma GOF Test					
8278	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level					
8279	K-S Test Statistic					0.0723	Kolmogorov-Smirnov Gamma GOF Test					
8280	5% K-S Critical Value					0.0382	Data Not Gamma Distributed at 5% Significance Level					
8281	Data Not Gamma Distributed at 5% Significance Level											
8282												
8283	Gamma Statistics											
8284	k hat (MLE)					6.009	k star (bias corrected MLE)					5.98
8285	Theta hat (MLE)					2.585	Theta star (bias corrected MLE)					2.598
8286	nu hat (MLE)					7223	nu star (bias corrected)					7188
8287	MLE Mean (bias corrected)					15.54	MLE Sd (bias corrected)					6.353
8288												
8289	Background Statistics Assuming Gamma Distribution											
8290	95% Wilson Hilferty (WH) Approx. Gamma UPL					27.21	90% Percentile					24.03
8291	95% Hawkins Wixley (HW) Approx. Gamma UPL					27.73	95% Percentile					27.24
8292	95% WH Approx. Gamma UTL with 95% Coverage					28.16	99% Percentile					33.98
8293	95% HW Approx. Gamma UTL with 95% Coverage					28.77						
8294	95% WH USL					51.29	95% HW USL					55.26
8295												
8296	Lognormal GOF Test											
8297	Shapiro Wilk Test Statistic					0.912	Shapiro Wilk Lognormal GOF Test					
8298	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
8299	Lilliefors Test Statistic					0.101	Lilliefors Lognormal GOF Test					
8300	10% Lilliefors Critical Value					0.0334	Data Not Lognormal at 10% Significance Level					
8301	Data Not Lognormal at 10% Significance Level											
8302												
8303	Background Statistics assuming Lognormal Distribution											
8304	95% UTL with 95% Coverage					31.58	90% Percentile (z)					25.51
8305	95% UPL (t)					30.14	95% Percentile (z)					30.09
8306	95% USL					78.03	99% Percentile (z)					40.99
8307												

	A	B	C	D	E	F	G	H	I	J	K	L
8308	Nonparametric Distribution Free Background Statistics											
8309	Data do not follow a Discernible Distribution											
8310												
8311	Nonparametric Upper Limits for Background Threshold Values											
8312	Order of Statistic, order				580	95% UTL with 95% Coverage					27.5	
8313	Approx. f used to compute achieved CC				1.325	Approximate Actual Confidence Coefficient achieved by UTL					0.926	
8314						Approximate Sample Size needed to achieve specified CC					600	
8315	95% Percentile Bootstrap UTL with 95% Coverage				27.4	95% BCA Bootstrap UTL with 95% Coverage					26.9	
8316					95% UPL	26.1	90% Percentile					23.4
8317					90% Chebyshev UPL	33.03	95% Percentile					26.1
8318					95% Chebyshev UPL	40.95	99% Percentile					30.5
8319					95% USL	33.5						
8320												
8321	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
8322	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
8323	and consists of observations collected from clean unimpacted locations.											
8324	The use of USL tends to provide a balance between false positives and false negatives provided the data											
8325	represents a background data set and when many onsite observations need to be compared with the BTV.											
8326												
8327	NM_Pb <28											
8328												
8329	General Statistics											
8330	Total Number of Observations				582	Number of Distinct Observations					205	
8331	Minimum				0.7	First Quartile					11.7	
8332	Second Largest				27.6	Median					15.25	
8333	Maximum				27.8	Third Quartile					18.3	
8334	Mean				15.06	SD					5.273	
8335	Coefficient of Variation				0.35	Skewness					0.00967	
8336	Mean of logged Data				2.633	SD of logged Data					0.44	
8337												
8338	Critical Values for Background Threshold Values (BTVs)											
8339	Tolerance Factor K (For UTL)				1.754	d2max (for USL)					3.736	
8340												
8341	Normal GOF Test											
8342	Shapiro Wilk Test Statistic				0.976	Normal GOF Test						
8343	1% Shapiro Wilk P Value				0.00205	Data Not Normal at 1% Significance Level						
8344	Lilliefors Test Statistic				0.031	Lilliefors GOF Test						
8345	1% Lilliefors Critical Value				0.0429	Data appear Normal at 1% Significance Level						
8346	Data appear Approximate Normal at 1% Significance Level											
8347												
8348	Background Statistics Assuming Normal Distribution											
8349	95% UTL with 95% Coverage				24.3	90% Percentile (z)					21.82	
8350					95% UPL (t)	23.75	95% Percentile (z)					23.73
8351					95% USL	34.76	99% Percentile (z)					27.32
8352												
8353	Gamma GOF Test											
8354	A-D Test Statistic				5.808	Anderson-Darling Gamma GOF Test						
8355	5% A-D Critical Value				0.755	Data Not Gamma Distributed at 5% Significance Level						
8356	K-S Test Statistic				0.0841	Kolmogorov-Smirnov Gamma GOF Test						
8357	5% K-S Critical Value				0.0386	Data Not Gamma Distributed at 5% Significance Level						
8358	Data Not Gamma Distributed at 5% Significance Level											
8359												
8360	Gamma Statistics											
8361	k hat (MLE)				6.512	k star (bias corrected MLE)					6.48	
8362	Theta hat (MLE)				2.312	Theta star (bias corrected MLE)					2.324	
8363	nu hat (MLE)				7580	nu star (bias corrected)					7543	
8364	MLE Mean (bias corrected)				15.06	MLE Sd (bias corrected)					5.916	
8365												
8366	Background Statistics Assuming Gamma Distribution											
8367	95% Wilson Hilferty (WH) Approx. Gamma UPL				25.9	90% Percentile					22.96	
8368	95% Hawkins Wixley (HW) Approx. Gamma UPL				26.41	95% Percentile					25.92	
8369	95% WH Approx. Gamma UTL with 95% Coverage				26.79	99% Percentile					32.1	
8370	95% HW Approx. Gamma UTL with 95% Coverage				27.39							
8371	95% WH USL				47.76	95% HW USL					51.42	
8372												
8373	Lognormal GOF Test											
8374	Shapiro Wilk Test Statistic				0.89	Shapiro Wilk Lognormal GOF Test						
8375	10% Shapiro Wilk P Value				0	Data Not Lognormal at 10% Significance Level						
8376	Lilliefors Test Statistic				0.11	Lilliefors Lognormal GOF Test						
8377	10% Lilliefors Critical Value				0.0339	Data Not Lognormal at 10% Significance Level						
8378	Data Not Lognormal at 10% Significance Level											

	A	B	C	D	E	F	G	H	I	J	K	L
8379												
8380	Background Statistics assuming Lognormal Distribution											
8381		95% UTL with	95% Coverage		30.12					90% Percentile (z)		24.47
8382			95% UPL (t)		28.76					95% Percentile (z)		28.71
8383			95% USL		72.09					99% Percentile (z)		38.76
8384												
8385	Nonparametric Distribution Free Background Statistics											
8386	Data appear Approximate Normal at 1% Significance Level											
8387												
8388	Nonparametric Upper Limits for Background Threshold Values											
8389		Order of Statistic, order	562					95% UTL with	95% Coverage			25.3
8390		Approx, f used to compute achieved CC	1.342					Approximate Actual Confidence Coefficient achieved by UTL				0.931
8391								Approximate Sample Size needed to achieve specified CC				577
8392		95% Percentile Bootstrap UTL with	95% Coverage		25.29			95% BCA Bootstrap UTL with	95% Coverage			25.1
8393			95% UPL		24.4				90% Percentile			21.89
8394			90% Chebyshev UPL		30.89				95% Percentile			24.4
8395			95% Chebyshev UPL		38.06				99% Percentile			26.4
8396			95% USL		27.8							
8397												
8398	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
8399	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
8400	and consists of observations collected from clean unimpacted locations.											
8401	The use of USL tends to provide a balance between false positives and false negatives provided the data											
8402	represents a background data set and when many onsite observations need to be compared with the BTV.											
8403												
8404	NV_As											
8405												
8406	General Statistics											
8407		Total Number of Observations	515					Number of Distinct Observations				179
8408		Minimum	1.6					First Quartile				5.65
8409		Second Largest	830					Median				7.8
8410		Maximum	1110					Third Quartile				10.8
8411		Mean	16.01					SD				65.6
8412		Coefficient of Variation	4.097					Skewness				13.43
8413		Mean of logged Data	2.152					SD of logged Data				0.737
8414												
8415	Critical Values for Background Threshold Values (BTVs)											
8416		Tolerance Factor K (For UTL)	1.761					d2max (for USL)				3.703
8417												
8418	Normal GOF Test											
8419		Shapiro Wilk Test Statistic	0.155					Normal GOF Test				
8420		1% Shapiro Wilk P Value	0					Data Not Normal at 1% Significance Level				
8421		Lilliefors Test Statistic	0.413					Lilliefors GOF Test				
8422		1% Lilliefors Critical Value	0.0456					Data Not Normal at 1% Significance Level				
8423	Data Not Normal at 1% Significance Level											
8424												
8425	Background Statistics Assuming Normal Distribution											
8426		95% UTL with	95% Coverage		131.5				90% Percentile (z)			100.1
8427			95% UPL (t)		124.2				95% Percentile (z)			123.9
8428			95% USL		259				99% Percentile (z)			168.6
8429												
8430	Gamma GOF Test											
8431		A-D Test Statistic	1.942E+28					Anderson-Darling Gamma GOF Test				
8432		5% A-D Critical Value	0.788					Data Not Gamma Distributed at 5% Significance Level				
8433		K-S Test Statistic	0.271					Kolmogorov-Smirnov Gamma GOF Test				
8434		5% K-S Critical Value	0.0414					Data Not Gamma Distributed at 5% Significance Level				
8435	Data Not Gamma Distributed at 5% Significance Level											
8436												
8437	Gamma Statistics											
8438		k hat (MLE)	0.936					k star (bias corrected MLE)				0.932
8439		Theta hat (MLE)	17.11					Theta star (bias corrected MLE)				17.18
8440		nu hat (MLE)	964.2					nu star (bias corrected)				959.9
8441		MLE Mean (bias corrected)	16.01					MLE Sd (bias corrected)				16.59
8442												
8443	Background Statistics Assuming Gamma Distribution											
8444		95% Wilson Hilferty (WH) Approx. Gamma UPL	39.28						90% Percentile			37.52
8445		95% Hawkins Wixley (HW) Approx. Gamma UPL	35.41						95% Percentile			49.19
8446		95% WH Approx. Gamma UTL with	95% Coverage		42.34				99% Percentile			76.43
8447		95% HW Approx. Gamma UTL with	95% Coverage		38.2							
8448			95% WH USL		123.8				95% HW USL			118.9
8449												

	A	B	C	D	E	F	G	H	I	J	K	L
8450	Lognormal GOF Test											
8451	Shapiro Wilk Test Statistic					0.861	Shapiro Wilk Lognormal GOF Test					
8452	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
8453	Lilliefors Test Statistic					0.134	Lilliefors Lognormal GOF Test					
8454	10% Lilliefors Critical Value					0.036	Data Not Lognormal at 10% Significance Level					
8455	Data Not Lognormal at 10% Significance Level											
8456												
8457	Background Statistics assuming Lognormal Distribution											
8458	95% UTL with	95% Coverage	31.48						90% Percentile (z)	22.12		
8459		95% UPL (t)	29						95% Percentile (z)	28.91		
8460		95% USL	131.7						99% Percentile (z)	47.76		
8461												
8462	Nonparametric Distribution Free Background Statistics											
8463	Data do not follow a Discernible Distribution											
8464												
8465	Nonparametric Upper Limits for Background Threshold Values											
8466	Order of Statistic, order					498	95% UTL with 95% Coverage					45.3
8467	Approx, f used to compute achieved CC					1.377	Approximate Actual Confidence Coefficient achieved by UTL					0.934
8468							Approximate Sample Size needed to achieve specified CC					506
8469	95% Percentile Bootstrap UTL with	95% Coverage	38.6	95% BCA Bootstrap UTL with 95% Coverage					38.6			
8470		95% UPL	29.78						90% Percentile	19.76		
8471		90% Chebyshev UPL	213						95% Percentile	29.05		
8472		95% Chebyshev UPL	302.3						99% Percentile	177.8		
8473		95% USL	1110									
8474												
8475	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
8476	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
8477	and consists of observations collected from clean unimpacted locations.											
8478	The use of USL tends to provide a balance between false positives and false negatives provided the data											
8479	represents a background data set and when many onsite observations need to be compared with the BTV.											
8480												
8481	NV_As <418											
8482												
8483	General Statistics											
8484	Total Number of Observations					513	Number of Distinct Observations					177
8485	Minimum					1.6	First Quartile					5.6
8486	Second Largest					272	Median					7.8
8487	Maximum					417	Third Quartile					10.7
8488	Mean					12.3	SD					25.98
8489	Coefficient of Variation					2.113	Skewness					10.87
8490	Mean of logged Data					2.134	SD of logged Data					0.677
8491												
8492	Critical Values for Background Threshold Values (BTVs)											
8493	Tolerance Factor K (For UTL)					1.761	d2max (for USL)					3.702
8494												
8495	Normal GOF Test											
8496	Shapiro Wilk Test Statistic					0.274	Normal GOF Test					
8497	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
8498	Lilliefors Test Statistic					0.342	Lilliefors GOF Test					
8499	1% Lilliefors Critical Value					0.0456	Data Not Normal at 1% Significance Level					
8500	Data Not Normal at 1% Significance Level											
8501												
8502	Background Statistics Assuming Normal Distribution											
8503	95% UTL with	95% Coverage	58.05						90% Percentile (z)	45.6		
8504		95% UPL (t)	55.15						95% Percentile (z)	55.04		
8505		95% USL	108.5						99% Percentile (z)	72.74		
8506												
8507	Gamma GOF Test											
8508	A-D Test Statistic					1.949E+28	Anderson-Darling Gamma GOF Test					
8509	5% A-D Critical Value					0.773	Data Not Gamma Distributed at 5% Significance Level					
8510	K-S Test Statistic					0.209	Kolmogorov-Smirnov Gamma GOF Test					
8511	5% K-S Critical Value					0.0409	Data Not Gamma Distributed at 5% Significance Level					
8512	Data Not Gamma Distributed at 5% Significance Level											
8513												
8514	Gamma Statistics											
8515	k hat (MLE)					1.476	k star (bias corrected MLE)					1.468
8516	Theta hat (MLE)					8.332	Theta star (bias corrected MLE)					8.373
8517	nu hat (MLE)					1514	nu star (bias corrected)					1507
8518	MLE Mean (bias corrected)					12.3	MLE Sd (bias corrected)					10.15
8519												
8520	Background Statistics Assuming Gamma Distribution											

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	A	B	C	D	E	F	G	H	I	J	K	L	
8521		95% Wilson Hilferty (WH) Approx. Gamma UPL				29.45					90% Percentile	25.75	
8522		95% Hawkins Wixley (HW) Approx. Gamma UPL				28.09					95% Percentile	32.26	
8523		95% WH Approx. Gamma UTL with		95% Coverage		31.41					99% Percentile	46.96	
8524		95% HW Approx. Gamma UTL with		95% Coverage		30.02							
8525				95% WH USL		80.75					95% HW USL	82.33	
8526													
8527		Lognormal GOF Test											
8528		Shapiro Wilk Test Statistic				0.907		Shapiro Wilk Lognormal GOF Test					
8529		10% Shapiro Wilk P Value				0		Data Not Lognormal at 10% Significance Level					
8530		Lilliefors Test Statistic				0.116		Lilliefors Lognormal GOF Test					
8531		10% Lilliefors Critical Value				0.0361		Data Not Lognormal at 10% Significance Level					
8532		Data Not Lognormal at 10% Significance Level											
8533													
8534		Background Statistics assuming Lognormal Distribution											
8535		95% UTL with	95% Coverage		27.8						90% Percentile (z)	20.1	
8536			95% UPL (t)		25.78						95% Percentile (z)	25.7	
8537			95% USL		103.4						99% Percentile (z)	40.76	
8538													
8539		Nonparametric Distribution Free Background Statistics											
8540		Data do not follow a Discernible Distribution											
8541													
8542		Nonparametric Upper Limits for Background Threshold Values											
8543		Order of Statistic, order				496		95% UTL with 95% Coverage				38.6	
8544		Approx, f used to compute achieved CC				1.371		Approximate Actual Confidence Coefficient achieved by UTL				0.932	
8545								Approximate Sample Size needed to achieve specified CC				506	
8546		95% Percentile Bootstrap UTL with	95% Coverage		34.46		95% BCA Bootstrap UTL with 95% Coverage				34.36		
8547			95% UPL		28.76			90% Percentile				19.24	
8548			90% Chebyshev UPL		90.32			95% Percentile				28.46	
8549			95% Chebyshev UPL		125.7			99% Percentile				78.2	
8550			95% USL		417								
8551													
8552		Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
8553		Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
8554		and consists of observations collected from clean unimpacted locations.											
8555		The use of USL tends to provide a balance between false positives and false negatives provided the data											
8556		represents a background data set and when many onsite observations need to be compared with the BTV.											
8557													
8558		NV_As <85											
8559													
8560		General Statistics											
8561		Total Number of Observations				509		Number of Distinct Observations				173	
8562		Minimum				1.6		First Quartile				5.6	
8563		Second Largest				80.3		Median				7.8	
8564		Maximum				84.4		Third Quartile				10.7	
8565		Mean				10.28		SD				9.552	
8566		Coefficient of Variation				0.93		Skewness				3.952	
8567		Mean of logged Data				2.107		SD of logged Data				0.607	
8568													
8569		Critical Values for Background Threshold Values (BTVs)											
8570		Tolerance Factor K (For UTL)				1.761		d2max (for USL)				3.7	
8571													
8572		Normal GOF Test											
8573		Shapiro Wilk Test Statistic				0.603		Normal GOF Test					
8574		1% Shapiro Wilk P Value				0		Data Not Normal at 1% Significance Level					
8575		Lilliefors Test Statistic				0.243		Lilliefors GOF Test					
8576		1% Lilliefors Critical Value				0.0458		Data Not Normal at 1% Significance Level					
8577		Data Not Normal at 1% Significance Level											
8578													
8579		Background Statistics Assuming Normal Distribution											
8580		95% UTL with	95% Coverage		27.1						90% Percentile (z)	22.52	
8581			95% UPL (t)		26.03						95% Percentile (z)	25.99	
8582			95% USL		45.62						99% Percentile (z)	32.5	
8583													
8584		Gamma GOF Test											
8585		A-D Test Statistic				18.25		Anderson-Darling Gamma GOF Test					
8586		5% A-D Critical Value				0.765		Data Not Gamma Distributed at 5% Significance Level					
8587		K-S Test Statistic				0.149		Kolmogorov-Smirnov Gamma GOF Test					
8588		5% K-S Critical Value				0.0407		Data Not Gamma Distributed at 5% Significance Level					
8589		Data Not Gamma Distributed at 5% Significance Level											
8590													
8591		Gamma Statistics											

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	A	B	C	D	E	F	G	H	I	J	K	L
8592					k hat (MLE)	2.396				k star (bias corrected MLE)		2.383
8593					Theta hat (MLE)	4.289				Theta star (bias corrected MLE)		4.312
8594					nu hat (MLE)	2439				nu star (bias corrected)		2426
8595					MLE Mean (bias corrected)	10.28				MLE Sd (bias corrected)		6.657
8596												
8597	Background Statistics Assuming Gamma Distribution											
8598					95% Wilson Hilferty (WH) Approx. Gamma UPL	22.6				90% Percentile		19.19
8599					95% Hawkins Wixley (HW) Approx. Gamma UPL	22.42				95% Percentile		23.08
8600					95% WH Approx. Gamma UTL with 95% Coverage	23.87				99% Percentile		31.63
8601					95% HW Approx. Gamma UTL with 95% Coverage	23.74						
8602					95% WH USL	53.92				95% HW USL		57.25
8603												
8604	Lognormal GOF Test											
8605					Shapiro Wilk Test Statistic	0.948		Shapiro Wilk Lognormal GOF Test				
8606					10% Shapiro Wilk P Value	0		Data Not Lognormal at 10% Significance Level				
8607					Lilliefors Test Statistic	0.0908		Lilliefors Lognormal GOF Test				
8608					10% Lilliefors Critical Value	0.0363		Data Not Lognormal at 10% Significance Level				
8609	Data Not Lognormal at 10% Significance Level											
8610												
8611	Background Statistics assuming Lognormal Distribution											
8612					95% UTL with 95% Coverage	23.95				90% Percentile (z)		17.9
8613					95% UPL (t)	22.38				95% Percentile (z)		22.31
8614					95% USL	77.68				99% Percentile (z)		33.75
8615												
8616	Nonparametric Distribution Free Background Statistics											
8617	Data do not follow a Discernible Distribution											
8618												
8619	Nonparametric Upper Limits for Background Threshold Values											
8620					Order of Statistic, order	492				95% UTL with 95% Coverage		31.7
8621					Approx, f used to compute achieved CC	1.36				Approximate Actual Confidence Coefficient achieved by UTL		0.927
8622										Approximate Sample Size needed to achieve specified CC		506
8623					95% Percentile Bootstrap UTL with 95% Coverage	30.54				95% BCA Bootstrap UTL with 95% Coverage		30.54
8624					95% UPL	27.45				90% Percentile		18.5
8625					90% Chebyshev UPL	38.96				95% Percentile		26.6
8626					95% Chebyshev UPL	51.95				99% Percentile		58.66
8627					95% USL	84.4						
8628												
8629	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
8630	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
8631	and consists of observations collected from clean unimpacted locations.											
8632	The use of USL tends to provide a balance between false positives and false negatives provided the data											
8633	represents a background data set and when many onsite observations need to be compared with the BTV.											
8634												
8635	NV_As <39											
8636												
8637	General Statistics											
8638					Total Number of Observations	497				Number of Distinct Observations		161
8639					Minimum	1.6				First Quartile		5.6
8640					Second Largest	38.6				Median		7.7
8641					Maximum	38.6				Third Quartile		10.5
8642					Mean	9.13				SD		5.804
8643					Coefficient of Variation	0.636				Skewness		2.226
8644					Mean of logged Data	2.06				SD of logged Data		0.533
8645												
8646	Critical Values for Background Threshold Values (BTVs)											
8647					Tolerance Factor K (For UTL)	1.763				d2max (for USL)		3.694
8648												
8649	Normal GOF Test											
8650					Shapiro Wilk Test Statistic	0.78		Normal GOF Test				
8651					1% Shapiro Wilk P Value	0		Data Not Normal at 1% Significance Level				
8652					Lilliefors Test Statistic	0.169		Lilliefors GOF Test				
8653					1% Lilliefors Critical Value	0.0464		Data Not Normal at 1% Significance Level				
8654	Data Not Normal at 1% Significance Level											
8655												
8656	Background Statistics Assuming Normal Distribution											
8657					95% UTL with 95% Coverage	19.36				90% Percentile (z)		16.57
8658					95% UPL (t)	18.7				95% Percentile (z)		18.68
8659					95% USL	30.57				99% Percentile (z)		22.63
8660												
8661	Gamma GOF Test											
8662					A-D Test Statistic	7.676		Anderson-Darling Gamma GOF Test				

	A	B	C	D	E	F	G	H	I	J	K	L
8663				5% A-D Critical Value		0.76	Data Not Gamma Distributed at 5% Significance Level					
8664				K-S Test Statistic		0.0915	Kolmogorov-Smirnov Gamma GOF Test					
8665				5% K-S Critical Value		0.0408	Data Not Gamma Distributed at 5% Significance Level					
8666	Data Not Gamma Distributed at 5% Significance Level											
8667												
8668	Gamma Statistics											
8669				k hat (MLE)		3.462				k star (bias corrected MLE)		3.443
8670				Theta hat (MLE)		2.637				Theta star (bias corrected MLE)		2.652
8671				nu hat (MLE)		3441				nu star (bias corrected)		3422
8672				MLE Mean (bias corrected)		9.13				MLE Sd (bias corrected)		4.921
8673												
8674	Background Statistics Assuming Gamma Distribution											
8675	95% Wilson Hilferty (WH) Approx.			Gamma UPL		18.31				90% Percentile		15.73
8676	95% Hawkins Wixley (HW) Approx.			Gamma UPL		18.39				95% Percentile		18.43
8677	95% WH Approx. Gamma UTL with			95% Coverage		19.21				99% Percentile		24.25
8678	95% HW Approx. Gamma UTL with			95% Coverage		19.34						
8679				95% WH USL		39.29				95% HW USL		41.89
8680												
8681	Lognormal GOF Test											
8682				Shapiro Wilk Test Statistic		0.973				Shapiro Wilk Lognormal GOF Test		
8683				10% Shapiro Wilk P Value		2.4889E-4				Data Not Lognormal at 10% Significance Level		
8684				Lilliefors Test Statistic		0.0574				Lilliefors Lognormal GOF Test		
8685				10% Lilliefors Critical Value		0.0367				Data Not Lognormal at 10% Significance Level		
8686	Data Not Lognormal at 10% Significance Level											
8687												
8688	Background Statistics assuming Lognormal Distribution											
8689	95% UTL with			95% Coverage		20.09				90% Percentile (z)		15.54
8690				95% UPL (t)		18.92				95% Percentile (z)		18.87
8691				95% USL		56.26				99% Percentile (z)		27.14
8692												
8693	Nonparametric Distribution Free Background Statistics											
8694	Data do not follow a Discernible Distribution											
8695												
8696	Nonparametric Upper Limits for Background Threshold Values											
8697				Order of Statistic, order		481				95% UTL with 95% Coverage		25.1
8698				Approx, f used to compute achieved CC		1.404				Approximate Actual Confidence Coefficient achieved by UTL		
8699										Approximate Sample Size needed to achieve specified CC		
8700	95% Percentile Bootstrap UTL with			95% Coverage		23.64				95% BCA Bootstrap UTL with 95% Coverage		23.82
8701				95% UPL		22.02				90% Percentile		15.64
8702				90% Chebyshev UPL		26.56				95% Percentile		21.68
8703				95% Chebyshev UPL		34.46				99% Percentile		31.75
8704				95% USL		38.6						
8705												
8706	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
8707	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
8708	and consists of observations collected from clean unimpacted locations.											
8709	The use of USL tends to provide a balance between false positives and false negatives provided the data											
8710	represents a background data set and when many onsite observations need to be compared with the BTV.											
8711												
8712	NV_As <30											
8713												
8714	General Statistics											
8715				Total Number of Observations		490				Number of Distinct Observations		155
8716				Minimum		1.6				First Quartile		5.6
8717				Second Largest		28.9				Median		7.6
8718				Maximum		29.4				Third Quartile		10.38
8719				Mean		8.766				SD		4.959
8720				Coefficient of Variation		0.566				Skewness		1.806
8721				Mean of logged Data		2.039				SD of logged Data		0.506
8722												
8723	Critical Values for Background Threshold Values (BTVs)											
8724				Tolerance Factor K (For UTL)		1.764				d2max (for USL)		3.69
8725												
8726	Normal GOF Test											
8727				Shapiro Wilk Test Statistic		0.828				Normal GOF Test		
8728				1% Shapiro Wilk P Value		0				Data Not Normal at 1% Significance Level		
8729				Lilliefors Test Statistic		0.142				Lilliefors GOF Test		
8730				1% Lilliefors Critical Value		0.0467				Data Not Normal at 1% Significance Level		
8731	Data Not Normal at 1% Significance Level											
8732												
8733	Background Statistics Assuming Normal Distribution											

	A	B	C	D	E	F	G	H	I	J	K	L						
8734	95% UTL with 95% Coverage					17.51	90% Percentile (z)					15.12						
8735	95% UPL (t)					16.95	95% Percentile (z)					16.92						
8736	95% USL					27.06	99% Percentile (z)					20.3						
8737																		
8738	Gamma GOF Test																	
8739	A-D Test Statistic					4.822	Anderson-Darling Gamma GOF Test											
8740	5% A-D Critical Value					0.759	Data Not Gamma Distributed at 5% Significance Level											
8741	K-S Test Statistic					0.0757	Kolmogorov-Smirnov Gamma GOF Test											
8742	5% K-S Critical Value					0.0411	Data Not Gamma Distributed at 5% Significance Level											
8743	Data Not Gamma Distributed at 5% Significance Level																	
8744																		
8745	Gamma Statistics																	
8746	k hat (MLE)					3.954	k star (bias corrected MLE)					3.932						
8747	Theta hat (MLE)					2.217	Theta star (bias corrected MLE)					2.23						
8748	nu hat (MLE)					3875	nu star (bias corrected)					3853						
8749	MLE Mean (bias corrected)					8.766	MLE Sd (bias corrected)					4.421						
8750																		
8751	Background Statistics Assuming Gamma Distribution																	
8752	95% Wilson Hilferty (WH) Approx. Gamma UPL					17	90% Percentile					14.69						
8753	95% Hawkins Wixley (HW) Approx. Gamma UPL					17.12	95% Percentile					17.07						
8754	95% WH Approx. Gamma UTL with 95% Coverage					17.8	99% Percentile					22.15						
8755	95% HW Approx. Gamma UTL with 95% Coverage					17.96												
8756	95% WH USL					35.15	95% HW USL					37.45						
8757																		
8758	Lognormal GOF Test																	
8759	Shapiro Wilk Test Statistic					0.977	Shapiro Wilk Lognormal GOF Test											
8760	10% Shapiro Wilk P Value					0.00848	Data Not Lognormal at 10% Significance Level											
8761	Lilliefors Test Statistic					0.0446	Lilliefors Lognormal GOF Test											
8762	10% Lilliefors Critical Value					0.037	Data Not Lognormal at 10% Significance Level											
8763	Data Not Lognormal at 10% Significance Level																	
8764																		
8765	Background Statistics assuming Lognormal Distribution																	
8766	95% UTL with 95% Coverage					18.77	90% Percentile (z)					14.7						
8767	95% UPL (t)					17.72	95% Percentile (z)					17.68						
8768	95% USL					49.79	99% Percentile (z)					24.96						
8769																		
8770	Nonparametric Distribution Free Background Statistics																	
8771	Data do not follow a Discernible Distribution																	
8772																		
8773	Nonparametric Upper Limits for Background Threshold Values																	
8774	Order of Statistic, order					474	95% UTL with 95% Coverage					22.2						
8775	Approx, f used to compute achieved CC					1.383	Approximate Actual Confidence Coefficient achieved by UTL					0.932						
8776							Approximate Sample Size needed to achieve specified CC					482						
8777	95% Percentile Bootstrap UTL with 95% Coverage					21.82	95% BCA Bootstrap UTL with 95% Coverage					21.93						
8778	95% UPL					20.39	90% Percentile					14.51						
8779	90% Chebyshev UPL					23.66	95% Percentile					20.26						
8780	95% Chebyshev UPL					30.41	99% Percentile					28.1						
8781	95% USL					29.4												
8782																		
8783	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.																	
8784	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers																	
8785	and consists of observations collected from clean unimpacted locations.																	
8786	The use of USL tends to provide a balance between false positives and false negatives provided the data																	
8787	represents a background data set and when many onsite observations need to be compared with the BTV.																	
8788																		
8789	NV_Pb																	
8790																		
8791	General Statistics																	
8792	Total Number of Observations					515	Number of Distinct Observations					212						
8793	Minimum					4.4	First Quartile					15.45						
8794	Second Largest					2200	Median					19						
8795	Maximum					12400	Third Quartile					22.9						
8796	Mean					47.94	SD					553.8						
8797	Coefficient of Variation					11.55	Skewness					21.78						
8798	Mean of logged Data					2.933	SD of logged Data					0.514						
8799																		
8800	Critical Values for Background Threshold Values (BTVs)																	
8801	Tolerance Factor K (For UTL)					1.761	d2max (for USL)					3.703						
8802																		
8803	Normal GOF Test																	
8804	Shapiro Wilk Test Statistic					0.0573	Normal GOF Test											

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	A	B	C	D	E	F	G	H	I	J	K	L
8805				1% Shapiro Wilk P Value		0						Data Not Normal at 1% Significance Level
8806				Lilliefors Test Statistic		0.489						Lilliefors GOF Test
8807				1% Lilliefors Critical Value		0.0456						Data Not Normal at 1% Significance Level
8808				Data Not Normal at 1% Significance Level								
8809												
8810				Background Statistics Assuming Normal Distribution								
8811				95% UTL with 95% Coverage		1023				90% Percentile (z)		757.7
8812				95% UPL (t)		961.4				95% Percentile (z)		958.9
8813				95% USL		2099				99% Percentile (z)		1336
8814												
8815				Gamma GOF Test								
8816				A-D Test Statistic		1.942E+28				Anderson-Darling Gamma GOF Test		
8817				5% A-D Critical Value		0.807				Data Not Gamma Distributed at 5% Significance Level		
8818				K-S Test Statistic		0.421				Kolmogorov-Smirnov Gamma GOF Test		
8819				5% K-S Critical Value		0.042				Data Not Gamma Distributed at 5% Significance Level		
8820				Data Not Gamma Distributed at 5% Significance Level								
8821												
8822				Gamma Statistics								
8823				k hat (MLE)		0.652				k star (bias corrected MLE)		0.649
8824				Theta hat (MLE)		73.55				Theta star (bias corrected MLE)		73.84
8825				nu hat (MLE)		671.3				nu star (bias corrected)		668.8
8826				MLE Mean (bias corrected)		47.94				MLE Sd (bias corrected)		59.5
8827												
8828				Background Statistics Assuming Gamma Distribution								
8829				95% Wilson Hilferty (WH) Approx. Gamma UPL		89.34				90% Percentile		122.5
8830				95% Hawkins Wixley (HW) Approx. Gamma UPL		68.64				95% Percentile		167.7
8831				95% WH Approx. Gamma UTL with 95% Coverage		96.61				99% Percentile		276.2
8832				95% HW Approx. Gamma UTL with 95% Coverage		73.76						
8833				95% WH USL		294.2				95% HW USL		217.7
8834												
8835				Lognormal GOF Test								
8836				Shapiro Wilk Test Statistic		0.72				Shapiro Wilk Lognormal GOF Test		
8837				10% Shapiro Wilk P Value		0				Data Not Lognormal at 10% Significance Level		
8838				Lilliefors Test Statistic		0.144				Lilliefors Lognormal GOF Test		
8839				10% Lilliefors Critical Value		0.036				Data Not Lognormal at 10% Significance Level		
8840				Data Not Lognormal at 10% Significance Level								
8841												
8842				Background Statistics assuming Lognormal Distribution								
8843				95% UTL with 95% Coverage		46.47				90% Percentile (z)		36.32
8844				95% UPL (t)		43.89				95% Percentile (z)		43.79
8845				95% USL		126.2				99% Percentile (z)		62.16
8846												
8847				Nonparametric Distribution Free Background Statistics								
8848				Data do not follow a Discernible Distribution								
8849												
8850				Nonparametric Upper Limits for Background Threshold Values								
8851				Order of Statistic, order		498				95% UTL with 95% Coverage		33
8852				Approx, f used to compute achieved CC		1.377				Approximate Actual Confidence Coefficient achieved by UTL		0.934
8853										Approximate Sample Size needed to achieve specified CC		506
8854				95% Percentile Bootstrap UTL with 95% Coverage		31.78				95% BCA Bootstrap UTL with 95% Coverage		31.78
8855				95% UPL		30.54				90% Percentile		27.06
8856				90% Chebyshev UPL		1711				95% Percentile		30.43
8857				95% Chebyshev UPL		2464				99% Percentile		50.16
8858				95% USL		12400						
8859												
8860				Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.								
8861				Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers								
8862				and consists of observations collected from clean unimpacted locations.								
8863				The use of USL tends to provide a balance between false positives and false negatives provided the data								
8864				represents a background data set and when many onsite observations need to be compared with the BTV.								
8865												
8866				NV_Pb <80								
8867												
8868				General Statistics								
8869				Total Number of Observations		513				Number of Distinct Observations		210
8870				Minimum		4.4				First Quartile		15.4
8871				Second Largest		76.5				Median		19
8872				Maximum		79.2				Third Quartile		22.9
8873				Mean		19.67				SD		7.81
8874				Coefficient of Variation		0.397				Skewness		2.758
8875				Mean of logged Data		2.911				SD of logged Data		0.372

	A	B	C	D	E	F	G	H	I	J	K	L		
8876														
8877	Critical Values for Background Threshold Values (BTVs)													
8878	Tolerance Factor K (For UTL)					1.761	d2max (for USL)					3.702		
8879														
8880	Normal GOF Test													
8881	Shapiro Wilk Test Statistic					0.832	Normal GOF Test							
8882	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level							
8883	Lilliefors Test Statistic					0.105	Lilliefors GOF Test							
8884	1% Lilliefors Critical Value					0.0456	Data Not Normal at 1% Significance Level							
8885	Data Not Normal at 1% Significance Level													
8886														
8887	Background Statistics Assuming Normal Distribution													
8888	95% UTL with	95% Coverage				33.42				90% Percentile (z)	29.68			
8889						95% UPL (t)	32.55				95% Percentile (z)	32.51		
8890						95% USL	48.58				99% Percentile (z)	37.84		
8891														
8892	Gamma GOF Test													
8893	A-D Test Statistic					4.736	Anderson-Darling Gamma GOF Test							
8894	5% A-D Critical Value					0.755	Data Not Gamma Distributed at 5% Significance Level							
8895	K-S Test Statistic					0.0635	Kolmogorov-Smirnov Gamma GOF Test							
8896	5% K-S Critical Value					0.0402	Data Not Gamma Distributed at 5% Significance Level							
8897	Data Not Gamma Distributed at 5% Significance Level													
8898														
8899	Gamma Statistics													
8900	k hat (MLE)					7.563	k star (bias corrected MLE)					7.52		
8901	Theta hat (MLE)					2.601	Theta star (bias corrected MLE)					2.616		
8902	nu hat (MLE)					7759	nu star (bias corrected)					7715		
8903	MLE Mean (bias corrected)					19.67	MLE Sd (bias corrected)					7.172		
8904														
8905	Background Statistics Assuming Gamma Distribution													
8906	95% Wilson Hilferty (WH) Approx.	Gamma UPL				32.69				90% Percentile	29.24			
8907	95% Hawkins Wixley (HW) Approx.	Gamma UPL				32.91				95% Percentile	32.76			
8908	95% WH Approx. Gamma UTL with	95% Coverage				33.82				99% Percentile	40.06			
8909	95% HW Approx. Gamma UTL with	95% Coverage				34.1								
8910						95% WH USL	57.84				95% HW USL	60.42		
8911														
8912	Lognormal GOF Test													
8913	Shapiro Wilk Test Statistic					0.955	Shapiro Wilk Lognormal GOF Test							
8914	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level							
8915	Lilliefors Test Statistic					0.0816	Lilliefors Lognormal GOF Test							
8916	10% Lilliefors Critical Value					0.0361	Data Not Lognormal at 10% Significance Level							
8917	Data Not Lognormal at 10% Significance Level													
8918														
8919	Background Statistics assuming Lognormal Distribution													
8920	95% UTL with	95% Coverage				35.4				90% Percentile (z)	29.61			
8921						95% UPL (t)	33.96				95% Percentile (z)	33.9		
8922						95% USL	72.88				99% Percentile (z)	43.68		
8923														
8924	Nonparametric Distribution Free Background Statistics													
8925	Data do not follow a Discernible Distribution													
8926														
8927	Nonparametric Upper Limits for Background Threshold Values													
8928	Order of Statistic, order					496	95% UTL with					95% Coverage	31.3	
8929	Approx, f used to compute achieved CC					1.371	Approximate Actual Confidence Coefficient achieved by UTL					0.932		
8930							Approximate Sample Size needed to achieve specified CC					506		
8931	95% Percentile Bootstrap UTL with	95% Coverage				31.1	95% BCA Bootstrap UTL with					95% Coverage	31	
8932						95% UPL	30.26						90% Percentile	26.98
8933						90% Chebyshev UPL	43.12						95% Percentile	30.2
8934						95% Chebyshev UPL	53.74						99% Percentile	43.78
8935						95% USL	79.2							
8936														
8937	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.													
8938	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers													
8939	and consists of observations collected from clean unimpacted locations.													
8940	The use of USL tends to provide a balance between false positives and false negatives provided the data													
8941	represents a background data set and when many onsite observations need to be compared with the BTV.													
8942														
8943	NV_Pb <41													
8944														
8945	General Statistics													
8946	Total Number of Observations					505	Number of Distinct Observations					202		

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	A	B	C	D	E	F	G	H	I	J	K	L	
8947					Minimum	4.4					First Quartile	15.4	
8948					Second Largest	38.5					Median	18.8	
8949					Maximum	40.1					Third Quartile	22.5	
8950					Mean	19.06					SD	5.895	
8951					Coefficient of Variation	0.309					Skewness	0.281	
8952					Mean of logged Data	2.894					SD of logged Data	0.346	
8953													
8954	Critical Values for Background Threshold Values (BTVs)												
8955	Tolerance Factor K (For UTL)					1.762						d2max (for USL)	3.698
8956													
8957	Normal GOF Test												
8958	Shapiro Wilk Test Statistic					0.978	Normal GOF Test						
8959	1% Shapiro Wilk P Value					0.024	Data appear Normal at 1% Significance Level						
8960	Lilliefors Test Statistic					0.038	Lilliefors GOF Test						
8961	1% Lilliefors Critical Value					0.046	Data appear Normal at 1% Significance Level						
8962	Data appear Normal at 1% Significance Level												
8963													
8964	Background Statistics Assuming Normal Distribution												
8965	95% UTL with		95% Coverage		29.45						90% Percentile (z)	26.62	
8966			95% UPL (t)		28.79						95% Percentile (z)	28.76	
8967			95% USL		40.86						99% Percentile (z)	32.78	
8968													
8969	Gamma GOF Test												
8970	A-D Test Statistic					3.156	Anderson-Darling Gamma GOF Test						
8971	5% A-D Critical Value					0.754	Data Not Gamma Distributed at 5% Significance Level						
8972	K-S Test Statistic					0.0634	Kolmogorov-Smirnov Gamma GOF Test						
8973	5% K-S Critical Value					0.0403	Data Not Gamma Distributed at 5% Significance Level						
8974	Data Not Gamma Distributed at 5% Significance Level												
8975													
8976	Gamma Statistics												
8977	k hat (MLE)					9.427						k star (bias corrected MLE)	9.372
8978	Theta hat (MLE)					2.022						Theta star (bias corrected MLE)	2.034
8979	nu hat (MLE)					9521						nu star (bias corrected)	9466
8980	MLE Mean (bias corrected)					19.06						MLE Sd (bias corrected)	6.227
8981													
8982	Background Statistics Assuming Gamma Distribution												
8983	95% Wilson Hilferty (WH) Approx. Gamma UPL					30.33						90% Percentile	27.35
8984	95% Hawkins Wixley (HW) Approx. Gamma UPL					30.66						95% Percentile	30.33
8985	95% WH Approx. Gamma UTL with		95% Coverage		31.29						99% Percentile	36.45	
8986	95% HW Approx. Gamma UTL with		95% Coverage		31.68								
8987			95% WH USL		51.17						95% HW USL	53.61	
8988													
8989	Lognormal GOF Test												
8990	Shapiro Wilk Test Statistic					0.94	Shapiro Wilk Lognormal GOF Test						
8991	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level						
8992	Lilliefors Test Statistic					0.0858	Lilliefors Lognormal GOF Test						
8993	10% Lilliefors Critical Value					0.0364	Data Not Lognormal at 10% Significance Level						
8994	Data Not Lognormal at 10% Significance Level												
8995													
8996	Background Statistics assuming Lognormal Distribution												
8997	95% UTL with		95% Coverage		33.22						90% Percentile (z)	28.14	
8998			95% UPL (t)		31.96						95% Percentile (z)	31.9	
8999			95% USL		64.9						99% Percentile (z)	40.39	
9000													
9001	Nonparametric Distribution Free Background Statistics												
9002	Data appear Normal at 1% Significance Level												
9003													
9004	Nonparametric Upper Limits for Background Threshold Values												
9005	Order of Statistic, order					489	95% UTL with					95% Coverage	30.4
9006	Approx, f used to compute achieved CC					1.427	Approximate Actual Confidence Coefficient achieved by UTL					0.949	
9007							Approximate Sample Size needed to achieve specified CC					482	
9008	95% Percentile Bootstrap UTL with		95% Coverage		30.18	95% BCA Bootstrap UTL with					95% Coverage	30.2	
9009			95% UPL		29.68						90% Percentile	26.36	
9010			90% Chebyshev UPL		36.77						95% Percentile	29.38	
9011			95% Chebyshev UPL		44.79						99% Percentile	36.06	
9012			95% USL		40.1								
9013													
9014	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
9015	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
9016	and consists of observations collected from clean unimpacted locations.												
9017	The use of USL tends to provide a balance between false positives and false negatives provided the data												

	A	B	C	D	E	F	G	H	I	J	K	L
9018	represents a background data set and when many onsite observations need to be compared with the BTV.											
9019												
9020	NV_Pb <34											
9021												
9022	General Statistics											
9023	Total Number of Observations					498	Number of Distinct Observations					195
9024	Minimum					4.4	First Quartile					15.33
9025	Second Largest					32.9	Median					18.8
9026	Maximum					33	Third Quartile					22.3
9027	Mean					18.81	SD					5.514
9028	Coefficient of Variation					0.293	Skewness					-0.0428
9029	Mean of logged Data					2.884	SD of logged Data					0.337
9030												
9031	Critical Values for Background Threshold Values (BTVs)											
9032	Tolerance Factor K (For UTL)					1.763	d2max (for USL)					3.694
9033												
9034	Normal GOF Test											
9035	Shapiro Wilk Test Statistic					0.978	Normal GOF Test					
9036	1% Shapiro Wilk P Value					0.0173	Data appear Normal at 1% Significance Level					
9037	Lilliefors Test Statistic					0.0251	Lilliefors GOF Test					
9038	1% Lilliefors Critical Value					0.0463	Data appear Normal at 1% Significance Level					
9039	Data appear Normal at 1% Significance Level											
9040												
9041	Background Statistics Assuming Normal Distribution											
9042	95% UTL with	95% Coverage				28.53			90% Percentile (z)			25.87
9043		95% UPL (t)				27.9			95% Percentile (z)			27.88
9044		95% USL				39.18			99% Percentile (z)			31.63
9045												
9046	Gamma GOF Test											
9047	A-D Test Statistic					3.867	Anderson-Darling Gamma GOF Test					
9048	5% A-D Critical Value					0.753	Data Not Gamma Distributed at 5% Significance Level					
9049	K-S Test Statistic					0.0707	Kolmogorov-Smirnov Gamma GOF Test					
9050	5% K-S Critical Value					0.0405	Data Not Gamma Distributed at 5% Significance Level					
9051	Data Not Gamma Distributed at 5% Significance Level											
9052												
9053	Gamma Statistics											
9054	k hat (MLE)					10.05	k star (bias corrected MLE)					9.989
9055	Theta hat (MLE)					1.872	Theta star (bias corrected MLE)					1.883
9056	nu hat (MLE)					10008	nu star (bias corrected)					9949
9057	MLE Mean (bias corrected)					18.81	MLE Sd (bias corrected)					5.95
9058												
9059	Background Statistics Assuming Gamma Distribution											
9060	95% Wilson Hilferty (WH) Approx.	Gamma UPL				29.55			90% Percentile			26.72
9061	95% Hawkins Wixley (HW) Approx.	Gamma UPL				29.89			95% Percentile			29.54
9062	95% WH Approx.	Gamma UTL with	95% Coverage			30.47			99% Percentile			35.33
9063	95% HW Approx.	Gamma UTL with	95% Coverage			30.86						
9064		95% WH USL				49.15			95% HW USL			51.49
9065												
9066	Lognormal GOF Test											
9067	Shapiro Wilk Test Statistic					0.924	Shapiro Wilk Lognormal GOF Test					
9068	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
9069	Lilliefors Test Statistic					0.0918	Lilliefors Lognormal GOF Test					
9070	10% Lilliefors Critical Value					0.0367	Data Not Lognormal at 10% Significance Level					
9071	Data Not Lognormal at 10% Significance Level											
9072												
9073	Background Statistics assuming Lognormal Distribution											
9074	95% UTL with	95% Coverage				32.4			90% Percentile (z)			27.54
9075		95% UPL (t)				31.18			95% Percentile (z)			31.14
9076		95% USL				62.15			99% Percentile (z)			39.18
9077												
9078	Nonparametric Distribution Free Background Statistics											
9079	Data appear Normal at 1% Significance Level											
9080												
9081	Nonparametric Upper Limits for Background Threshold Values											
9082	Order of Statistic, order					482	95% UTL with 95% Coverage					29.8
9083	Approx, f used to compute achieved CC					1.406	Approximate Actual Confidence Coefficient achieved by UTL					0.942
9084							Approximate Sample Size needed to achieve specified CC					482
9085	95% Percentile Bootstrap UTL with	95% Coverage				29.46	95% BCA Bootstrap UTL with	95% Coverage				29.46
9086		95% UPL				28.5		90% Percentile				26.13
9087		90% Chebyshev UPL				35.37		95% Percentile				28.08
9088		95% Chebyshev UPL				42.87		99% Percentile				31

	A	B	C	D	E	F	G	H	I	J	K	L	
9089	95% USL					33							
9090													
9091	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
9092	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
9093	and consists of observations collected from clean unimpacted locations.												
9094	The use of USL tends to provide a balance between false positives and false negatives provided the data												
9095	represents a background data set and when many onsite observations need to be compared with the BTV.												
9096													
9097	NY_As												
9098													
9099	General Statistics												
9100	Total Number of Observations					213	Number of Distinct Observations					102	
9101	Minimum					0.3	First Quartile					2.8	
9102	Second Largest					25.9	Median					5.6	
9103	Maximum					35.6	Third Quartile					7.9	
9104	Mean					6.383	SD					4.825	
9105	Coefficient of Variation					0.756	Skewness					2.084	
9106	Mean of logged Data					1.585	SD of logged Data					0.777	
9107													
9108	Critical Values for Background Threshold Values (BTVs)												
9109	Tolerance Factor K (For UTL)					1.829	d2max (for USL)					3.451	
9110													
9111	Normal GOF Test												
9112	Shapiro Wilk Test Statistic					0.844	Normal GOF Test						
9113	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
9114	Lilliefors Test Statistic					0.15	Lilliefors GOF Test						
9115	1% Lilliefors Critical Value					0.0707	Data Not Normal at 1% Significance Level						
9116	Data Not Normal at 1% Significance Level												
9117													
9118	Background Statistics Assuming Normal Distribution												
9119	95% UTL with	95% Coverage			15.21	90% Percentile (z)					12.57		
9120		95% UPL (t)			14.37	95% Percentile (z)					14.32		
9121		95% USL			23.04	99% Percentile (z)					17.61		
9122													
9123	Gamma GOF Test												
9124	A-D Test Statistic					0.915	Anderson-Darling Gamma GOF Test						
9125	5% A-D Critical Value					0.766	Data Not Gamma Distributed at 5% Significance Level						
9126	K-S Test Statistic					0.0682	Kolmogorov-Smirnov Gamma GOF Test						
9127	5% K-S Critical Value					0.063	Data Not Gamma Distributed at 5% Significance Level						
9128	Data Not Gamma Distributed at 5% Significance Level												
9129													
9130	Gamma Statistics												
9131	k hat (MLE)					2.013	k star (bias corrected MLE)					1.987	
9132	Theta hat (MLE)					3.171	Theta star (bias corrected MLE)					3.212	
9133	nu hat (MLE)					857.4	nu star (bias corrected)					846.7	
9134	MLE Mean (bias corrected)					6.383	MLE Sd (bias corrected)					4.528	
9135													
9136	Background Statistics Assuming Gamma Distribution												
9137	95% Wilson Hilferty (WH) Approx.	Gamma UPL			15.08	90% Percentile					12.43		
9138	95% Hawkins Wixley (HW) Approx.	Gamma UPL			15.47	95% Percentile					15.17		
9139	95% WH Approx.	Gamma UTL with	95% Coverage		16.5	99% Percentile					21.25		
9140	95% HW Approx.	Gamma UTL with	95% Coverage		17.07								
9141		95% WH USL			34.35	95% HW USL					38.61		
9142													
9143	Lognormal GOF Test												
9144	Shapiro Wilk Test Statistic					0.973	Shapiro Wilk Lognormal GOF Test						
9145	10% Shapiro Wilk P Value					0.0508	Data Not Lognormal at 10% Significance Level						
9146	Lilliefors Test Statistic					0.0913	Lilliefors Lognormal GOF Test						
9147	10% Lilliefors Critical Value					0.0559	Data Not Lognormal at 10% Significance Level						
9148	Data Not Lognormal at 10% Significance Level												
9149													
9150	Background Statistics assuming Lognormal Distribution												
9151	95% UTL with	95% Coverage			20.22	90% Percentile (z)					13.21		
9152		95% UPL (t)			17.67	95% Percentile (z)					17.52		
9153		95% USL			71.31	99% Percentile (z)					29.75		
9154													
9155	Nonparametric Distribution Free Background Statistics												
9156	Data do not follow a Discernible Distribution												
9157													
9158	Nonparametric Upper Limits for Background Threshold Values												
9159	Order of Statistic, order					208	95% UTL with 95% Coverage					19.5	

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	A	B	C	D	E	F	G	H	I	J	K	L
9160	Approx, f used to compute achieved CC					1.556	Approximate Actual Confidence Coefficient achieved by UTL					0.911
9161							Approximate Sample Size needed to achieve specified CC					208
9162	95% Percentile Bootstrap UTL with 95% Coverage					18.3	95% BCA Bootstrap UTL with 95% Coverage					18.3
9163	95% UPL					17.09	90% Percentile					11.2
9164	90% Chebyshev UPL					20.89	95% Percentile					16.34
9165	95% Chebyshev UPL					27.47	99% Percentile					20.58
9166	95% USL					35.6						
9167												
9168	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
9169	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
9170	and consists of observations collected from clean unimpacted locations.											
9171	The use of USL tends to provide a balance between false positives and false negatives provided the data											
9172	represents a background data set and when many onsite observations need to be compared with the BTV.											
9173												
9174	NY_As <26											
9175												
9176	General Statistics											
9177	Total Number of Observations					212	Number of Distinct Observations					101
9178	Minimum					0.3	First Quartile					2.8
9179	Second Largest					20.7	Median					5.6
9180	Maximum					25.9	Third Quartile					7.9
9181	Mean					6.245	SD					4.396
9182	Coefficient of Variation					0.704	Skewness					1.46
9183	Mean of logged Data					1.576	SD of logged Data					0.767
9184												
9185	Critical Values for Background Threshold Values (BTVs)											
9186	Tolerance Factor K (For UTL)					1.83	d2max (for USL)					3.45
9187												
9188	Normal GOF Test											
9189	Shapiro Wilk Test Statistic					0.878	Normal GOF Test					
9190	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
9191	Lilliefors Test Statistic					0.129	Lilliefors GOF Test					
9192	1% Lilliefors Critical Value					0.0709	Data Not Normal at 1% Significance Level					
9193	Data Not Normal at 1% Significance Level											
9194												
9195	Background Statistics Assuming Normal Distribution											
9196	95% UTL with 95% Coverage					14.29	90% Percentile (z)					11.88
9197	95% UPL (t)					13.53	95% Percentile (z)					13.48
9198	95% USL					21.41	99% Percentile (z)					16.47
9199												
9200	Gamma GOF Test											
9201	A-D Test Statistic					0.875	Anderson-Darling Gamma GOF Test					
9202	5% A-D Critical Value					0.766	Data Not Gamma Distributed at 5% Significance Level					
9203	K-S Test Statistic					0.0597	Kolmogorov-Smirnov Gamma GOF Test					
9204	5% K-S Critical Value					0.063	Detected data appear Gamma Distributed at 5% Significance Level					
9205	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
9206												
9207	Gamma Statistics											
9208	k hat (MLE)					2.104	k star (bias corrected MLE)					2.077
9209	Theta hat (MLE)					2.968	Theta star (bias corrected MLE)					3.006
9210	nu hat (MLE)					892.1	nu star (bias corrected)					880.8
9211	MLE Mean (bias corrected)					6.245	MLE Sd (bias corrected)					4.333
9212												
9213	Background Statistics Assuming Gamma Distribution											
9214	95% Wilson Hilferty (WH) Approx. Gamma UPL					14.59	90% Percentile					12.04
9215	95% Hawkins Wixley (HW) Approx. Gamma UPL					15	95% Percentile					14.64
9216	95% WH Approx. Gamma UTL with 95% Coverage					15.94	99% Percentile					20.39
9217	95% HW Approx. Gamma UTL with 95% Coverage					16.52						
9218	95% WH USL					32.8	95% HW USL					36.92
9219												
9220	Lognormal GOF Test											
9221	Shapiro Wilk Test Statistic					0.966	Shapiro Wilk Lognormal GOF Test					
9222	10% Shapiro Wilk P Value					0.00302	Data Not Lognormal at 10% Significance Level					
9223	Lilliefors Test Statistic					0.0945	Lilliefors Lognormal GOF Test					
9224	10% Lilliefors Critical Value					0.0561	Data Not Lognormal at 10% Significance Level					
9225	Data Not Lognormal at 10% Significance Level											
9226												
9227	Background Statistics assuming Lognormal Distribution											
9228	95% UTL with 95% Coverage					19.66	90% Percentile (z)					12.91
9229	95% UPL (t)					17.21	95% Percentile (z)					17.06
9230	95% USL					68.1	99% Percentile (z)					28.77

	A	B	C	D	E	F	G	H	I	J	K	L
9231												
9232	Nonparametric Distribution Free Background Statistics											
9233	Data appear Approximate Gamma Distribution at 5% Significance Level											
9234												
9235	Nonparametric Upper Limits for Background Threshold Values											
9236	Order of Statistic, order					207	95% UTL with 95% Coverage					18.3
9237	Approx. f used to compute achieved CC					1.549	Approximate Actual Confidence Coefficient achieved by UTL					0.909
9238							Approximate Sample Size needed to achieve specified CC					208
9239	95% Percentile Bootstrap UTL with 95% Coverage					18.2	95% BCA Bootstrap UTL with 95% Coverage					18.04
9240	95% UPL					16.29	90% Percentile					11.19
9241	90% Chebyshev UPL					19.47	95% Percentile					15.46
9242	95% Chebyshev UPL					25.45	99% Percentile					19.68
9243	95% USL					25.9						
9244												
9245	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
9246	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
9247	and consists of observations collected from clean unimpacted locations.											
9248	The use of USL tends to provide a balance between false positives and false negatives provided the data											
9249	represents a background data set and when many onsite observations need to be compared with the BTV.											
9250												
9251	NY_As <20											
9252												
9253	General Statistics											
9254	Total Number of Observations					210	Number of Distinct Observations					99
9255	Minimum					0.3	First Quartile					2.8
9256	Second Largest					19.5	Median					5.6
9257	Maximum					19.7	Third Quartile					7.9
9258	Mean					6.083	SD					4.079
9259	Coefficient of Variation					0.671	Skewness					1.21
9260	Mean of logged Data					1.561	SD of logged Data					0.755
9261												
9262	Critical Values for Background Threshold Values (BTVs)											
9263	Tolerance Factor K (For UTL)					1.831	d2max (for USL)					3.447
9264												
9265	Normal GOF Test											
9266	Shapiro Wilk Test Statistic					0.89	Normal GOF Test					
9267	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
9268	Lilliefors Test Statistic					0.11	Lilliefors GOF Test					
9269	1% Lilliefors Critical Value					0.0712	Data Not Normal at 1% Significance Level					
9270	Data Not Normal at 1% Significance Level											
9271												
9272	Background Statistics Assuming Normal Distribution											
9273	95% UTL with 95% Coverage					13.55	90% Percentile (z)					11.31
9274	95% UPL (t)					12.84	95% Percentile (z)					12.79
9275	95% USL					20.14	99% Percentile (z)					15.57
9276												
9277	Gamma GOF Test											
9278	A-D Test Statistic					0.913	Anderson-Darling Gamma GOF Test					
9279	5% A-D Critical Value					0.765	Data Not Gamma Distributed at 5% Significance Level					
9280	K-S Test Statistic					0.058	Kolmogorov-Smirnov Gamma GOF Test					
9281	5% K-S Critical Value					0.0632	Detected data appear Gamma Distributed at 5% Significance Level					
9282	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
9283												
9284	Gamma Statistics											
9285	k hat (MLE)					2.196	k star (bias corrected MLE)					2.168
9286	Theta hat (MLE)					2.77	Theta star (bias corrected MLE)					2.806
9287	nu hat (MLE)					922.3	nu star (bias corrected)					910.4
9288	MLE Mean (bias corrected)					6.083	MLE Sd (bias corrected)					4.132
9289												
9290	Background Statistics Assuming Gamma Distribution											
9291	95% Wilson Hilferty (WH) Approx. Gamma UPL					14.04	90% Percentile					11.61
9292	95% Hawkins Wixley (HW) Approx. Gamma UPL					14.45	95% Percentile					14.07
9293	95% WH Approx. Gamma UTL with 95% Coverage					15.33	99% Percentile					19.5
9294	95% HW Approx. Gamma UTL with 95% Coverage					15.9						
9295	95% WH USL					31.16	95% HW USL					35.07
9296												
9297	Lognormal GOF Test											
9298	Shapiro Wilk Test Statistic					0.959	Shapiro Wilk Lognormal GOF Test					
9299	10% Shapiro Wilk P Value					7.4190E-5	Data Not Lognormal at 10% Significance Level					
9300	Lilliefors Test Statistic					0.0987	Lilliefors Lognormal GOF Test					
9301	10% Lilliefors Critical Value					0.0563	Data Not Lognormal at 10% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L
9302	Data Not Lognormal at 10% Significance Level											
9303												
9304	Background Statistics assuming Lognormal Distribution											
9305	95% UTL with	95% Coverage	18.97						90% Percentile (z)		12.53	
9306		95% UPL (t)	16.62						95% Percentile (z)		16.48	
9307		95% USL	64.24						99% Percentile (z)		27.57	
9308												
9309	Nonparametric Distribution Free Background Statistics											
9310	Data appear Approximate Gamma Distribution at 5% Significance Level											
9311												
9312	Nonparametric Upper Limits for Background Threshold Values											
9313	Order of Statistic, order	205						95% UTL with	95% Coverage		17.9	
9314	Approx, f used to compute achieved CC	1.534						Approximate Actual Confidence Coefficient achieved by UTL			0.904	
9315								Approximate Sample Size needed to achieve specified CC			208	
9316	95% Percentile Bootstrap UTL with	95% Coverage	17.17					95% BCA Bootstrap UTL with	95% Coverage		17.17	
9317		95% UPL	15.05						90% Percentile		11.1	
9318		90% Chebyshev UPL	18.35						95% Percentile		14.91	
9319		95% Chebyshev UPL	23.91						99% Percentile		19.39	
9320		95% USL	19.7									
9321												
9322	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
9323	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
9324	and consists of observations collected from clean unimpacted locations.											
9325	The use of USL tends to provide a balance between false positives and false negatives provided the data											
9326	represents a background data set and when many onsite observations need to be compared with the BTV.											
9327												
9328	NY_As <15											
9329												
9330	General Statistics											
9331	Total Number of Observations	199						Number of Distinct Observations			89	
9332	Minimum	0.3						First Quartile			2.75	
9333	Second Largest	14.8						Median			5.4	
9334	Maximum	14.8						Third Quartile			7.5	
9335	Mean	5.447						SD			3.109	
9336	Coefficient of Variation	0.571						Skewness			0.509	
9337	Mean of logged Data	1.489						SD of logged Data			0.708	
9338												
9339	Critical Values for Background Threshold Values (BTVs)											
9340	Tolerance Factor K (For UTL)	1.836						d2max (for USL)			3.431	
9341												
9342	Normal GOF Test											
9343	Shapiro Wilk Test Statistic	0.946						Normal GOF Test				
9344	1% Shapiro Wilk P Value	9.4784E-8						Data Not Normal at 1% Significance Level				
9345	Lilliefors Test Statistic	0.0952						Lilliefors GOF Test				
9346	1% Lilliefors Critical Value	0.0731						Data Not Normal at 1% Significance Level				
9347	Data Not Normal at 1% Significance Level											
9348												
9349	Background Statistics Assuming Normal Distribution											
9350	95% UTL with	95% Coverage	11.16					90% Percentile (z)			9.431	
9351		95% UPL (t)	10.6					95% Percentile (z)			10.56	
9352		95% USL	16.11					99% Percentile (z)			12.68	
9353												
9354	Gamma GOF Test											
9355	A-D Test Statistic	1.848						Anderson-Darling Gamma GOF Test				
9356	5% A-D Critical Value	0.763						Data Not Gamma Distributed at 5% Significance Level				
9357	K-S Test Statistic	0.0898						Kolmogorov-Smirnov Gamma GOF Test				
9358	5% K-S Critical Value	0.0645						Data Not Gamma Distributed at 5% Significance Level				
9359	Data Not Gamma Distributed at 5% Significance Level											
9360												
9361	Gamma Statistics											
9362	k hat (MLE)	2.579						k star (bias corrected MLE)			2.543	
9363	Theta hat (MLE)	2.112						Theta star (bias corrected MLE)			2.142	
9364	nu hat (MLE)	1026						nu star (bias corrected)			1012	
9365	MLE Mean (bias corrected)	5.447						MLE Sd (bias corrected)			3.416	
9366												
9367	Background Statistics Assuming Gamma Distribution											
9368	95% Wilson Hilferty (WH) Approx. Gamma UPL	12.02						90% Percentile			10.02	
9369	95% Hawkins Wixley (HW) Approx. Gamma UPL	12.41						95% Percentile			12	
9370	95% WH Approx. Gamma UTL with	95% Coverage	13.08					99% Percentile			16.32	
9371	95% HW Approx. Gamma UTL with	95% Coverage	13.61									
9372		95% WH USL	25.36					95% HW USL			28.46	

	A	B	C	D	E	F	G	H	I	J	K	L	
9373													
9374	Lognormal GOF Test												
9375	Shapiro Wilk Test Statistic					0.935	Shapiro Wilk Lognormal GOF Test						
9376	10% Shapiro Wilk P Value					1.010E-10	Data Not Lognormal at 10% Significance Level						
9377	Lilliefors Test Statistic					0.117	Lilliefors Lognormal GOF Test						
9378	10% Lilliefors Critical Value					0.0579	Data Not Lognormal at 10% Significance Level						
9379	Data Not Lognormal at 10% Significance Level												
9380													
9381	Background Statistics assuming Lognormal Distribution												
9382	95% UTL with		95% Coverage		16.27					90% Percentile (z)		10.98	
9383			95% UPL (t)		14.33					95% Percentile (z)		14.21	
9384			95% USL		50.32					99% Percentile (z)		23.02	
9385													
9386	Nonparametric Distribution Free Background Statistics												
9387	Data do not follow a Discernible Distribution												
9388													
9389	Nonparametric Upper Limits for Background Threshold Values												
9390	Order of Statistic, order					195					95% UTL with 95% Coverage		11.6
9391	Approx, f used to compute achieved CC					1.702					Approximate Actual Confidence Coefficient achieved by UTL		0.936
9392											Approximate Sample Size needed to achieve specified CC		181
9393	95% Percentile Bootstrap UTL with		95% Coverage		11.51					95% BCA Bootstrap UTL with 95% Coverage		11.34	
9394			95% UPL		11.1					90% Percentile		9.82	
9395			90% Chebyshev UPL		14.8					95% Percentile		11.1	
9396			95% Chebyshev UPL		19.03					99% Percentile		13.62	
9397			95% USL		14.8								
9398													
9399	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
9400	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
9401	and consists of observations collected from clean unimpacted locations.												
9402	The use of USL tends to provide a balance between false positives and false negatives provided the data												
9403	represents a background data set and when many onsite observations need to be compared with the BTV.												
9404													
9405	NY_Pb												
9406													
9407	General Statistics												
9408	Total Number of Observations					213					Number of Distinct Observations		168
9409	Minimum					5.8					First Quartile		16.1
9410	Second Largest					324					Median		22.9
9411	Maximum					410					Third Quartile		38.2
9412	Mean					37.51					SD		49.24
9413	Coefficient of Variation					1.313					Skewness		4.743
9414	Mean of logged Data					3.282					SD of logged Data		0.719
9415													
9416	Critical Values for Background Threshold Values (BTVs)												
9417	Tolerance Factor K (For UTL)					1.829					d2max (for USL)		3.451
9418													
9419	Normal GOF Test												
9420	Shapiro Wilk Test Statistic					0.502	Normal GOF Test						
9421	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
9422	Lilliefors Test Statistic					0.264	Lilliefors GOF Test						
9423	1% Lilliefors Critical Value					0.0707	Data Not Normal at 1% Significance Level						
9424	Data Not Normal at 1% Significance Level												
9425													
9426	Background Statistics Assuming Normal Distribution												
9427	95% UTL with		95% Coverage		127.6					90% Percentile (z)		100.6	
9428			95% UPL (t)		119					95% Percentile (z)		118.5	
9429			95% USL		207.4					99% Percentile (z)		152	
9430													
9431	Gamma GOF Test												
9432	A-D Test Statistic					10.67	Anderson-Darling Gamma GOF Test						
9433	5% A-D Critical Value					0.77	Data Not Gamma Distributed at 5% Significance Level						
9434	K-S Test Statistic					0.17	Kolmogorov-Smirnov Gamma GOF Test						
9435	5% K-S Critical Value					0.0632	Data Not Gamma Distributed at 5% Significance Level						
9436	Data Not Gamma Distributed at 5% Significance Level												
9437													
9438	Gamma Statistics												
9439	k hat (MLE)					1.604					k star (bias corrected MLE)		1.584
9440	Theta hat (MLE)					23.39					Theta star (bias corrected MLE)		23.68
9441	nu hat (MLE)					683.2					nu star (bias corrected)		674.9
9442	MLE Mean (bias corrected)					37.51					MLE Sd (bias corrected)		29.8
9443													

	A	B	C	D	E	F	G	H	I	J	K	L
9444	Background Statistics Assuming Gamma Distribution											
9445	95% Wilson Hilferty (WH) Approx. Gamma UPL					91.94	90% Percentile					77.13
9446	95% Hawkins Wixley (HW) Approx. Gamma UPL					90.16	95% Percentile					95.95
9447	95% WH Approx. Gamma UTL with 95% Coverage					101.4	99% Percentile					138.3
9448	95% HW Approx. Gamma UTL with 95% Coverage					99.99						
9449	95% WH USL					223.3	95% HW USL					235.4
9450												
9451	Lognormal GOF Test											
9452	Shapiro Wilk Test Statistic					0.929	Shapiro Wilk Lognormal GOF Test					
9453	10% Shapiro Wilk P Value					5.551E-14	Data Not Lognormal at 10% Significance Level					
9454	Lilliefors Test Statistic					0.099	Lilliefors Lognormal GOF Test					
9455	10% Lilliefors Critical Value					0.0559	Data Not Lognormal at 10% Significance Level					
9456	Data Not Lognormal at 10% Significance Level											
9457												
9458	Background Statistics assuming Lognormal Distribution											
9459	95% UTL with		95% Coverage		99.15		90% Percentile (z)				66.87	
9460			95% UPL (t)		87.53		95% Percentile (z)				86.83	
9461			95% USL		318.2		99% Percentile (z)				141.7	
9462												
9463	Nonparametric Distribution Free Background Statistics											
9464	Data do not follow a Discernible Distribution											
9465												
9466	Nonparametric Upper Limits for Background Threshold Values											
9467	Order of Statistic, order					208	95% UTL with 95% Coverage					167
9468	Approx. f used to compute achieved CC					1.556	Approximate Actual Confidence Coefficient achieved by UTL					0.911
9469							Approximate Sample Size needed to achieve specified CC					208
9470	95% Percentile Bootstrap UTL with		95% Coverage		129		95% BCA Bootstrap UTL with 95% Coverage				129	
9471			95% UPL		98.52		90% Percentile				66.7	
9472			90% Chebyshev UPL		185.6		95% Percentile				96.78	
9473			95% Chebyshev UPL		252.6		99% Percentile				275.6	
9474			95% USL		410							
9475												
9476	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
9477	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
9478	and consists of observations collected from clean unimpacted locations.											
9479	The use of USL tends to provide a balance between false positives and false negatives provided the data											
9480	represents a background data set and when many onsite observations need to be compared with the BTV.											
9481												
9482	NY_Pb <130											
9483												
9484	General Statistics											
9485	Total Number of Observations					207	Number of Distinct Observations					163
9486	Minimum					5.8	First Quartile					16.1
9487	Second Largest					112	Median					22.4
9488	Maximum					129	Third Quartile					36.4
9489	Mean					30.27	SD					21.78
9490	Coefficient of Variation					0.719	Skewness					1.912
9491	Mean of logged Data					3.214	SD of logged Data					0.604
9492												
9493	Critical Values for Background Threshold Values (BTVs)											
9494	Tolerance Factor K (For UTL)					1.832	d2max (for USL)					3.443
9495												
9496	Normal GOF Test											
9497	Shapiro Wilk Test Statistic					0.786	Normal GOF Test					
9498	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
9499	Lilliefors Test Statistic					0.187	Lilliefors GOF Test					
9500	1% Lilliefors Critical Value					0.0717	Data Not Normal at 1% Significance Level					
9501	Data Not Normal at 1% Significance Level											
9502												
9503	Background Statistics Assuming Normal Distribution											
9504	95% UTL with		95% Coverage		70.17		90% Percentile (z)				58.18	
9505			95% UPL (t)		66.34		95% Percentile (z)				66.09	
9506			95% USL		105.2		99% Percentile (z)				80.93	
9507												
9508	Gamma GOF Test											
9509	A-D Test Statistic					4.76	Anderson-Darling Gamma GOF Test					
9510	5% A-D Critical Value					0.762	Data Not Gamma Distributed at 5% Significance Level					
9511	K-S Test Statistic					0.114	Kolmogorov-Smirnov Gamma GOF Test					
9512	5% K-S Critical Value					0.0634	Data Not Gamma Distributed at 5% Significance Level					
9513	Data Not Gamma Distributed at 5% Significance Level											
9514												

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	A	B	C	D	E	F	G	H	I	J	K	L
9515	Gamma Statistics											
9516	k hat (MLE)					2.697	k star (bias corrected MLE)					2.661
9517	Theta hat (MLE)					11.22	Theta star (bias corrected MLE)					11.38
9518	nu hat (MLE)					1117	nu star (bias corrected)					1102
9519	MLE Mean (bias corrected)					30.27	MLE Sd (bias corrected)					18.56
9520												
9521	Background Statistics Assuming Gamma Distribution											
9522	95% Wilson Hilferty (WH) Approx. Gamma UPL					65.37	90% Percentile					55.14
9523	95% Hawkins Wixley (HW) Approx. Gamma UPL					65.67	95% Percentile					65.79
9524	95% WH Approx. Gamma UTL with 95% Coverage					70.94	99% Percentile					89.02
9525	95% HW Approx. Gamma UTL with 95% Coverage					71.63						
9526	95% WH USL					137.3	95% HW USL					146.7
9527												
9528	Lognormal GOF Test											
9529	Shapiro Wilk Test Statistic					0.963	Shapiro Wilk Lognormal GOF Test					
9530	10% Shapiro Wilk P Value					7.6359E-4	Data Not Lognormal at 10% Significance Level					
9531	Lilliefors Test Statistic					0.0721	Lilliefors Lognormal GOF Test					
9532	10% Lilliefors Critical Value					0.0567	Data Not Lognormal at 10% Significance Level					
9533	Data Not Lognormal at 10% Significance Level											
9534												
9535	Background Statistics assuming Lognormal Distribution											
9536	95% UTL with 95% Coverage					75.23	90% Percentile (z)					53.94
9537	95% UPL (t)					67.64	95% Percentile (z)					67.18
9538	95% USL					199.1	99% Percentile (z)					101.4
9539												
9540	Nonparametric Distribution Free Background Statistics											
9541	Data do not follow a Discernible Distribution											
9542												
9543	Nonparametric Upper Limits for Background Threshold Values											
9544	Order of Statistic, order					203	95% UTL with 95% Coverage					98.1
9545	Approx, f used to compute achieved CC					1.772	Approximate Actual Confidence Coefficient achieved by UTL					0.949
9546							Approximate Sample Size needed to achieve specified CC					181
9547	95% Percentile Bootstrap UTL with 95% Coverage					93.4	95% BCA Bootstrap UTL with 95% Coverage					93.4
9548	95% UPL					77.64	90% Percentile					65.2
9549	90% Chebyshev UPL					95.76	95% Percentile					72.27
9550	95% Chebyshev UPL					125.4	99% Percentile					101.9
9551	95% USL					129						
9552												
9553	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
9554	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
9555	and consists of observations collected from clean unimpacted locations.											
9556	The use of USL tends to provide a balance between false positives and false negatives provided the data											
9557	represents a background data set and when many onsite observations need to be compared with the BTV.											
9558												
9559	NY_Pb <85											
9560												
9561	General Statistics											
9562	Total Number of Observations					199	Number of Distinct Observations					155
9563	Minimum					5.8	First Quartile					15.95
9564	Second Largest					80.4	Median					22
9565	Maximum					84	Third Quartile					32.55
9566	Mean					27.37	SD					16.37
9567	Coefficient of Variation					0.598	Skewness					1.417
9568	Mean of logged Data					3.157	SD of logged Data					0.544
9569												
9570	Critical Values for Background Threshold Values (BTVs)											
9571	Tolerance Factor K (For UTL)					1.836	d2max (for USL)					3.431
9572												
9573	Normal GOF Test											
9574	Shapiro Wilk Test Statistic					0.838	Normal GOF Test					
9575	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
9576	Lilliefors Test Statistic					0.155	Lilliefors GOF Test					
9577	1% Lilliefors Critical Value					0.0731	Data Not Normal at 1% Significance Level					
9578	Data Not Normal at 1% Significance Level											
9579												
9580	Background Statistics Assuming Normal Distribution											
9581	95% UTL with 95% Coverage					57.43	90% Percentile (z)					48.35
9582	95% UPL (t)					54.49	95% Percentile (z)					54.3
9583	95% USL					83.54	99% Percentile (z)					65.45
9584												
9585	Gamma GOF Test											

	A	B	C	D	E	F	G	H	I	J	K	L	
9586	A-D Test Statistic					3.022	Anderson-Darling Gamma GOF Test						
9587	5% A-D Critical Value					0.759	Data Not Gamma Distributed at 5% Significance Level						
9588	K-S Test Statistic					0.0929	Kolmogorov-Smirnov Gamma GOF Test						
9589	5% K-S Critical Value					0.0643	Data Not Gamma Distributed at 5% Significance Level						
9590	Data Not Gamma Distributed at 5% Significance Level												
9591													
9592	Gamma Statistics												
9593	k hat (MLE)					3.438	k star (bias corrected MLE)					3.389	
9594	Theta hat (MLE)					7.961	Theta star (bias corrected MLE)					8.074	
9595	nu hat (MLE)					1368	nu star (bias corrected)					1349	
9596	MLE Mean (bias corrected)					27.37	MLE Sd (bias corrected)					14.86	
9597													
9598	Background Statistics Assuming Gamma Distribution												
9599	95% Wilson Hilferty (WH) Approx. Gamma UPL					55.37	90% Percentile					47.3	
9600	95% Hawkins Wixley (HW) Approx. Gamma UPL					55.79	95% Percentile					55.49	
9601	95% WH Approx. Gamma UTL with 95% Coverage					59.73	99% Percentile					73.12	
9602	95% HW Approx. Gamma UTL with 95% Coverage					60.45							
9603	95% WH USL					108.8	95% HW USL					115.7	
9604													
9605	Lognormal GOF Test												
9606	Shapiro Wilk Test Statistic					0.968	Shapiro Wilk Lognormal GOF Test						
9607	10% Shapiro Wilk P Value					0.00874	Data Not Lognormal at 10% Significance Level						
9608	Lilliefors Test Statistic					0.0576	Lilliefors Lognormal GOF Test						
9609	10% Lilliefors Critical Value					0.0579	Data appear Lognormal at 10% Significance Level						
9610	Data appear Approximate Lognormal at 10% Significance Level												
9611													
9612	Background Statistics assuming Lognormal Distribution												
9613	95% UTL with		95% Coverage		63.76	90% Percentile (z)					47.16		
9614			95% UPL (t)		57.84	95% Percentile (z)					57.46		
9615			95% USL		151.7	99% Percentile (z)					83.23		
9616													
9617	Nonparametric Distribution Free Background Statistics												
9618	Data appear Approximate Lognormal at 10% Significance Level												
9619													
9620	Nonparametric Upper Limits for Background Threshold Values												
9621	Order of Statistic, order					195	95% UTL with 95% Coverage					69	
9622	Approx, f used to compute achieved CC					1.702	Approximate Actual Confidence Coefficient achieved by UTL					0.936	
9623							Approximate Sample Size needed to achieve specified CC					181	
9624	95% Percentile Bootstrap UTL with		95% Coverage		68.22	95% BCA Bootstrap UTL with 95% Coverage					68.28		
9625			95% UPL		66.5	90% Percentile					54.92		
9626			90% Chebyshev UPL		76.61	95% Percentile					66.32		
9627			95% Chebyshev UPL		98.91	99% Percentile					73.64		
9628			95% USL		84								
9629													
9630	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
9631	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
9632	and consists of observations collected from clean unimpacted locations.												
9633	The use of USL tends to provide a balance between false positives and false negatives provided the data												
9634	represents a background data set and when many onsite observations need to be compared with the BTV.												
9635													
9636	NY_Pb <70												
9637													
9638	General Statistics												
9639	Total Number of Observations					196	Number of Distinct Observations					152	
9640	Minimum					5.8	First Quartile					15.9	
9641	Second Largest					69	Median					21.75	
9642	Maximum					69.4	Third Quartile					31.68	
9643	Mean					26.57	SD					15.16	
9644	Coefficient of Variation					0.57	Skewness					1.334	
9645	Mean of logged Data					3.138	SD of logged Data					0.526	
9646													
9647	Critical Values for Background Threshold Values (BTVs)												
9648	Tolerance Factor K (For UTL)					1.838	d2max (for USL)					3.426	
9649													
9650	Normal GOF Test												
9651	Shapiro Wilk Test Statistic					0.842	Normal GOF Test						
9652	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
9653	Lilliefors Test Statistic					0.146	Lilliefors GOF Test						
9654	1% Lilliefors Critical Value					0.0737	Data Not Normal at 1% Significance Level						
9655	Data Not Normal at 1% Significance Level												
9656													

	A	B	C	D	E	F	G	H	I	J	K	L
9657	Background Statistics Assuming Normal Distribution											
9658	95% UTL with		95% Coverage		54.43				90% Percentile (z)		46	
9659			95% UPL (t)		51.69				95% Percentile (z)		51.5	
9660			95% USL		78.51				99% Percentile (z)		61.83	
9661												
9662	Gamma GOF Test											
9663	A-D Test Statistic				2.558				Anderson-Darling Gamma GOF Test			
9664	5% A-D Critical Value				0.758				Data Not Gamma Distributed at 5% Significance Level			
9665	K-S Test Statistic				0.0871				Kolmogorov-Smirnov Gamma GOF Test			
9666	5% K-S Critical Value				0.065				Data Not Gamma Distributed at 5% Significance Level			
9667	Data Not Gamma Distributed at 5% Significance Level											
9668												
9669	Gamma Statistics											
9670	k hat (MLE)				3.69				k star (bias corrected MLE)		3.637	
9671	Theta hat (MLE)				7.2				Theta star (bias corrected MLE)		7.305	
9672	nu hat (MLE)				1447				nu star (bias corrected)		1426	
9673	MLE Mean (bias corrected)				26.57				MLE Sd (bias corrected)		13.93	
9674												
9675	Background Statistics Assuming Gamma Distribution											
9676	95% Wilson Hilferty (WH) Approx. Gamma UPL				52.77				90% Percentile		45.25	
9677	95% Hawkins Wixley (HW) Approx. Gamma UPL				53.19				95% Percentile		52.84	
9678	95% WH Approx. Gamma UTL with		95% Coverage		56.83				99% Percentile		69.12	
9679	95% HW Approx. Gamma UTL with		95% Coverage		57.53							
9680			95% WH USL		101.8				95% HW USL		108	
9681												
9682	Lognormal GOF Test											
9683	Shapiro Wilk Test Statistic				0.966				Shapiro Wilk Lognormal GOF Test			
9684	10% Shapiro Wilk P Value				0.00529				Data Not Lognormal at 10% Significance Level			
9685	Lilliefors Test Statistic				0.0527				Lilliefors Lognormal GOF Test			
9686	10% Lilliefors Critical Value				0.0583				Data appear Lognormal at 10% Significance Level			
9687	Data appear Approximate Lognormal at 10% Significance Level											
9688												
9689	Background Statistics assuming Lognormal Distribution											
9690	95% UTL with		95% Coverage		60.68				90% Percentile (z)		45.28	
9691			95% UPL (t)		55.17				95% Percentile (z)		54.82	
9692			95% USL		140				99% Percentile (z)		78.47	
9693												
9694	Nonparametric Distribution Free Background Statistics											
9695	Data appear Approximate Lognormal at 10% Significance Level											
9696												
9697	Nonparametric Upper Limits for Background Threshold Values											
9698	Order of Statistic, order				192				95% UTL with 95% Coverage		66.7	
9699	Approx, f used to compute achieved CC				1.675				Approximate Actual Confidence Coefficient achieved by UTL		0.93	
9700									Approximate Sample Size needed to achieve specified CC		181	
9701	95% Percentile Bootstrap UTL with		95% Coverage		66.55				95% BCA Bootstrap UTL with 95% Coverage		66.5	
9702			95% UPL		65.23				90% Percentile		46.3	
9703			90% Chebyshev UPL		72.16				95% Percentile		65.2	
9704			95% Chebyshev UPL		92.81				99% Percentile		68.43	
9705			95% USL		69.4							
9706												
9707	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
9708	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
9709	and consists of observations collected from clean unimpacted locations.											
9710	The use of USL tends to provide a balance between false positives and false negatives provided the data											
9711	represents a background data set and when many onsite observations need to be compared with the BTV.											

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	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.2 2/18/2024 5:36:19 PM								
4	From File			D:\Tramm\BACKGROUND EVAL\2013 USGS National Review\USGS_2013_Compiled_State_Data_Sorted.xls								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	OH_As											
12												
13	General Statistics											
14	Total Number of Observations				207		Number of Distinct Observations				119	
15	Minimum				2.9		First Quartile				7.9	
16	Second Largest				54.5		Median				10.5	
17	Maximum				93.6		Third Quartile				13.6	
18	Mean				11.84		SD				8.1	
19	Coefficient of Variation				0.684		Skewness				6.003	
20	Mean of logged Data				2.35		SD of logged Data				0.461	
21												
22	Critical Values for Background Threshold Values (BTVs)											
23	Tolerance Factor K (For UTL)				1.832		d2max (for USL)				3.443	
24												
25	Normal GOF Test											
26	Shapiro Wilk Test Statistic				0.612		Normal GOF Test					
27	1% Shapiro Wilk P Value				0		Data Not Normal at 1% Significance Level					
28	Lilliefors Test Statistic				0.188		Lilliefors GOF Test					
29	1% Lilliefors Critical Value				0.0717		Data Not Normal at 1% Significance Level					
30	Data Not Normal at 1% Significance Level											
31												
32	Background Statistics Assuming Normal Distribution											
33	95% UTL with		95% Coverage		26.68		90% Percentile (z)				22.22	
34			95% UPL (t)		25.25		95% Percentile (z)				25.16	
35			95% USL		39.72		99% Percentile (z)				30.68	
36												
37	Gamma GOF Test											
38	A-D Test Statistic				2.884		Anderson-Darling Gamma GOF Test					
39	5% A-D Critical Value				0.756		Data Not Gamma Distributed at 5% Significance Level					
40	K-S Test Statistic				0.0922		Kolmogorov-Smirnov Gamma GOF Test					
41	5% K-S Critical Value				0.0631		Data Not Gamma Distributed at 5% Significance Level					
42	Data Not Gamma Distributed at 5% Significance Level											
43												
44	Gamma Statistics											
45	k hat (MLE)				4.283		k star (bias corrected MLE)				4.224	
46	Theta hat (MLE)				2.764		Theta star (bias corrected MLE)				2.802	
47	nu hat (MLE)				1773		nu star (bias corrected)				1749	
48	MLE Mean (bias corrected)				11.84		MLE Sd (bias corrected)				5.759	
49												
50	Background Statistics Assuming Gamma Distribution											
51	95% Wilson Hilferty (WH) Approx. Gamma UPL				22.39		90% Percentile				19.55	
52	95% Hawkins Wixley (HW) Approx. Gamma UPL				22.32		95% Percentile				22.62	
53	95% WH Approx. Gamma UTL with		95% Coverage		23.95		99% Percentile				29.14	
54	95% HW Approx. Gamma UTL with		95% Coverage		23.94							
55			95% WH USL		41.75		95% HW USL				43.21	
56												
57	Lognormal GOF Test											
58	Shapiro Wilk Test Statistic				0.976		Shapiro Wilk Lognormal GOF Test					
59	10% Shapiro Wilk P Value				0.134		Data appear Lognormal at 10% Significance Level					
60	Lilliefors Test Statistic				0.058		Lilliefors Lognormal GOF Test					
61	10% Lilliefors Critical Value				0.0567		Data Not Lognormal at 10% Significance Level					
62	Data appear Approximate Lognormal at 10% Significance Level											
63												
64	Background Statistics assuming Lognormal Distribution											
65	95% UTL with		95% Coverage		24.38		90% Percentile (z)				18.92	
66			95% UPL (t)		22.48		95% Percentile (z)				22.37	
67			95% USL		51.2		99% Percentile (z)				30.61	
68												

	A	B	C	D	E	F	G	H	I	J	K	L
69	Nonparametric Distribution Free Background Statistics											
70	Data appear Approximate Lognormal at 10% Significance Level											
71												
72	Nonparametric Upper Limits for Background Threshold Values											
73	Order of Statistic, order					203	95% UTL with 95% Coverage					26.6
74	Approx, f used to compute achieved CC					1.772	Approximate Actual Confidence Coefficient achieved by UTL					0.949
75							Approximate Sample Size needed to achieve specified CC					181
76	95% Percentile Bootstrap UTL with 95% Coverage					24.9	95% BCA Bootstrap UTL with 95% Coverage					24.9
77	95% UPL					22.04	90% Percentile					17.7
78	90% Chebyshev UPL					36.19	95% Percentile					21.44
79	95% Chebyshev UPL					47.23	99% Percentile					36.32
80	95% USL					93.6						
81												
82	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
83	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
84	and consists of observations collected from clean unimpacted locations.											
85	The use of USL tends to provide a balance between false positives and false negatives provided the data											
86	represents a background data set and when many onsite observations need to be compared with the BTV.											
87												
88	OH_As <55											
89												
90	General Statistics											
91	Total Number of Observations					206	Number of Distinct Observations					118
92	Minimum					2.9	First Quartile					7.9
93	Second Largest					36.9	Median					10.45
94	Maximum					54.5	Third Quartile					13.58
95	Mean					11.44	SD					5.759
96	Coefficient of Variation					0.503	Skewness					2.897
97	Mean of logged Data					2.339	SD of logged Data					0.436
98												
99	Critical Values for Background Threshold Values (BTVs)											
100	Tolerance Factor K (For UTL)					1.833	d2max (for USL)					3.441
101												
102	Normal GOF Test											
103	Shapiro Wilk Test Statistic					0.824	Normal GOF Test					
104	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
105	Lilliefors Test Statistic					0.124	Lilliefors GOF Test					
106	1% Lilliefors Critical Value					0.0719	Data Not Normal at 1% Significance Level					
107	Data Not Normal at 1% Significance Level											
108												
109	Background Statistics Assuming Normal Distribution											
110	95% UTL with 95% Coverage					21.99	90% Percentile (z)					18.82
111	95% UPL (t)					20.98	95% Percentile (z)					20.91
112	95% USL					31.26	99% Percentile (z)					24.83
113												
114	Gamma GOF Test											
115	A-D Test Statistic					1.079	Anderson-Darling Gamma GOF Test					
116	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level					
117	K-S Test Statistic					0.0608	Kolmogorov-Smirnov Gamma GOF Test					
118	5% K-S Critical Value					0.0631	Detected data appear Gamma Distributed at 5% Significance Level					
119	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
120												
121	Gamma Statistics											
122	k hat (MLE)					5.274	k star (bias corrected MLE)					5.201
123	Theta hat (MLE)					2.169	Theta star (bias corrected MLE)					2.199
124	nu hat (MLE)					2173	nu star (bias corrected)					2143
125	MLE Mean (bias corrected)					11.44	MLE Sd (bias corrected)					5.016
126												
127	Background Statistics Assuming Gamma Distribution											
128	95% Wilson Hilferty (WH) Approx. Gamma UPL					20.69	90% Percentile					18.15
129	95% Hawkins Wixley (HW) Approx. Gamma UPL					20.79	95% Percentile					20.74
130	95% WH Approx. Gamma UTL with 95% Coverage					22.02	99% Percentile					26.2
131	95% HW Approx. Gamma UTL with 95% Coverage					22.19						
132	95% WH USL					36.88	95% HW USL					38.5
133												
134	Lognormal GOF Test											
135	Shapiro Wilk Test Statistic					0.991	Shapiro Wilk Lognormal GOF Test					
136	10% Shapiro Wilk P Value					0.962	Data appear Lognormal at 10% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L	
137	Lilliefors Test Statistic					0.0425	Lilliefors Lognormal GOF Test						
138	10% Lilliefors Critical Value					0.0569	Data appear Lognormal at 10% Significance Level						
139	Data appear Lognormal at 10% Significance Level												
140													
141	Background Statistics assuming Lognormal Distribution												
142	95% UTL with		95% Coverage	23.05							90% Percentile (z)	18.13	
143			95% UPL (t)	21.34							95% Percentile (z)	21.24	
144			95% USL	46.44							99% Percentile (z)	28.57	
145													
146	Nonparametric Distribution Free Background Statistics												
147	Data appear Approximate Gamma Distribution at 5% Significance Level												
148													
149	Nonparametric Upper Limits for Background Threshold Values												
150	Order of Statistic, order			202		95% UTL with 95% Coverage					26.2		
151	Approx, f used to compute achieved CC			1.763		Approximate Actual Confidence Coefficient achieved by UTL					0.948		
152						Approximate Sample Size needed to achieve specified CC					181		
153	95% Percentile Bootstrap UTL with		95% Coverage	23		95% BCA Bootstrap UTL with 95% Coverage					22.9		
154			95% UPL	21.38							90% Percentile	17.55	
155			90% Chebyshev UPL	28.76							95% Percentile	20.55	
156			95% Chebyshev UPL	36.6							99% Percentile	27.27	
157			95% USL	54.5									
158													
159	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
160	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
161	and consists of observations collected from clean unimpacted locations.												
162	The use of USL tends to provide a balance between false positives and false negatives provided the data												
163	represents a background data set and when many onsite observations need to be compared with the BTV.												
164													
165	OH_As <27												
166													
167	General Statistics												
168	Total Number of Observations			203		Number of Distinct Observations					115		
169	Minimum			2.9		First Quartile					7.9		
170	Second Largest			26.2		Median					10.3		
171	Maximum			26.6		Third Quartile					13.5		
172	Mean			11.02		SD					4.455		
173	Coefficient of Variation			0.404		Skewness					0.96		
174	Mean of logged Data			2.32		SD of logged Data					0.407		
175													
176	Critical Values for Background Threshold Values (BTVs)												
177	Tolerance Factor K (For UTL)			1.834		d2max (for USL)					3.437		
178													
179	Normal GOF Test												
180	Shapiro Wilk Test Statistic			0.937		Normal GOF Test							
181	1% Shapiro Wilk P Value			1.470E-10		Data Not Normal at 1% Significance Level							
182	Lilliefors Test Statistic			0.0879		Lilliefors GOF Test							
183	1% Lilliefors Critical Value			0.0724		Data Not Normal at 1% Significance Level							
184	Data Not Normal at 1% Significance Level												
185													
186	Background Statistics Assuming Normal Distribution												
187	95% UTL with		95% Coverage	19.19		90% Percentile (z)					16.73		
188			95% UPL (t)	18.4		95% Percentile (z)					18.35		
189			95% USL	26.33		99% Percentile (z)					21.39		
190													
191	Gamma GOF Test												
192	A-D Test Statistic			0.244		Anderson-Darling Gamma GOF Test							
193	5% A-D Critical Value			0.755		Detected data appear Gamma Distributed at 5% Significance Level							
194	K-S Test Statistic			0.0358		Kolmogorov-Smirnov Gamma GOF Test							
195	5% K-S Critical Value			0.0634		Detected data appear Gamma Distributed at 5% Significance Level							
196	Detected data appear Gamma Distributed at 5% Significance Level												
197													
198	Gamma Statistics												
199	k hat (MLE)			6.415		k star (bias corrected MLE)					6.324		
200	Theta hat (MLE)			1.718		Theta star (bias corrected MLE)					1.743		
201	nu hat (MLE)			2605		nu star (bias corrected)					2567		
202	MLE Mean (bias corrected)			11.02		MLE Sd (bias corrected)					4.383		
203													
204	Background Statistics Assuming Gamma Distribution												

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	A	B	C	D	E	F	G	H	I	J	K	L	
205	95% Wilson Hilferty (WH) Approx. Gamma UPL					19.09						90% Percentile	16.88
206	95% Hawkins Wixley (HW) Approx. Gamma UPL					19.27						95% Percentile	19.08
207	95% WH Approx. Gamma UTL with 95% Coverage					20.23						99% Percentile	23.68
208	95% HW Approx. Gamma UTL with 95% Coverage					20.48							
209	95% WH USL					32.62						95% HW USL	34.15
210													
211	Lognormal GOF Test												
212	Shapiro Wilk Test Statistic					0.982	Shapiro Wilk Lognormal GOF Test						
213	10% Shapiro Wilk P Value					0.476	Data appear Lognormal at 10% Significance Level						
214	Lilliefors Test Statistic					0.0364	Lilliefors Lognormal GOF Test						
215	10% Lilliefors Critical Value					0.0573	Data appear Lognormal at 10% Significance Level						
216	Data appear Lognormal at 10% Significance Level												
217													
218	Background Statistics assuming Lognormal Distribution												
219	95% UTL with 95% Coverage					21.48						90% Percentile (z)	17.15
220	95% UPL (t)					19.98						95% Percentile (z)	19.89
221	95% USL					41.27						99% Percentile (z)	26.25
222													
223	Nonparametric Distribution Free Background Statistics												
224	Data appear Gamma Distributed at 5% Significance Level												
225													
226	Nonparametric Upper Limits for Background Threshold Values												
227	Order of Statistic, order					199	95% UTL with 95% Coverage					22.6	
228	Approx, f used to compute achieved CC					1.737	Approximate Actual Confidence Coefficient achieved by UTL					0.943	
229							Approximate Sample Size needed to achieve specified CC					181	
230	95% Percentile Bootstrap UTL with 95% Coverage					21.8	95% BCA Bootstrap UTL with 95% Coverage					21.68	
231	95% UPL					20.3	90% Percentile					17.12	
232	90% Chebyshev UPL					24.42	95% Percentile					19.87	
233	95% Chebyshev UPL					30.49	99% Percentile					24.86	
234	95% USL					26.6							
235													
236	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
237	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
238	and consists of observations collected from clean unimpacted locations.												
239	The use of USL tends to provide a balance between false positives and false negatives provided the data												
240	represents a background data set and when many onsite observations need to be compared with the BTV.												
241													
242	OH_As <21												
243													
244	General Statistics												
245	Total Number of Observations					196	Number of Distinct Observations					108	
246	Minimum					2.9	First Quartile					7.875	
247	Second Largest					20.4	Median					10.05	
248	Maximum					20.6	Third Quartile					12.93	
249	Mean					10.56	SD					3.778	
250	Coefficient of Variation					0.358	Skewness					0.477	
251	Mean of logged Data					2.29	SD of logged Data					0.38	
252													
253	Critical Values for Background Threshold Values (BTVs)												
254	Tolerance Factor K (For UTL)					1.838	d2max (for USL)					3.426	
255													
256	Normal GOF Test												
257	Shapiro Wilk Test Statistic					0.962	Normal GOF Test						
258	1% Shapiro Wilk P Value					9.1196E-4	Data Not Normal at 1% Significance Level						
259	Lilliefors Test Statistic					0.0617	Lilliefors GOF Test						
260	1% Lilliefors Critical Value					0.0737	Data appear Normal at 1% Significance Level						
261	Data appear Approximate Normal at 1% Significance Level												
262													
263	Background Statistics Assuming Normal Distribution												
264	95% UTL with 95% Coverage					17.51	90% Percentile (z)					15.4	
265	95% UPL (t)					16.82	95% Percentile (z)					16.78	
266	95% USL					23.51	99% Percentile (z)					19.35	
267													
268	Gamma GOF Test												
269	A-D Test Statistic					0.14	Anderson-Darling Gamma GOF Test						
270	5% A-D Critical Value					0.754	Detected data appear Gamma Distributed at 5% Significance Level						
271	K-S Test Statistic					0.0279	Kolmogorov-Smirnov Gamma GOF Test						
272	5% K-S Critical Value					0.0647	Detected data appear Gamma Distributed at 5% Significance Level						

	A	B	C	D	E	F	G	H	I	J	K	L
273	Detected data appear Gamma Distributed at 5% Significance Level											
274												
275	Gamma Statistics											
276	k hat (MLE)				7.545		k star (bias corrected MLE)				7.433	
277	Theta hat (MLE)				1.4		Theta star (bias corrected MLE)				1.421	
278	nu hat (MLE)				2958		nu star (bias corrected)				2914	
279	MLE Mean (bias corrected)				10.56		MLE Sd (bias corrected)				3.874	
280												
281	Background Statistics Assuming Gamma Distribution											
282	95% Wilson Hilferty (WH) Approx. Gamma UPL				17.66		90% Percentile				15.73	
283	95% Hawkins Wixley (HW) Approx. Gamma UPL				17.84		95% Percentile				17.64	
284	95% WH Approx. Gamma UTL with 95% Coverage				18.66		99% Percentile				21.59	
285	95% HW Approx. Gamma UTL with 95% Coverage				18.9							
286	95% WH USL				29.11		95% HW USL				30.42	
287												
288	Lognormal GOF Test											
289	Shapiro Wilk Test Statistic				0.969		Shapiro Wilk Lognormal GOF Test					
290	10% Shapiro Wilk P Value				0.0171		Data Not Lognormal at 10% Significance Level					
291	Lilliefors Test Statistic				0.0437		Lilliefors Lognormal GOF Test					
292	10% Lilliefors Critical Value				0.0583		Data appear Lognormal at 10% Significance Level					
293	Data appear Approximate Lognormal at 10% Significance Level											
294												
295	Background Statistics assuming Lognormal Distribution											
296	95% UTL with 95% Coverage				19.86		90% Percentile (z)				16.07	
297	95% UPL (t)				18.54		95% Percentile (z)				18.46	
298	95% USL				36.35		99% Percentile (z)				23.92	
299												
300	Nonparametric Distribution Free Background Statistics											
301	Data appear Approximate Normal at 1% Significance Level											
302												
303	Nonparametric Upper Limits for Background Threshold Values											
304	Order of Statistic, order				192		95% UTL with 95% Coverage				19.6	
305	Approx, f used to compute achieved CC				1.675		Approximate Actual Confidence Coefficient achieved by UTL				0.93	
306					Approximate Sample Size needed to achieve specified CC				181			
307	95% Percentile Bootstrap UTL with 95% Coverage				18.4		95% BCA Bootstrap UTL with 95% Coverage				18.3	
308	95% UPL				17.76		90% Percentile				15.75	
309	90% Chebyshev UPL				21.93		95% Percentile				17.7	
310	95% Chebyshev UPL				27.07		99% Percentile				20.4	
311	95% USL				20.6							
312												
313	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
314	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
315	and consists of observations collected from clean unimpacted locations.											
316	The use of USL tends to provide a balance between false positives and false negatives provided the data											
317	represents a background data set and when many onsite observations need to be compared with the BTV.											
318												
319	OH_Pb											
320												
321	General Statistics											
322	Total Number of Observations				207		Number of Distinct Observations				154	
323	Minimum				11.2		First Quartile				20.6	
324	Second Largest				148		Median				26.4	
325	Maximum				174		Third Quartile				32.8	
326	Mean				29		SD				16.63	
327	Coefficient of Variation				0.573		Skewness				5.266	
328	Mean of logged Data				3.278		SD of logged Data				0.391	
329												
330	Critical Values for Background Threshold Values (BTVs)											
331	Tolerance Factor K (For UTL)				1.832		d2max (for USL)				3.443	
332												
333	Normal GOF Test											
334	Shapiro Wilk Test Statistic				0.624		Normal GOF Test					
335	1% Shapiro Wilk P Value				0		Data Not Normal at 1% Significance Level					
336	Lilliefors Test Statistic				0.167		Lilliefors GOF Test					
337	1% Lilliefors Critical Value				0.0717		Data Not Normal at 1% Significance Level					
338	Data Not Normal at 1% Significance Level											
339												
340	Background Statistics Assuming Normal Distribution											

	A	B	C	D	E	F	G	H	I	J	K	L
341	95% UTL with 95% Coverage					59.47	90% Percentile (z)					50.31
342	95% UPL (t)					56.54	95% Percentile (z)					56.35
343	95% USL					86.25	99% Percentile (z)					67.69
344												
345	Gamma GOF Test											
346	A-D Test Statistic					3.209	Anderson-Darling Gamma GOF Test					
347	5% A-D Critical Value					0.755	Data Not Gamma Distributed at 5% Significance Level					
348	K-S Test Statistic					0.0969	Kolmogorov-Smirnov Gamma GOF Test					
349	5% K-S Critical Value					0.0629	Data Not Gamma Distributed at 5% Significance Level					
350	Data Not Gamma Distributed at 5% Significance Level											
351												
352	Gamma Statistics											
353	k hat (MLE)					5.742	k star (bias corrected MLE)					5.662
354	Theta hat (MLE)					5.051	Theta star (bias corrected MLE)					5.122
355	nu hat (MLE)					2377	nu star (bias corrected)					2344
356	MLE Mean (bias corrected)					29	MLE Sd (bias corrected)					12.19
357												
358	Background Statistics Assuming Gamma Distribution											
359	95% Wilson Hilferty (WH) Approx. Gamma UPL					51.15	90% Percentile					45.3
360	95% Hawkins Wixley (HW) Approx. Gamma UPL					50.89	95% Percentile					51.52
361	95% WH Approx. Gamma UTL with 95% Coverage					54.3	99% Percentile					64.57
362	95% HW Approx. Gamma UTL with 95% Coverage					54.13						
363	95% WH USL					89.38	95% HW USL					91.42
364												
365	Lognormal GOF Test											
366	Shapiro Wilk Test Statistic					0.954	Shapiro Wilk Lognormal GOF Test					
367	10% Shapiro Wilk P Value					6.2958E-6	Data Not Lognormal at 10% Significance Level					
368	Lilliefors Test Statistic					0.0596	Lilliefors Lognormal GOF Test					
369	10% Lilliefors Critical Value					0.0567	Data Not Lognormal at 10% Significance Level					
370	Data Not Lognormal at 10% Significance Level											
371												
372	Background Statistics assuming Lognormal Distribution											
373	95% UTL with 95% Coverage					54.24	90% Percentile (z)					43.75
374	95% UPL (t)					50.64	95% Percentile (z)					50.42
375	95% USL					101.8	99% Percentile (z)					65.79
376												
377	Nonparametric Distribution Free Background Statistics											
378	Data do not follow a Discernible Distribution											
379												
380	Nonparametric Upper Limits for Background Threshold Values											
381	Order of Statistic, order					203	95% UTL with 95% Coverage					54.3
382	Approx, f used to compute achieved CC					1.772	Approximate Actual Confidence Coefficient achieved by UTL					0.949
383							Approximate Sample Size needed to achieve specified CC					181
384	95% Percentile Bootstrap UTL with 95% Coverage					51.9	95% BCA Bootstrap UTL with 95% Coverage					51.87
385	95% UPL					49.72	90% Percentile					40.12
386	90% Chebyshev UPL					79.01	95% Percentile					49.39
387	95% Chebyshev UPL					101.7	99% Percentile					74.79
388	95% USL					174						
389												
390	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
391	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
392	and consists of observations collected from clean unimpacted locations.											
393	The use of USL tends to provide a balance between false positives and false negatives provided the data											
394	represents a background data set and when many onsite observations need to be compared with the BTV.											
395												
396	OH_Pb <72											
397												
398	General Statistics											
399	Total Number of Observations					204	Number of Distinct Observations					151
400	Minimum					11.2	First Quartile					20.48
401	Second Largest					54.3	Median					26.3
402	Maximum					71.5	Third Quartile					32.35
403	Mean					27.48	SD					9.723
404	Coefficient of Variation					0.354	Skewness					1.064
405	Mean of logged Data					3.255	SD of logged Data					0.342
406												
407	Critical Values for Background Threshold Values (BTVs)											
408	Tolerance Factor K (For UTL)					1.834	d2max (for USL)					3.438

	A	B	C	D	E	F	G	H	I	J	K	L
409												
410	Normal GOF Test											
411	Shapiro Wilk Test Statistic					0.936	Normal GOF Test					
412	1% Shapiro Wilk P Value					6.028E-11	Data Not Normal at 1% Significance Level					
413	Lilliefors Test Statistic					0.101	Lilliefors GOF Test					
414	1% Lilliefors Critical Value					0.0722	Data Not Normal at 1% Significance Level					
415	Data Not Normal at 1% Significance Level											
416												
417	Background Statistics Assuming Normal Distribution											
418	95% UTL with		95% Coverage		45.31						90% Percentile (z)	39.94
419			95% UPL (t)		43.59						95% Percentile (z)	43.47
420			95% USL		60.91						99% Percentile (z)	50.1
421												
422	Gamma GOF Test											
423	A-D Test Statistic					0.527	Anderson-Darling Gamma GOF Test					
424	5% A-D Critical Value					0.753	Detected data appear Gamma Distributed at 5% Significance Level					
425	K-S Test Statistic					0.0557	Kolmogorov-Smirnov Gamma GOF Test					
426	5% K-S Critical Value					0.0632	Detected data appear Gamma Distributed at 5% Significance Level					
427	Detected data appear Gamma Distributed at 5% Significance Level											
428												
429	Gamma Statistics											
430	k hat (MLE)					8.707	k star (bias corrected MLE)					8.582
431	Theta hat (MLE)					3.157	Theta star (bias corrected MLE)					3.202
432	nu hat (MLE)					3552	nu star (bias corrected)					3501
433	MLE Mean (bias corrected)					27.48	MLE Sd (bias corrected)					9.381
434												
435	Background Statistics Assuming Gamma Distribution											
436	95% Wilson Hilferty (WH) Approx. Gamma UPL					44.54	90% Percentile					39.98
437	95% Hawkins Wixley (HW) Approx. Gamma UPL					44.77	95% Percentile					44.51
438	95% WH Approx. Gamma UTL with		95% Coverage		46.86	99% Percentile					53.86	
439	95% HW Approx. Gamma UTL with		95% Coverage		47.21							
440			95% WH USL		71.66	95% HW USL					74.03	
441												
442	Lognormal GOF Test											
443	Shapiro Wilk Test Statistic					0.984	Shapiro Wilk Lognormal GOF Test					
444	10% Shapiro Wilk P Value					0.6	Data appear Lognormal at 10% Significance Level					
445	Lilliefors Test Statistic					0.0333	Lilliefors Lognormal GOF Test					
446	10% Lilliefors Critical Value					0.0571	Data appear Lognormal at 10% Significance Level					
447	Data appear Lognormal at 10% Significance Level											
448												
449	Background Statistics assuming Lognormal Distribution											
450	95% UTL with		95% Coverage		48.53	90% Percentile (z)					40.18	
451			95% UPL (t)		45.68	95% Percentile (z)					45.5	
452			95% USL		84.03	99% Percentile (z)					57.44	
453												
454	Nonparametric Distribution Free Background Statistics											
455	Data appear Gamma Distributed at 5% Significance Level											
456												
457	Nonparametric Upper Limits for Background Threshold Values											
458	Order of Statistic, order					200	95% UTL with 95% Coverage					51.8
459	Approx, f used to compute achieved CC					1.746	Approximate Actual Confidence Coefficient achieved by UTL					0.945
460							Approximate Sample Size needed to achieve specified CC					181
461	95% Percentile Bootstrap UTL with		95% Coverage		49.8	95% BCA Bootstrap UTL with 95% Coverage					49.77	
462			95% UPL		48.88	90% Percentile					38.97	
463			90% Chebyshev UPL		56.72	95% Percentile					48.59	
464			95% Chebyshev UPL		69.97	99% Percentile					52.87	
465			95% USL		71.5							
466												
467	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
468	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
469	and consists of observations collected from clean unimpacted locations.											
470	The use of USL tends to provide a balance between false positives and false negatives provided the data											
471	represents a background data set and when many onsite observations need to be compared with the BTV.											
472												
473	OH_Pb <50											
474												
475	General Statistics											
476	Total Number of Observations					198	Number of Distinct Observations					145

	A	B	C	D	E	F	G	H	I	J	K	L	
477					Minimum	11.2					First Quartile	20.4	
478					Second Largest	49.6					Median	26.05	
479					Maximum	49.8					Third Quartile	31.53	
480					Mean	26.63					SD	8.435	
481					Coefficient of Variation	0.317					Skewness	0.597	
482					Mean of logged Data	3.232					SD of logged Data	0.32	
483													
484	Critical Values for Background Threshold Values (BTVs)												
485	Tolerance Factor K (For UTL)					1.837						d2max (for USL)	3.429
486													
487	Normal GOF Test												
488	Shapiro Wilk Test Statistic					0.95	Normal GOF Test						
489	1% Shapiro Wilk P Value					1.7309E-6	Data Not Normal at 1% Significance Level						
490	Lilliefors Test Statistic					0.077	Lilliefors GOF Test						
491	1% Lilliefors Critical Value					0.0733	Data Not Normal at 1% Significance Level						
492	Data Not Normal at 1% Significance Level												
493													
494	Background Statistics Assuming Normal Distribution												
495	95% UTL with		95% Coverage		42.13	90% Percentile (z)						37.44	
496			95% UPL (t)		40.61	95% Percentile (z)						40.51	
497			95% USL		55.56	99% Percentile (z)						46.26	
498													
499	Gamma GOF Test												
500	A-D Test Statistic					0.308	Anderson-Darling Gamma GOF Test						
501	5% A-D Critical Value					0.751	Detected data appear Gamma Distributed at 5% Significance Level						
502	K-S Test Statistic					0.0368	Kolmogorov-Smirnov Gamma GOF Test						
503	5% K-S Critical Value					0.0641	Detected data appear Gamma Distributed at 5% Significance Level						
504	Detected data appear Gamma Distributed at 5% Significance Level												
505													
506	Gamma Statistics												
507	k hat (MLE)					10.17	k star (bias corrected MLE)					10.02	
508	Theta hat (MLE)					2.619	Theta star (bias corrected MLE)					2.659	
509	nu hat (MLE)					4026	nu star (bias corrected)					3967	
510	MLE Mean (bias corrected)					26.63	MLE Sd (bias corrected)					8.415	
511													
512	Background Statistics Assuming Gamma Distribution												
513	95% Wilson Hilferty (WH) Approx. Gamma UPL					41.86	90% Percentile					37.82	
514	95% Hawkins Wixley (HW) Approx. Gamma UPL					42.11	95% Percentile					41.81	
515	95% WH Approx. Gamma UTL with 95% Coverage					43.93	99% Percentile					50	
516	95% HW Approx. Gamma UTL with 95% Coverage					44.28							
517	95% WH USL					65.31	95% HW USL					67.37	
518													
519	Lognormal GOF Test												
520	Shapiro Wilk Test Statistic					0.974	Shapiro Wilk Lognormal GOF Test						
521	10% Shapiro Wilk P Value					0.0641	Data Not Lognormal at 10% Significance Level						
522	Lilliefors Test Statistic					0.0374	Lilliefors Lognormal GOF Test						
523	10% Lilliefors Critical Value					0.058	Data appear Lognormal at 10% Significance Level						
524	Data appear Approximate Lognormal at 10% Significance Level												
525													
526	Background Statistics assuming Lognormal Distribution												
527	95% UTL with		95% Coverage		45.59	90% Percentile (z)					38.17		
528			95% UPL (t)		43.04	95% Percentile (z)					42.87		
529			95% USL		75.87	99% Percentile (z)					53.31		
530													
531	Nonparametric Distribution Free Background Statistics												
532	Data appear Gamma Distributed at 5% Significance Level												
533													
534	Nonparametric Upper Limits for Background Threshold Values												
535	Order of Statistic, order					194	95% UTL with 95% Coverage					48.8	
536	Approx, f used to compute achieved CC					1.693	Approximate Actual Confidence Coefficient achieved by UTL					0.934	
537							Approximate Sample Size needed to achieve specified CC					181	
538	95% Percentile Bootstrap UTL with		95% Coverage		45.27	95% BCA Bootstrap UTL with 95% Coverage					45.48		
539			95% UPL		41.72	90% Percentile					37.86		
540			90% Chebyshev UPL		52	95% Percentile					41.09		
541			95% Chebyshev UPL		63.49	99% Percentile					48.92		
542			95% USL		49.8								
543													
544	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												

	A	B	C	D	E	F	G	H	I	J	K	L
545	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
546	and consists of observations collected from clean unimpacted locations.											
547	The use of USL tends to provide a balance between false positives and false negatives provided the data											
548	represents a background data set and when many onsite observations need to be compared with the BTV.											
549												
550	OH_Pb <40											
551												
552	General Statistics											
553	Total Number of Observations					186	Number of Distinct Observations					135
554	Minimum					11.2	First Quartile					20.08
555	Second Largest					39.1	Median					25.05
556	Maximum					39.8	Third Quartile					30.05
557	Mean					25.39	SD					7.037
558	Coefficient of Variation					0.277	Skewness					0.18
559	Mean of logged Data					3.194	SD of logged Data					0.291
560												
561	Critical Values for Background Threshold Values (BTVs)											
562	Tolerance Factor K (For UTL)					1.843	d2max (for USL)					3.41
563												
564	Normal GOF Test											
565	Shapiro Wilk Test Statistic					0.955	Normal GOF Test					
566	1% Shapiro Wilk P Value					4.5871E-5	Data Not Normal at 1% Significance Level					
567	Lilliefors Test Statistic					0.0502	Lilliefors GOF Test					
568	1% Lilliefors Critical Value					0.0756	Data appear Normal at 1% Significance Level					
569	Data appear Approximate Normal at 1% Significance Level											
570												
571	Background Statistics Assuming Normal Distribution											
572	95% UTL with	95% Coverage			38.36	90% Percentile (z)					34.41	
573		95% UPL (t)			37.06	95% Percentile (z)					36.97	
574		95% USL			49.39	99% Percentile (z)					41.76	
575												
576	Gamma GOF Test											
577	A-D Test Statistic					0.649	Anderson-Darling Gamma GOF Test					
578	5% A-D Critical Value					0.751	Detected data appear Gamma Distributed at 5% Significance Level					
579	K-S Test Statistic					0.0438	Kolmogorov-Smirnov Gamma GOF Test					
580	5% K-S Critical Value					0.0672	Detected data appear Gamma Distributed at 5% Significance Level					
581	Detected data appear Gamma Distributed at 5% Significance Level											
582												
583	Gamma Statistics											
584	k hat (MLE)					12.54	k star (bias corrected MLE)					12.34
585	Theta hat (MLE)					2.025	Theta star (bias corrected MLE)					2.057
586	nu hat (MLE)					4665	nu star (bias corrected)					4592
587	MLE Mean (bias corrected)					25.39	MLE Sd (bias corrected)					7.228
588												
589	Background Statistics Assuming Gamma Distribution											
590	95% Wilson Hilferty (WH) Approx. Gamma UPL					38.38	90% Percentile					34.98
591	95% Hawkins Wixley (HW) Approx. Gamma UPL					38.62	95% Percentile					38.33
592	95% WH Approx. Gamma UTL with 95% Coverage					40.17	99% Percentile					45.15
593	95% HW Approx. Gamma UTL with 95% Coverage					40.5						
594	95% WH USL					57.49	95% HW USL					59.13
595												
596	Lognormal GOF Test											
597	Shapiro Wilk Test Statistic					0.956	Shapiro Wilk Lognormal GOF Test					
598	10% Shapiro Wilk P Value					6.8857E-5	Data Not Lognormal at 10% Significance Level					
599	Lilliefors Test Statistic					0.0603	Lilliefors Lognormal GOF Test					
600	10% Lilliefors Critical Value					0.0598	Data Not Lognormal at 10% Significance Level					
601	Data Not Lognormal at 10% Significance Level											
602												
603	Background Statistics assuming Lognormal Distribution											
604	95% UTL with 95% Coverage					41.67	90% Percentile (z)					35.39
605	95% UPL (t)					39.48	95% Percentile (z)					39.34
606	95% USL					65.71	99% Percentile (z)					47.95
607												
608	Nonparametric Distribution Free Background Statistics											
609	Data appear Approximate Normal at 1% Significance Level											
610												
611	Nonparametric Upper Limits for Background Threshold Values											
612	Order of Statistic, order					182	95% UTL with 95% Coverage					38.6

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L
613	Approx, f used to compute achieved CC					1.588	Approximate Actual Confidence Coefficient achieved by UTL					0.907
614							Approximate Sample Size needed to achieve specified CC					181
615	95% Percentile Bootstrap UTL with			95% Coverage		38.1	95% BCA Bootstrap UTL with			95% Coverage		38.1
616				95% UPL		37.77				90% Percentile		36.1
617				90% Chebyshev UPL		46.56				95% Percentile		37.68
618				95% Chebyshev UPL		56.15				99% Percentile		39.02
619				95% USL		39.8						
620												
621	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
622	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
623	and consists of observations collected from clean unimpacted locations.											
624	The use of USL tends to provide a balance between false positives and false negatives provided the data											
625	represents a background data set and when many onsite observations need to be compared with the BTV.											
626												
627	OR_As											
628												
629	General Statistics											
630	Total Number of Observations					456	Number of Distinct Observations					103
631	Minimum					0.3	First Quartile					2.8
632	Second Largest					39.9	Median					4.1
633	Maximum					56.1	Third Quartile					5.6
634	Mean					4.866	SD					4.458
635	Coefficient of Variation					0.916	Skewness					6.362
636	Mean of logged Data					1.391	SD of logged Data					0.579
637												
638	Critical Values for Background Threshold Values (BTVs)											
639	Tolerance Factor K (For UTL)					1.768	d2max (for USL)					3.67
640												
641	Normal GOF Test											
642	Shapiro Wilk Test Statistic					0.547	Normal GOF Test					
643	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
644	Lilliefors Test Statistic					0.204	Lilliefors GOF Test					
645	1% Lilliefors Critical Value					0.0484	Data Not Normal at 1% Significance Level					
646	Data Not Normal at 1% Significance Level											
647												
648	Background Statistics Assuming Normal Distribution											
649	95% UTL with			95% Coverage		12.75	90% Percentile (z)			10.58		
650				95% UPL (t)		12.22	95% Percentile (z)			12.2		
651				95% USL		21.23	99% Percentile (z)			15.24		
652												
653	Gamma GOF Test											
654	A-D Test Statistic					7.26	Anderson-Darling Gamma GOF Test					
655	5% A-D Critical Value					0.762	Data Not Gamma Distributed at 5% Significance Level					
656	K-S Test Statistic					0.0895	Kolmogorov-Smirnov Gamma GOF Test					
657	5% K-S Critical Value					0.0429	Data Not Gamma Distributed at 5% Significance Level					
658	Data Not Gamma Distributed at 5% Significance Level											
659												
660	Gamma Statistics											
661	k hat (MLE)					2.763	k star (bias corrected MLE)					2.746
662	Theta hat (MLE)					1.761	Theta star (bias corrected MLE)					1.772
663	nu hat (MLE)					2520	nu star (bias corrected)					2504
664	MLE Mean (bias corrected)					4.866	MLE Sd (bias corrected)					2.936
665												
666	Background Statistics Assuming Gamma Distribution											
667	95% Wilson Hilferty (WH) Approx. Gamma UPL					10.27	90% Percentile					8.802
668	95% Hawkins Wixley (HW) Approx. Gamma UPL					10.23	95% Percentile					10.48
669	95% WH Approx. Gamma UTL with			95% Coverage		10.84	99% Percentile					14.13
670	95% HW Approx. Gamma UTL with			95% Coverage		10.83						
671				95% WH USL		23.16	95% HW USL					24.55
672												
673	Lognormal GOF Test											
674	Shapiro Wilk Test Statistic					0.979	Shapiro Wilk Lognormal GOF Test					
675	10% Shapiro Wilk P Value					0.0528	Data Not Lognormal at 10% Significance Level					
676	Lilliefors Test Statistic					0.0507	Lilliefors Lognormal GOF Test					
677	10% Lilliefors Critical Value					0.0383	Data Not Lognormal at 10% Significance Level					
678	Data Not Lognormal at 10% Significance Level											
679												
680	Background Statistics assuming Lognormal Distribution											

	A	B	C	D	E	F	G	H	I	J	K	L
681	95% UTL with 95% Coverage					11.18	90% Percentile (z)					8.433
682	95% UPL (t)					10.44	95% Percentile (z)					10.41
683	95% USL					33.6	99% Percentile (z)					15.44
684												
685	Nonparametric Distribution Free Background Statistics											
686	Data do not follow a Discernible Distribution											
687												
688	Nonparametric Upper Limits for Background Threshold Values											
689	Order of Statistic, order					442	95% UTL with 95% Coverage					12.9
690	Approx, f used to compute achieved CC					1.451	Approximate Actual Confidence Coefficient achieved by UTL					0.948
691							Approximate Sample Size needed to achieve specified CC					434
692	95% Percentile Bootstrap UTL with 95% Coverage					11.3	95% BCA Bootstrap UTL with 95% Coverage					11.3
693	95% UPL					9.29	90% Percentile					7.45
694	90% Chebyshev UPL					18.25	95% Percentile					9.125
695	95% Chebyshev UPL					24.32	99% Percentile					18.97
696	95% USL					56.1						
697												
698	Note: The use of USL tends to yield a conservative estimate of BTv, especially when the sample size starts exceeding 20.											
699	Therefore, one may use USL to estimate a BTv only when the data set represents a background data set free of outliers											
700	and consists of observations collected from clean unimpacted locations.											
701	The use of USL tends to provide a balance between false positives and false negatives provided the data											
702	represents a background data set and when many onsite observations need to be compared with the BTv.											
703												
704	OR_As <36											
705												
706	General Statistics											
707	Total Number of Observations					453	Number of Distinct Observations					100
708	Minimum					0.3	First Quartile					2.8
709	Second Largest					22	Median					4.1
710	Maximum					35.5	Third Quartile					5.5
711	Mean					4.604	SD					3.014
712	Coefficient of Variation					0.655	Skewness					3.807
713	Mean of logged Data					1.375	SD of logged Data					0.547
714												
715	Critical Values for Background Threshold Values (BTvs)											
716	Tolerance Factor K (For UTL)					1.769	d2max (for USL)					3.668
717												
718	Normal GOF Test											
719	Shapiro Wilk Test Statistic					0.762	Normal GOF Test					
720	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
721	Lilliefors Test Statistic					0.136	Lilliefors GOF Test					
722	1% Lilliefors Critical Value					0.0486	Data Not Normal at 1% Significance Level					
723	Data Not Normal at 1% Significance Level											
724												
725	Background Statistics Assuming Normal Distribution											
726	95% UTL with 95% Coverage					9.934	90% Percentile (z)					8.466
727	95% UPL (t)					9.577	95% Percentile (z)					9.561
728	95% USL					15.66	99% Percentile (z)					11.62
729												
730	Gamma GOF Test											
731	A-D Test Statistic					2.454	Anderson-Darling Gamma GOF Test					
732	5% A-D Critical Value					0.76	Data Not Gamma Distributed at 5% Significance Level					
733	K-S Test Statistic					0.055	Kolmogorov-Smirnov Gamma GOF Test					
734	5% K-S Critical Value					0.0429	Data Not Gamma Distributed at 5% Significance Level					
735	Data Not Gamma Distributed at 5% Significance Level											
736												
737	Gamma Statistics											
738	k hat (MLE)					3.442	k star (bias corrected MLE)					3.421
739	Theta hat (MLE)					1.337	Theta star (bias corrected MLE)					1.346
740	nu hat (MLE)					3119	nu star (bias corrected)					3099
741	MLE Mean (bias corrected)					4.604	MLE Sd (bias corrected)					2.489
742												
743	Background Statistics Assuming Gamma Distribution											
744	95% Wilson Hilferty (WH) Approx. Gamma UPL					9.242	90% Percentile					7.942
745	95% Hawkins Wixley (HW) Approx. Gamma UPL					9.309	95% Percentile					9.311
746	95% WH Approx. Gamma UTL with 95% Coverage					9.716	99% Percentile					12.26
747	95% HW Approx. Gamma UTL with 95% Coverage					9.814						
748	95% WH USL					19.66	95% HW USL					21.06

	A	B	C	D	E	F	G	H	I	J	K	L
749												
750	Lognormal GOF Test											
751	Shapiro Wilk Test Statistic					0.993	Shapiro Wilk Lognormal GOF Test					
752	10% Shapiro Wilk P Value					0.996	Data appear Lognormal at 10% Significance Level					
753	Lilliefors Test Statistic					0.0363	Lilliefors Lognormal GOF Test					
754	10% Lilliefors Critical Value					0.0384	Data appear Lognormal at 10% Significance Level					
755	Data appear Lognormal at 10% Significance Level											
756												
757	Background Statistics assuming Lognormal Distribution											
758	95% UTL with 95% Coverage					10.4	90% Percentile (z)					7.967
759	95% UPL (t)					9.745	95% Percentile (z)					9.718
760	95% USL					29.37	99% Percentile (z)					14.1
761												
762	Nonparametric Distribution Free Background Statistics											
763	Data appear Lognormal at 10% Significance Level											
764												
765	Nonparametric Upper Limits for Background Threshold Values											
766	Order of Statistic, order					439	95% UTL with 95% Coverage					11.1
767	Approx, f used to compute achieved CC					1.441	Approximate Actual Confidence Coefficient achieved by UTL					0.945
768							Approximate Sample Size needed to achieve specified CC					434
769	95% Percentile Bootstrap UTL with 95% Coverage					10.7	95% BCA Bootstrap UTL with 95% Coverage					10.86
770	95% UPL					8.93	90% Percentile					7.3
771	90% Chebyshev UPL					13.66	95% Percentile					8.84
772	95% Chebyshev UPL					17.76	99% Percentile					15.35
773	95% USL					35.5						
774												
775	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
776	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
777	and consists of observations collected from clean unimpacted locations.											
778	The use of USL tends to provide a balance between false positives and false negatives provided the data											
779	represents a background data set and when many onsite observations need to be compared with the BTV.											
780												
781	OR_As <23											
782												
783	General Statistics											
784	Total Number of Observations					452	Number of Distinct Observations					99
785	Minimum					0.3	First Quartile					2.8
786	Second Largest					16.5	Median					4.1
787	Maximum					22	Third Quartile					5.5
788	Mean					4.536	SD					2.642
789	Coefficient of Variation					0.583	Skewness					2.179
790	Mean of logged Data					1.37	SD of logged Data					0.537
791												
792	Critical Values for Background Threshold Values (BTVs)											
793	Tolerance Factor K (For UTL)					1.769	d2max (for USL)					3.668
794												
795	Normal GOF Test											
796	Shapiro Wilk Test Statistic					0.84	Normal GOF Test					
797	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
798	Lilliefors Test Statistic					0.115	Lilliefors GOF Test					
799	1% Lilliefors Critical Value					0.0486	Data Not Normal at 1% Significance Level					
800	Data Not Normal at 1% Significance Level											
801												
802	Background Statistics Assuming Normal Distribution											
803	95% UTL with 95% Coverage					9.209	90% Percentile (z)					7.922
804	95% UPL (t)					8.896	95% Percentile (z)					8.882
805	95% USL					14.23	99% Percentile (z)					10.68
806												
807	Gamma GOF Test											
808	A-D Test Statistic					1.59	Anderson-Darling Gamma GOF Test					
809	5% A-D Critical Value					0.759	Data Not Gamma Distributed at 5% Significance Level					
810	K-S Test Statistic					0.0442	Kolmogorov-Smirnov Gamma GOF Test					
811	5% K-S Critical Value					0.0429	Data Not Gamma Distributed at 5% Significance Level					
812	Data Not Gamma Distributed at 5% Significance Level											
813												
814	Gamma Statistics											
815	k hat (MLE)					3.676	k star (bias corrected MLE)					3.654
816	Theta hat (MLE)					1.234	Theta star (bias corrected MLE)					1.241

[illegible]

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	A	B	C	D	E	F	G	H	I	J	K	L	
885	A-D Test Statistic					0.39	Anderson-Darling Gamma GOF Test						
886	5% A-D Critical Value					0.758	Detected data appear Gamma Distributed at 5% Significance Level						
887	K-S Test Statistic					0.0239	Kolmogorov-Smirnov Gamma GOF Test						
888	5% K-S Critical Value					0.0432	Detected data appear Gamma Distributed at 5% Significance Level						
889	Detected data appear Gamma Distributed at 5% Significance Level												
890													
891	Gamma Statistics												
892	k hat (MLE)					4.17	k star (bias corrected MLE)					4.144	
893	Theta hat (MLE)					1.048	Theta star (bias corrected MLE)					1.055	
894	nu hat (MLE)					3720	nu star (bias corrected)					3696	
895	MLE Mean (bias corrected)					4.372	MLE Sd (bias corrected)					2.148	
896													
897	Background Statistics Assuming Gamma Distribution												
898	95% Wilson Hilferty (WH) Approx. Gamma UPL					8.38	90% Percentile					7.25	
899	95% Hawkins Wixley (HW) Approx. Gamma UPL					8.491	95% Percentile					8.396	
900	95% WH Approx. Gamma UTL with 95% Coverage					8.781	99% Percentile					10.84	
901	95% HW Approx. Gamma UTL with 95% Coverage					8.923							
902	95% WH USL					16.94	95% HW USL					18.21	
903													
904	Lognormal GOF Test												
905	Shapiro Wilk Test Statistic					0.986	Shapiro Wilk Lognormal GOF Test						
906	10% Shapiro Wilk P Value					0.65	Data appear Lognormal at 10% Significance Level						
907	Lilliefors Test Statistic					0.0496	Lilliefors Lognormal GOF Test						
908	10% Lilliefors Critical Value					0.0387	Data Not Lognormal at 10% Significance Level						
909	Data appear Approximate Lognormal at 10% Significance Level												
910													
911	Background Statistics assuming Lognormal Distribution												
912	95% UTL with		95% Coverage		9.586	90% Percentile (z)					7.458		
913			95% UPL (t)		9.014	95% Percentile (z)					8.99		
914			95% USL		25.38	99% Percentile (z)					12.76		
915													
916	Nonparametric Distribution Free Background Statistics												
917	Data appear Gamma Distributed at 5% Significance Level												
918													
919	Nonparametric Upper Limits for Background Threshold Values												
920	Order of Statistic, order					432	95% UTL with 95% Coverage					9	
921	Approx, f used to compute achieved CC					1.418	Approximate Actual Confidence Coefficient achieved by UTL					0.936	
922							Approximate Sample Size needed to achieve specified CC					434	
923	95% Percentile Bootstrap UTL with		95% Coverage		8.875	95% BCA Bootstrap UTL with 95% Coverage					8.75		
924			95% UPL		8.265	90% Percentile					7.1		
925			90% Chebyshev UPL		11.07	95% Percentile					8.2		
926			95% Chebyshev UPL		14.1	99% Percentile					12.72		
927			95% USL		14.9								
928													
929	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
930	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
931	and consists of observations collected from clean unimpacted locations.												
932	The use of USL tends to provide a balance between false positives and false negatives provided the data												
933	represents a background data set and when many onsite observations need to be compared with the BTV.												
934													
935	OR_Pb												
936													
937	General Statistics												
938	Total Number of Observations					456	Number of Distinct Observations					180	
939	Minimum					2.3	First Quartile					9	
940	Second Largest					126	Median					12	
941	Maximum					135	Third Quartile					15.93	
942	Mean					13.43	SD					9.914	
943	Coefficient of Variation					0.738	Skewness					7.856	
944	Mean of logged Data					2.47	SD of logged Data					0.478	
945													
946	Critical Values for Background Threshold Values (BTVs)												
947	Tolerance Factor K (For UTL)					1.768	d2max (for USL)					3.67	
948													
949	Normal GOF Test												
950	Shapiro Wilk Test Statistic					0.531	Normal GOF Test						
951	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
952	Lilliefors Test Statistic					0.187	Lilliefors GOF Test						

	A	B	C	D	E	F	G	H	I	J	K	L	
953	1% Lilliefors Critical Value					0.0484	Data Not Normal at 1% Significance Level						
954	Data Not Normal at 1% Significance Level												
955													
956	Background Statistics Assuming Normal Distribution												
957	95% UTL with		95% Coverage		30.96		90% Percentile (z)				26.13		
958			95% UPL (t)		29.79		95% Percentile (z)				29.73		
959			95% USL		49.81		99% Percentile (z)				36.49		
960													
961	Gamma GOF Test												
962	A-D Test Statistic				5.689		Anderson-Darling Gamma GOF Test						
963	5% A-D Critical Value				0.759		Data Not Gamma Distributed at 5% Significance Level						
964	K-S Test Statistic				0.081		Kolmogorov-Smirnov Gamma GOF Test						
965	5% K-S Critical Value				0.0427		Data Not Gamma Distributed at 5% Significance Level						
966	Data Not Gamma Distributed at 5% Significance Level												
967													
968	Gamma Statistics												
969	k hat (MLE)				4.097		k star (bias corrected MLE)				4.072		
970	Theta hat (MLE)				3.277		Theta star (bias corrected MLE)				3.298		
971	nu hat (MLE)				3737		nu star (bias corrected)				3714		
972	MLE Mean (bias corrected)				13.43		MLE Sd (bias corrected)				6.654		
973													
974	Background Statistics Assuming Gamma Distribution												
975	95% Wilson Hilferty (WH) Approx. Gamma UPL				25.55		90% Percentile				22.35		
976	95% Hawkins Wixley (HW) Approx. Gamma UPL				25.51		95% Percentile				25.91		
977	95% WH Approx. Gamma UTL with		95% Coverage		26.76		99% Percentile				33.5		
978	95% HW Approx. Gamma UTL with		95% Coverage		26.76								
979	95% WH USL				51.72		95% HW USL				54.08		
980													
981	Lognormal GOF Test												
982	Shapiro Wilk Test Statistic				0.96		Shapiro Wilk Lognormal GOF Test						
983	10% Shapiro Wilk P Value				6.375E-11		Data Not Lognormal at 10% Significance Level						
984	Lilliefors Test Statistic				0.0553		Lilliefors Lognormal GOF Test						
985	10% Lilliefors Critical Value				0.0383		Data Not Lognormal at 10% Significance Level						
986	Data Not Lognormal at 10% Significance Level												
987													
988	Background Statistics assuming Lognormal Distribution												
989	95% UTL with		95% Coverage		27.56		90% Percentile (z)				21.83		
990			95% UPL (t)		26.04		95% Percentile (z)				25.98		
991			95% USL		68.45		99% Percentile (z)				35.99		
992													
993	Nonparametric Distribution Free Background Statistics												
994	Data do not follow a Discernible Distribution												
995													
996	Nonparametric Upper Limits for Background Threshold Values												
997	Order of Statistic, order				442		95% UTL with 95% Coverage				25.1		
998	Approx, f used to compute achieved CC				1.451		Approximate Actual Confidence Coefficient achieved by UTL				0.948		
999							Approximate Sample Size needed to achieve specified CC				434		
1000	95% Percentile Bootstrap UTL with		95% Coverage		24.7		95% BCA Bootstrap UTL with		95% Coverage		24.75		
1001			95% UPL		23.53				90% Percentile		19.5		
1002			90% Chebyshev UPL		43.2				95% Percentile		23.13		
1003			95% Chebyshev UPL		56.69				99% Percentile		39.03		
1004			95% USL		135								
1005													
1006	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1007	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1008	and consists of observations collected from clean unimpacted locations.												
1009	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1010	represents a background data set and when many onsite observations need to be compared with the BTV.												
1011													
1012	OR_Pb <66												
1013													
1014	General Statistics												
1015	Total Number of Observations				454		Number of Distinct Observations				178		
1016	Minimum				2.3		First Quartile				9		
1017	Second Largest				50.7		Median				12		
1018	Maximum				65.1		Third Quartile				15.88		
1019	Mean				12.91		SD				6.152		
1020	Coefficient of Variation				0.476		Skewness				2.578		

	A	B	C	D	E	F	G	H	I	J	K	L	
1021	Mean of logged Data					2.46	SD of logged Data					0.452	
1022													
1023	Critical Values for Background Threshold Values (BTVs)												
1024	Tolerance Factor K (For UTL)					1.769	d2max (for USL)					3.669	
1025													
1026	Normal GOF Test												
1027	Shapiro Wilk Test Statistic					0.86	Normal GOF Test						
1028	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
1029	Lilliefors Test Statistic					0.0864	Lilliefors GOF Test						
1030	1% Lilliefors Critical Value					0.0485	Data Not Normal at 1% Significance Level						
1031	Data Not Normal at 1% Significance Level												
1032													
1033	Background Statistics Assuming Normal Distribution												
1034	95% UTL with	95% Coverage		23.79						90% Percentile (z)		20.8	
1035		95% UPL (t)		23.06						95% Percentile (z)		23.03	
1036		95% USL		35.48						99% Percentile (z)		27.22	
1037													
1038	Gamma GOF Test												
1039	A-D Test Statistic					1.284	Anderson-Darling Gamma GOF Test						
1040	5% A-D Critical Value					0.757	Data Not Gamma Distributed at 5% Significance Level						
1041	K-S Test Statistic					0.0403	Kolmogorov-Smirnov Gamma GOF Test						
1042	5% K-S Critical Value					0.0428	Detected data appear Gamma Distributed at 5% Significance Level						
1043	Detected data follow Appr. Gamma Distribution at 5% Significance Level												
1044													
1045	Gamma Statistics												
1046	k hat (MLE)					5.244	k star (bias corrected MLE)					5.211	
1047	Theta hat (MLE)					2.462	Theta star (bias corrected MLE)					2.478	
1048	nu hat (MLE)					4761	nu star (bias corrected)					4731	
1049	MLE Mean (bias corrected)					12.91	MLE Sd (bias corrected)					5.657	
1050													
1051	Background Statistics Assuming Gamma Distribution												
1052	95% Wilson Hilferty (WH) Approx. Gamma UPL					23.34	90% Percentile					20.48	
1053	95% Hawkins Wixley (HW) Approx. Gamma UPL					23.57	95% Percentile					23.4	
1054	95% WH Approx. Gamma UTL with 95% Coverage					24.34	99% Percentile					29.55	
1055	95% HW Approx. Gamma UTL with 95% Coverage					24.64							
1056	95% WH USL					44.57	95% HW USL					47.25	
1057													
1058	Lognormal GOF Test												
1059	Shapiro Wilk Test Statistic					0.973	Shapiro Wilk Lognormal GOF Test						
1060	10% Shapiro Wilk P Value					0.00102	Data Not Lognormal at 10% Significance Level						
1061	Lilliefors Test Statistic					0.0496	Lilliefors Lognormal GOF Test						
1062	10% Lilliefors Critical Value					0.0384	Data Not Lognormal at 10% Significance Level						
1063	Data Not Lognormal at 10% Significance Level												
1064													
1065	Background Statistics assuming Lognormal Distribution												
1066	95% UTL with	95% Coverage		26.03						90% Percentile (z)		20.89	
1067		95% UPL (t)		24.67						95% Percentile (z)		24.61	
1068		95% USL		61.45						99% Percentile (z)		33.49	
1069													
1070	Nonparametric Distribution Free Background Statistics												
1071	Data appear Approximate Gamma Distribution at 5% Significance Level												
1072													
1073	Nonparametric Upper Limits for Background Threshold Values												
1074	Order of Statistic, order					440	95% UTL with 95% Coverage					24.7	
1075	Approx, f used to compute achieved CC					1.444	Approximate Actual Confidence Coefficient achieved by UTL					0.946	
1076							Approximate Sample Size needed to achieve specified CC					434	
1077	95% Percentile Bootstrap UTL with 95% Coverage					24.5	95% BCA Bootstrap UTL with 95% Coverage					24.54	
1078						95% UPL	22.63	90% Percentile					19.47
1079						90% Chebyshev UPL	31.39	95% Percentile					22.18
1080						95% Chebyshev UPL	39.76	99% Percentile					32.04
1081						95% USL	65.1						
1082													
1083	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1084	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1085	and consists of observations collected from clean unimpacted locations.												
1086	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1087	represents a background data set and when many onsite observations need to be compared with the BTV.												
1088													

	A	B	C	D	E	F	G	H	I	J	K	L
1089	OR_Pb <35											
1090												
1091	General Statistics											
1092	Total Number of Observations					451	Number of Distinct Observations					175
1093	Minimum					2.3	First Quartile					9
1094	Second Largest					34	Median					11.9
1095	Maximum					34.4	Third Quartile					15.75
1096	Mean					12.64	SD					5.153
1097	Coefficient of Variation					0.408	Skewness					0.851
1098	Mean of logged Data					2.45	SD of logged Data					0.436
1099												
1100	Critical Values for Background Threshold Values (BTVs)											
1101	Tolerance Factor K (For UTL)					1.769	d2max (for USL)					3.667
1102												
1103	Normal GOF Test											
1104	Shapiro Wilk Test Statistic					0.953	Normal GOF Test					
1105	1% Shapiro Wilk P Value					2.220E-16	Data Not Normal at 1% Significance Level					
1106	Lilliefors Test Statistic					0.0689	Lilliefors GOF Test					
1107	1% Lilliefors Critical Value					0.0487	Data Not Normal at 1% Significance Level					
1108	Data Not Normal at 1% Significance Level											
1109												
1110	Background Statistics Assuming Normal Distribution											
1111	95% UTL with	95% Coverage				21.76	90% Percentile (z)					19.25
1112		95% UPL (t)				21.15	95% Percentile (z)					21.12
1113		95% USL				31.54	99% Percentile (z)					24.63
1114												
1115	Gamma GOF Test											
1116	A-D Test Statistic					0.51	Anderson-Darling Gamma GOF Test					
1117	5% A-D Critical Value					0.756	Detected data appear Gamma Distributed at 5% Significance Level					
1118	K-S Test Statistic					0.031	Kolmogorov-Smirnov Gamma GOF Test					
1119	5% K-S Critical Value					0.0429	Detected data appear Gamma Distributed at 5% Significance Level					
1120	Detected data appear Gamma Distributed at 5% Significance Level											
1121												
1122	Gamma Statistics											
1123	k hat (MLE)					5.891	k star (bias corrected MLE)					5.853
1124	Theta hat (MLE)					2.146	Theta star (bias corrected MLE)					2.16
1125	nu hat (MLE)					5314	nu star (bias corrected)					5280
1126	MLE Mean (bias corrected)					12.64	MLE Sd (bias corrected)					5.225
1127												
1128	Background Statistics Assuming Gamma Distribution											
1129	95% Wilson Hilferty (WH) Approx. Gamma UPL					22.27	90% Percentile					19.63
1130	95% Hawkins Wixley (HW) Approx. Gamma UPL					22.56	95% Percentile					22.28
1131	95% WH Approx. Gamma UTL with	95% Coverage				23.19	99% Percentile					27.84
1132	95% HW Approx. Gamma UTL with	95% Coverage				23.54						
1133		95% WH USL				41.36	95% HW USL					43.97
1134												
1135	Lognormal GOF Test											
1136	Shapiro Wilk Test Statistic					0.963	Shapiro Wilk Lognormal GOF Test					
1137	10% Shapiro Wilk P Value					5.1984E-9	Data Not Lognormal at 10% Significance Level					
1138	Lilliefors Test Statistic					0.048	Lilliefors Lognormal GOF Test					
1139	10% Lilliefors Critical Value					0.0385	Data Not Lognormal at 10% Significance Level					
1140	Data Not Lognormal at 10% Significance Level											
1141												
1142	Background Statistics assuming Lognormal Distribution											
1143	95% UTL with	95% Coverage				25.06	90% Percentile (z)					20.26
1144		95% UPL (t)				23.8	95% Percentile (z)					23.74
1145		95% USL				57.36	99% Percentile (z)					31.96
1146												
1147	Nonparametric Distribution Free Background Statistics											
1148	Data appear Gamma Distributed at 5% Significance Level											
1149												
1150	Nonparametric Upper Limits for Background Threshold Values											
1151	Order of Statistic, order					437	95% UTL with 95% Coverage					24.5
1152	Approx, f used to compute achieved CC					1.434	Approximate Actual Confidence Coefficient achieved by UTL					0.942
1153							Approximate Sample Size needed to achieve specified CC					434
1154	95% Percentile Bootstrap UTL with	95% Coverage				23.9	95% BCA Bootstrap UTL with	95% Coverage				23.5
1155		95% UPL				21.48		90% Percentile				19.3
1156		90% Chebyshev UPL				28.12		95% Percentile				21.3

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	A	B	C	D	E	F	G	H	I	J	K	L
1157	95% Chebyshev UPL					35.13	99% Percentile					28
1158	95% USL					34.4						
1159												
1160	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1161	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1162	and consists of observations collected from clean unimpacted locations.											
1163	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1164	represents a background data set and when many onsite observations need to be compared with the BTV.											
1165												
1166	OR_Pb <28											
1167												
1168	General Statistics											
1169	Total Number of Observations					446	Number of Distinct Observations					170
1170	Minimum					2.3	First Quartile					9
1171	Second Largest					27.2	Median					11.75
1172	Maximum					27.8	Third Quartile					15.68
1173	Mean					12.43	SD					4.78
1174	Coefficient of Variation					0.384	Skewness					0.507
1175	Mean of logged Data					2.439	SD of logged Data					0.426
1176												
1177	Critical Values for Background Threshold Values (BTVs)											
1178	Tolerance Factor K (For UTL)					1.77	d2max (for USL)					3.664
1179												
1180	Normal GOF Test											
1181	Shapiro Wilk Test Statistic					0.966	Normal GOF Test					
1182	1% Shapiro Wilk P Value					4.8132E-7	Data Not Normal at 1% Significance Level					
1183	Lilliefors Test Statistic					0.064	Lilliefors GOF Test					
1184	1% Lilliefors Critical Value					0.0489	Data Not Normal at 1% Significance Level					
1185	Data Not Normal at 1% Significance Level											
1186												
1187	Background Statistics Assuming Normal Distribution											
1188	95% UTL with	95% Coverage		20.89				90% Percentile (z)		18.56		
1189		95% UPL (t)		20.32				95% Percentile (z)		20.3		
1190		95% USL		29.95				99% Percentile (z)		23.55		
1191												
1192	Gamma GOF Test											
1193	A-D Test Statistic					0.592	Anderson-Darling Gamma GOF Test					
1194	5% A-D Critical Value					0.756	Detected data appear Gamma Distributed at 5% Significance Level					
1195	K-S Test Statistic					0.0308	Kolmogorov-Smirnov Gamma GOF Test					
1196	5% K-S Critical Value					0.0431	Detected data appear Gamma Distributed at 5% Significance Level					
1197	Detected data appear Gamma Distributed at 5% Significance Level											
1198												
1199	Gamma Statistics											
1200	k hat (MLE)					6.281	k star (bias corrected MLE)					6.24
1201	Theta hat (MLE)					1.98	Theta star (bias corrected MLE)					1.992
1202	nu hat (MLE)					5603	nu star (bias corrected)					5566
1203	MLE Mean (bias corrected)					12.43	MLE Sd (bias corrected)					4.977
1204												
1205	Background Statistics Assuming Gamma Distribution											
1206	95% Wilson Hilferty (WH) Approx. Gamma UPL					21.59	90% Percentile					19.09
1207	95% Hawkins Wixley (HW) Approx. Gamma UPL					21.89	95% Percentile					21.59
1208	95% WH Approx. Gamma UTL with 95% Coverage					22.46	99% Percentile					26.82
1209	95% HW Approx. Gamma UTL with 95% Coverage					22.82						
1210	95% WH USL					39.47	95% HW USL					41.94
1211												
1212	Lognormal GOF Test											
1213	Shapiro Wilk Test Statistic					0.953	Shapiro Wilk Lognormal GOF Test					
1214	10% Shapiro Wilk P Value					2.220E-16	Data Not Lognormal at 10% Significance Level					
1215	Lilliefors Test Statistic					0.0524	Lilliefors Lognormal GOF Test					
1216	10% Lilliefors Critical Value					0.0387	Data Not Lognormal at 10% Significance Level					
1217	Data Not Lognormal at 10% Significance Level											
1218												
1219	Background Statistics assuming Lognormal Distribution											
1220	95% UTL with	95% Coverage		24.34				90% Percentile (z)		19.77		
1221		95% UPL (t)		23.13				95% Percentile (z)		23.08		
1222		95% USL		54.51				99% Percentile (z)		30.85		
1223												
1224	Nonparametric Distribution Free Background Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L	
1225	Data appear Gamma Distributed at 5% Significance Level												
1226													
1227	Nonparametric Upper Limits for Background Threshold Values												
1228	Order of Statistic, order					432	95% UTL with 95% Coverage					22.5	
1229	Approx, f used to compute achieved CC					1.418	Approximate Actual Confidence Coefficient achieved by UTL					0.936	
1230							Approximate Sample Size needed to achieve specified CC					434	
1231	95% Percentile Bootstrap UTL with 95% Coverage					21.9	95% BCA Bootstrap UTL with 95% Coverage					21.6	
1232	95% UPL					20.63	90% Percentile					18.85	
1233	90% Chebyshev UPL					26.79	95% Percentile					20.5	
1234	95% Chebyshev UPL					33.29	99% Percentile					25.01	
1235	95% USL					27.8							
1236													
1237	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1238	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1239	and consists of observations collected from clean unimpacted locations.												
1240	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1241	represents a background data set and when many onsite observations need to be compared with the BTV.												
1242													
1243	PA_As												
1244													
1245	General Statistics												
1246	Total Number of Observations					227	Number of Distinct Observations					128	
1247	Minimum					1.1	First Quartile					6.15	
1248	Second Largest					36	Median					8.8	
1249	Maximum					43.1	Third Quartile					13.05	
1250	Mean					10.37	SD					6.272	
1251	Coefficient of Variation					0.605	Skewness					1.966	
1252	Mean of logged Data					2.184	SD of logged Data					0.562	
1253													
1254	Critical Values for Background Threshold Values (BTVs)												
1255	Tolerance Factor K (For UTL)					1.823	d2max (for USL)					3.471	
1256													
1257	Normal GOF Test												
1258	Shapiro Wilk Test Statistic					0.846	Normal GOF Test						
1259	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
1260	Lilliefors Test Statistic					0.11	Lilliefors GOF Test						
1261	1% Lilliefors Critical Value					0.0685	Data Not Normal at 1% Significance Level						
1262	Data Not Normal at 1% Significance Level												
1263													
1264	Background Statistics Assuming Normal Distribution												
1265	95% UTL with 95% Coverage					21.8	90% Percentile (z)					18.41	
1266	95% UPL (t)					20.75	95% Percentile (z)					20.68	
1267	95% USL					32.14	99% Percentile (z)					24.96	
1268													
1269	Gamma GOF Test												
1270	A-D Test Statistic					1.131	Anderson-Darling Gamma GOF Test						
1271	5% A-D Critical Value					0.759	Data Not Gamma Distributed at 5% Significance Level						
1272	K-S Test Statistic					0.0523	Kolmogorov-Smirnov Gamma GOF Test						
1273	5% K-S Critical Value					0.0609	Detected data appear Gamma Distributed at 5% Significance Level						
1274	Detected data follow Appr. Gamma Distribution at 5% Significance Level												
1275													
1276	Gamma Statistics												
1277	k hat (MLE)					3.379	k star (bias corrected MLE)					3.338	
1278	Theta hat (MLE)					3.068	Theta star (bias corrected MLE)					3.106	
1279	nu hat (MLE)					1534	nu star (bias corrected)					1515	
1280	MLE Mean (bias corrected)					10.37	MLE Sd (bias corrected)					5.675	
1281													
1282	Background Statistics Assuming Gamma Distribution												
1283	95% Wilson Hilferty (WH) Approx. Gamma UPL					21.04	90% Percentile					17.98	
1284	95% Hawkins Wixley (HW) Approx. Gamma UPL					21.28	95% Percentile					21.11	
1285	95% WH Approx. Gamma UTL with 95% Coverage					22.6	99% Percentile					27.87	
1286	95% HW Approx. Gamma UTL with 95% Coverage					22.95							
1287	95% WH USL					42.07	95% HW USL					45.1	
1288													
1289	Lognormal GOF Test												
1290	Shapiro Wilk Test Statistic					0.988	Shapiro Wilk Lognormal GOF Test						
1291	10% Shapiro Wilk P Value					0.856	Data appear Lognormal at 10% Significance Level						
1292	Lilliefors Test Statistic					0.0349	Lilliefors Lognormal GOF Test						

	A	B	C	D	E	F	G	H	I	J	K	L	
1293	10% Lilliefors Critical Value					0.0542	Data appear Lognormal at 10% Significance Level						
1294	Data appear Lognormal at 10% Significance Level												
1295													
1296	Background Statistics assuming Lognormal Distribution												
1297	95% UTL with		95% Coverage		24.73		90% Percentile (z)				18.24		
1298			95% UPL (t)		22.5		95% Percentile (z)				22.37		
1299			95% USL		62.4		99% Percentile (z)				32.81		
1300													
1301	Nonparametric Distribution Free Background Statistics												
1302	Data appear Approximate Gamma Distribution at 5% Significance Level												
1303													
1304	Nonparametric Upper Limits for Background Threshold Values												
1305	Order of Statistic, order				222		95% UTL with 95% Coverage				28.5		
1306	Approx, f used to compute achieved CC				1.662		Approximate Actual Confidence Coefficient achieved by UTL				0.939		
1307							Approximate Sample Size needed to achieve specified CC				208		
1308	95% Percentile Bootstrap UTL with		95% Coverage		23.8		95% BCA Bootstrap UTL with		95% Coverage		23.8		
1309			95% UPL		21.56				90% Percentile		17.32		
1310			90% Chebyshev UPL		29.23				95% Percentile		21.02		
1311			95% Chebyshev UPL		37.77				99% Percentile		35.05		
1312			95% USL		43.1								
1313													
1314	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
1315	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
1316	and consists of observations collected from clean unimpacted locations.												
1317	The use of USL tends to provide a balance between false positives and false negatives provided the data												
1318	represents a background data set and when many onsite observations need to be compared with the BTV.												
1319													
1320	PA_As <36												
1321													
1322	General Statistics												
1323	Total Number of Observations				225		Number of Distinct Observations				126		
1324	Minimum				1.1		First Quartile				6.1		
1325	Second Largest				33.2		Median				8.8		
1326	Maximum				35.7		Third Quartile				13		
1327	Mean				10.11		SD				5.649		
1328	Coefficient of Variation				0.559		Skewness				1.558		
1329	Mean of logged Data				2.17		SD of logged Data				0.546		
1330													
1331	Critical Values for Background Threshold Values (BTVs)												
1332	Tolerance Factor K (For UTL)				1.824		d2max (for USL)				3.468		
1333													
1334	Normal GOF Test												
1335	Shapiro Wilk Test Statistic				0.884		Normal GOF Test						
1336	1% Shapiro Wilk P Value				0		Data Not Normal at 1% Significance Level						
1337	Lilliefors Test Statistic				0.103		Lilliefors GOF Test						
1338	1% Lilliefors Critical Value				0.0688		Data Not Normal at 1% Significance Level						
1339	Data Not Normal at 1% Significance Level												
1340													
1341	Background Statistics Assuming Normal Distribution												
1342	95% UTL with		95% Coverage		20.41		90% Percentile (z)				17.35		
1343			95% UPL (t)		19.46		95% Percentile (z)				19.4		
1344			95% USL		29.7		99% Percentile (z)				23.25		
1345													
1346	Gamma GOF Test												
1347	A-D Test Statistic				0.737		Anderson-Darling Gamma GOF Test						
1348	5% A-D Critical Value				0.758		Detected data appear Gamma Distributed at 5% Significance Level						
1349	K-S Test Statistic				0.0504		Kolmogorov-Smirnov Gamma GOF Test						
1350	5% K-S Critical Value				0.0611		Detected data appear Gamma Distributed at 5% Significance Level						
1351	Detected data appear Gamma Distributed at 5% Significance Level												
1352													
1353	Gamma Statistics												
1354	k hat (MLE)				3.652		k star (bias corrected MLE)				3.607		
1355	Theta hat (MLE)				2.768		Theta star (bias corrected MLE)				2.803		
1356	nu hat (MLE)				1644		nu star (bias corrected)				1623		
1357	MLE Mean (bias corrected)				10.11		MLE Sd (bias corrected)				5.323		
1358													
1359	Background Statistics Assuming Gamma Distribution												
1360	95% Wilson Hilferty (WH) Approx. Gamma UPL				20.11		90% Percentile				17.25		

	A	B	C	D	E	F	G	H	I	J	K	L
1361	95% Hawkins Wixley (HW) Approx. Gamma UPL					20.37	95% Percentile					20.15
1362	95% WH Approx. Gamma UTL with 95% Coverage					21.56	99% Percentile					26.38
1363	95% HW Approx. Gamma UTL with 95% Coverage					21.94						
1364	95% WH USL					39.41	95% HW USL					42.27
1365												
1366	Lognormal GOF Test											
1367	Shapiro Wilk Test Statistic					0.986	Shapiro Wilk Lognormal GOF Test					
1368	10% Shapiro Wilk P Value					0.714	Data appear Lognormal at 10% Significance Level					
1369	Lilliefors Test Statistic					0.0366	Lilliefors Lognormal GOF Test					
1370	10% Lilliefors Critical Value					0.0544	Data appear Lognormal at 10% Significance Level					
1371	Data appear Lognormal at 10% Significance Level											
1372												
1373	Background Statistics assuming Lognormal Distribution											
1374	95% UTL with		95% Coverage		23.73	90% Percentile (z)					17.64	
1375			95% UPL (t)		21.64	95% Percentile (z)					21.52	
1376			95% USL		58.25	99% Percentile (z)					31.22	
1377												
1378	Nonparametric Distribution Free Background Statistics											
1379	Data appear Gamma Distributed at 5% Significance Level											
1380												
1381	Nonparametric Upper Limits for Background Threshold Values											
1382	Order of Statistic, order				220	95% UTL with 95% Coverage				23.8		
1383	Approx, f used to compute achieved CC				1.647	Approximate Actual Confidence Coefficient achieved by UTL				0.936		
1384						Approximate Sample Size needed to achieve specified CC				208		
1385	95% Percentile Bootstrap UTL with		95% Coverage		23.08	95% BCA Bootstrap UTL with		95% Coverage		22.8		
1386			95% UPL		20.48			90% Percentile		17.08		
1387			90% Chebyshev UPL		27.09			95% Percentile		20.08		
1388			95% Chebyshev UPL		34.79			99% Percentile		31.69		
1389			95% USL		35.7							
1390												
1391	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1392	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1393	and consists of observations collected from clean unimpacted locations.											
1394	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1395	represents a background data set and when many onsite observations need to be compared with the BTV.											
1396												
1397	PA_As <24											
1398												
1399	General Statistics											
1400	Total Number of Observations				220	Number of Distinct Observations				121		
1401	Minimum				1.1	First Quartile				6.075		
1402	Second Largest				23.4	Median				8.6		
1403	Maximum				23.8	Third Quartile				12.83		
1404	Mean				9.619	SD				4.649		
1405	Coefficient of Variation				0.483	Skewness				0.764		
1406	Mean of logged Data				2.141	SD of logged Data				0.517		
1407												
1408	Critical Values for Background Threshold Values (BTVs)											
1409	Tolerance Factor K (For UTL)				1.826	d2max (for USL)				3.461		
1410												
1411	Normal GOF Test											
1412	Shapiro Wilk Test Statistic				0.936	Normal GOF Test						
1413	1% Shapiro Wilk P Value				5.309E-12	Data Not Normal at 1% Significance Level						
1414	Lilliefors Test Statistic				0.0958	Lilliefors GOF Test						
1415	1% Lilliefors Critical Value				0.0696	Data Not Normal at 1% Significance Level						
1416	Data Not Normal at 1% Significance Level											
1417												
1418	Background Statistics Assuming Normal Distribution											
1419	95% UTL with		95% Coverage		18.11	90% Percentile (z)					15.58	
1420			95% UPL (t)		17.32	95% Percentile (z)					17.27	
1421			95% USL		25.71	99% Percentile (z)					20.44	
1422												
1423	Gamma GOF Test											
1424	A-D Test Statistic				0.537	Anderson-Darling Gamma GOF Test						
1425	5% A-D Critical Value				0.757	Detected data appear Gamma Distributed at 5% Significance Level						
1426	K-S Test Statistic				0.0469	Kolmogorov-Smirnov Gamma GOF Test						
1427	5% K-S Critical Value				0.0616	Detected data appear Gamma Distributed at 5% Significance Level						
1428	Detected data appear Gamma Distributed at 5% Significance Level											

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	A	B	C	D	E	F	G	H	I	J	K	L
1429												
1430	Gamma Statistics											
1431	k hat (MLE)					4.239	k star (bias corrected MLE)					4.184
1432	Theta hat (MLE)					2.269	Theta star (bias corrected MLE)					2.299
1433	nu hat (MLE)					1865	nu star (bias corrected)					1841
1434	MLE Mean (bias corrected)					9.619	MLE Sd (bias corrected)					4.702
1435												
1436	Background Statistics Assuming Gamma Distribution											
1437	95% Wilson Hilferty (WH) Approx. Gamma UPL					18.44	90% Percentile					15.92
1438	95% Hawkins Wixley (HW) Approx. Gamma UPL					18.72	95% Percentile					18.43
1439	95% WH Approx. Gamma UTL with 95% Coverage					19.69	99% Percentile					23.76
1440	95% HW Approx. Gamma UTL with 95% Coverage					20.09						
1441	95% WH USL					34.78	95% HW USL					37.28
1442												
1443	Lognormal GOF Test											
1444	Shapiro Wilk Test Statistic					0.972	Shapiro Wilk Lognormal GOF Test					
1445	10% Shapiro Wilk P Value					0.0284	Data Not Lognormal at 10% Significance Level					
1446	Lilliefors Test Statistic					0.0511	Lilliefors Lognormal GOF Test					
1447	10% Lilliefors Critical Value					0.055	Data appear Lognormal at 10% Significance Level					
1448	Data appear Approximate Lognormal at 10% Significance Level											
1449												
1450	Background Statistics assuming Lognormal Distribution											
1451	95% UTL with 95% Coverage					21.86	90% Percentile (z)					16.5
1452	95% UPL (t)					20.01	95% Percentile (z)					19.9
1453	95% USL					50.86	99% Percentile (z)					28.3
1454												
1455	Nonparametric Distribution Free Background Statistics											
1456	Data appear Gamma Distributed at 5% Significance Level											
1457												
1458	Nonparametric Upper Limits for Background Threshold Values											
1459	Order of Statistic, order					215	95% UTL with 95% Coverage					20.6
1460	Approx, f used to compute achieved CC					1.609	Approximate Actual Confidence Coefficient achieved by UTL					0.927
1461							Approximate Sample Size needed to achieve specified CC					208
1462	95% Percentile Bootstrap UTL with 95% Coverage					20.2	95% BCA Bootstrap UTL with 95% Coverage					19.63
1463	95% UPL					18.66	90% Percentile					16.41
1464	90% Chebyshev UPL					23.6	95% Percentile					17.94
1465	95% Chebyshev UPL					29.93	99% Percentile					22.61
1466	95% USL					23.8						
1467												
1468	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1469	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1470	and consists of observations collected from clean unimpacted locations.											
1471	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1472	represents a background data set and when many onsite observations need to be compared with the BTV.											
1473												
1474	PA_As <20											
1475												
1476	General Statistics											
1477	Total Number of Observations					213	Number of Distinct Observations					114
1478	Minimum					1.1	First Quartile					5.9
1479	Second Largest					19.1	Median					8.4
1480	Maximum					19.6	Third Quartile					12.2
1481	Mean					9.213	SD					4.132
1482	Coefficient of Variation					0.448	Skewness					0.504
1483	Mean of logged Data					2.11	SD of logged Data					0.495
1484												
1485	Critical Values for Background Threshold Values (BTVs)											
1486	Tolerance Factor K (For UTL)					1.829	d2max (for USL)					3.451
1487												
1488	Normal GOF Test											
1489	Shapiro Wilk Test Statistic					0.944	Normal GOF Test					
1490	1% Shapiro Wilk P Value					8.0974E-9	Data Not Normal at 1% Significance Level					
1491	Lilliefors Test Statistic					0.0915	Lilliefors GOF Test					
1492	1% Lilliefors Critical Value					0.0707	Data Not Normal at 1% Significance Level					
1493	Data Not Normal at 1% Significance Level											
1494												
1495	Background Statistics Assuming Normal Distribution											
1496	95% UTL with 95% Coverage					16.77	90% Percentile (z)					14.51

	A	B	C	D	E	F	G	H	I	J	K	L
1497					95% UPL (t)	16.06				95% Percentile (z)		16.01
1498					95% USL	23.47				99% Percentile (z)		18.83
1499												
1500	Gamma GOF Test											
1501					A-D Test Statistic	0.692		Anderson-Darling Gamma GOF Test				
1502					5% A-D Critical Value	0.756		Detected data appear Gamma Distributed at 5% Significance Level				
1503					K-S Test Statistic	0.0471		Kolmogorov-Smirnov Gamma GOF Test				
1504					5% K-S Critical Value	0.0623		Detected data appear Gamma Distributed at 5% Significance Level				
1505	Detected data appear Gamma Distributed at 5% Significance Level											
1506												
1507	Gamma Statistics											
1508					k hat (MLE)	4.683				k star (bias corrected MLE)		4.62
1509					Theta hat (MLE)	1.968				Theta star (bias corrected MLE)		1.994
1510					nu hat (MLE)	1995				nu star (bias corrected)		1968
1511					MLE Mean (bias corrected)	9.213				MLE Sd (bias corrected)		4.286
1512												
1513	Background Statistics Assuming Gamma Distribution											
1514					95% Wilson Hilferty (WH) Approx. Gamma UPL	17.22				90% Percentile		14.95
1515					95% Hawkins Wixley (HW) Approx. Gamma UPL	17.5				95% Percentile		17.2
1516					95% WH Approx. Gamma UTL with 95% Coverage	18.37				99% Percentile		21.98
1517					95% HW Approx. Gamma UTL with 95% Coverage	18.75						
1518					95% WH USL	31.64				95% HW USL		33.84
1519												
1520	Lognormal GOF Test											
1521					Shapiro Wilk Test Statistic	0.96		Shapiro Wilk Lognormal GOF Test				
1522					10% Shapiro Wilk P Value	1.6577E-4		Data Not Lognormal at 10% Significance Level				
1523					Lilliefors Test Statistic	0.0605		Lilliefors Lognormal GOF Test				
1524					10% Lilliefors Critical Value	0.0559		Data Not Lognormal at 10% Significance Level				
1525	Data Not Lognormal at 10% Significance Level											
1526												
1527	Background Statistics assuming Lognormal Distribution											
1528					95% UTL with 95% Coverage	20.4				90% Percentile (z)		15.55
1529					95% UPL (t)	18.72				95% Percentile (z)		18.62
1530					95% USL	45.52				99% Percentile (z)		26.09
1531												
1532	Nonparametric Distribution Free Background Statistics											
1533	Data appear Gamma Distributed at 5% Significance Level											
1534												
1535	Nonparametric Upper Limits for Background Threshold Values											
1536					Order of Statistic, order	208				95% UTL with 95% Coverage		17.9
1537					Approx, f used to compute achieved CC	1.556		Approximate Actual Confidence Coefficient achieved by UTL				0.911
1538								Approximate Sample Size needed to achieve specified CC				208
1539					95% Percentile Bootstrap UTL with 95% Coverage	17.8				95% BCA Bootstrap UTL with 95% Coverage		17.8
1540					95% UPL	17.2				90% Percentile		14.68
1541					90% Chebyshev UPL	21.64				95% Percentile		17.02
1542					95% Chebyshev UPL	27.27				99% Percentile		18.88
1543					95% USL	19.6						
1544												
1545	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1546	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1547	and consists of observations collected from clean unpacted locations.											
1548	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1549	represents a background data set and when many onsite observations need to be compared with the BTV.											
1550												
1551	PA_Pb											
1552												
1553	General Statistics											
1554					Total Number of Observations	227				Number of Distinct Observations		198
1555					Minimum	7				First Quartile		20.45
1556					Second Largest	287				Median		31.2
1557					Maximum	600				Third Quartile		47.85
1558					Mean	46.1				SD		55.9
1559					Coefficient of Variation	1.213				Skewness		5.639
1560					Mean of logged Data	3.517				SD of logged Data		0.712
1561												
1562	Critical Values for Background Threshold Values (BTVs)											
1563					Tolerance Factor K (For UTL)	1.823				d2max (for USL)		3.471
1564												

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	A	B	C	D	E	F	G	H	I	J	K	L
1565	Normal GOF Test											
1566	Shapiro Wilk Test Statistic					0.543	Normal GOF Test					
1567	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1568	Lilliefors Test Statistic					0.253	Lilliefors GOF Test					
1569	1% Lilliefors Critical Value					0.0685	Data Not Normal at 1% Significance Level					
1570	Data Not Normal at 1% Significance Level											
1571												
1572	Background Statistics Assuming Normal Distribution											
1573	95% UTL with		95% Coverage		148						90% Percentile (z)	117.7
1574			95% UPL (t)		138.6						95% Percentile (z)	138.1
1575			95% USL		240.1						99% Percentile (z)	176.1
1576												
1577	Gamma GOF Test											
1578	A-D Test Statistic					8.182	Anderson-Darling Gamma GOF Test					
1579	5% A-D Critical Value					0.769	Data Not Gamma Distributed at 5% Significance Level					
1580	K-S Test Statistic					0.146	Kolmogorov-Smirnov Gamma GOF Test					
1581	5% K-S Critical Value					0.0615	Data Not Gamma Distributed at 5% Significance Level					
1582	Data Not Gamma Distributed at 5% Significance Level											
1583												
1584	Gamma Statistics											
1585	k hat (MLE)					1.741	k star (bias corrected MLE)					1.721
1586	Theta hat (MLE)					26.47	Theta star (bias corrected MLE)					26.78
1587	nu hat (MLE)					790.6	nu star (bias corrected)					781.5
1588	MLE Mean (bias corrected)					46.1	MLE Sd (bias corrected)					35.14
1589												
1590	Background Statistics Assuming Gamma Distribution											
1591	95% Wilson Hilferty (WH) Approx. Gamma UPL					110.9	90% Percentile					92.91
1592	95% Hawkins Wixley (HW) Approx. Gamma UPL					109.7	95% Percentile					114.7
1593	95% WH Approx. Gamma UTL with		95% Coverage		121.6	99% Percentile					163.6	
1594	95% HW Approx. Gamma UTL with		95% Coverage		120.9							
1595			95% WH USL		265.2	95% HW USL					282.3	
1596												
1597	Lognormal GOF Test											
1598	Shapiro Wilk Test Statistic					0.959	Shapiro Wilk Lognormal GOF Test					
1599	10% Shapiro Wilk P Value					2.9187E-5	Data Not Lognormal at 10% Significance Level					
1600	Lilliefors Test Statistic					0.0848	Lilliefors Lognormal GOF Test					
1601	10% Lilliefors Critical Value					0.0542	Data Not Lognormal at 10% Significance Level					
1602	Data Not Lognormal at 10% Significance Level											
1603												
1604	Background Statistics assuming Lognormal Distribution											
1605	95% UTL with		95% Coverage		123.3	90% Percentile (z)					83.86	
1606			95% UPL (t)		109.4	95% Percentile (z)					108.6	
1607			95% USL		398.4	99% Percentile (z)					176.4	
1608												
1609	Nonparametric Distribution Free Background Statistics											
1610	Data do not follow a Discernible Distribution											
1611												
1612	Nonparametric Upper Limits for Background Threshold Values											
1613	Order of Statistic, order					222	95% UTL with 95% Coverage					186
1614	Approx, f used to compute achieved CC					1.662	Approximate Actual Confidence Coefficient achieved by UTL					0.939
1615							Approximate Sample Size needed to achieve specified CC					208
1616	95% Percentile Bootstrap UTL with		95% Coverage		153	95% BCA Bootstrap UTL with 95% Coverage					153	
1617			95% UPL		129.6	90% Percentile					86.66	
1618			90% Chebyshev UPL		214.2	95% Percentile					123.6	
1619			95% Chebyshev UPL		290.3	99% Percentile					266.2	
1620			95% USL		600							
1621												
1622	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1623	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1624	and consists of observations collected from clean unimpacted locations.											
1625	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1626	represents a background data set and when many onsite observations need to be compared with the BTV.											
1627												
1628	PA_Pb <187											
1629												
1630	General Statistics											
1631	Total Number of Observations					222	Number of Distinct Observations					193
1632	Minimum					7	First Quartile					20.4

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	A	B	C	D	E	F	G	H	I	J	K	L
1633					Second Largest	161					Median	30.6
1634					Maximum	186					Third Quartile	46.33
1635					Mean	39.68					SD	30.06
1636					Coefficient of Variation	0.757					Skewness	2.128
1637					Mean of logged Data	3.467					SD of logged Data	0.634
1638												
1639	Critical Values for Background Threshold Values (BTVs)											
1640					Tolerance Factor K (For UTL)	1.825					d2max (for USL)	3.464
1641												
1642	Normal GOF Test											
1643					Shapiro Wilk Test Statistic	0.775					Normal GOF Test	
1644					1% Shapiro Wilk P Value	0					Data Not Normal at 1% Significance Level	
1645					Lilliefors Test Statistic	0.187					Lilliefors GOF Test	
1646					1% Lilliefors Critical Value	0.0693					Data Not Normal at 1% Significance Level	
1647	Data Not Normal at 1% Significance Level											
1648												
1649	Background Statistics Assuming Normal Distribution											
1650					95% UTL with 95% Coverage	94.55					90% Percentile (z)	78.2
1651					95% UPL (t)	89.44					95% Percentile (z)	89.12
1652					95% USL	143.8					99% Percentile (z)	109.6
1653												
1654	Gamma GOF Test											
1655					A-D Test Statistic	4.036					Anderson-Darling Gamma GOF Test	
1656					5% A-D Critical Value	0.763					Data Not Gamma Distributed at 5% Significance Level	
1657					K-S Test Statistic	0.11					Kolmogorov-Smirnov Gamma GOF Test	
1658					5% K-S Critical Value	0.0617					Data Not Gamma Distributed at 5% Significance Level	
1659	Data Not Gamma Distributed at 5% Significance Level											
1660												
1661	Gamma Statistics											
1662					k hat (MLE)	2.491					k star (bias corrected MLE)	2.461
1663					Theta hat (MLE)	15.93					Theta star (bias corrected MLE)	16.13
1664					nu hat (MLE)	1106					nu star (bias corrected)	1092
1665					MLE Mean (bias corrected)	39.68					MLE Sd (bias corrected)	25.3
1666												
1667	Background Statistics Assuming Gamma Distribution											
1668					95% Wilson Hilferty (WH) Approx. Gamma UPL	87.57					90% Percentile	73.57
1669					95% Hawkins Wixley (HW) Approx. Gamma UPL	88.07					95% Percentile	88.28
1670					95% WH Approx. Gamma UTL with 95% Coverage	95					99% Percentile	120.5
1671					95% HW Approx. Gamma UTL with 95% Coverage	96.04						
1672					95% WH USL	189.3					95% HW USL	203.6
1673												
1674	Lognormal GOF Test											
1675					Shapiro Wilk Test Statistic	0.971					Shapiro Wilk Lognormal GOF Test	
1676					10% Shapiro Wilk P Value	0.0212					Data Not Lognormal at 10% Significance Level	
1677					Lilliefors Test Statistic	0.0617					Lilliefors Lognormal GOF Test	
1678					10% Lilliefors Critical Value	0.0548					Data Not Lognormal at 10% Significance Level	
1679	Data Not Lognormal at 10% Significance Level											
1680												
1681	Background Statistics assuming Lognormal Distribution											
1682					95% UTL with 95% Coverage	101.9					90% Percentile (z)	72.17
1683					95% UPL (t)	91.47					95% Percentile (z)	90.85
1684					95% USL	287.7					99% Percentile (z)	139.9
1685												
1686	Nonparametric Distribution Free Background Statistics											
1687	Data do not follow a Discernible Distribution											
1688												
1689	Nonparametric Upper Limits for Background Threshold Values											
1690					Order of Statistic, order	217					95% UTL with 95% Coverage	132
1691					Approx, f used to compute achieved CC	1.624					Approximate Actual Confidence Coefficient achieved by UTL	0.93
1692											Approximate Sample Size needed to achieve specified CC	208
1693					95% Percentile Bootstrap UTL with 95% Coverage	125.4					95% BCA Bootstrap UTL with 95% Coverage	118
1694					95% UPL	104.6					90% Percentile	82.16
1695					90% Chebyshev UPL	130.1					95% Percentile	101.8
1696					95% Chebyshev UPL	171					99% Percentile	151.7
1697					95% USL	186						
1698												
1699	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1700	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											

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	A	B	C	D	E	F	G	H	I	J	K	L
1701	and consists of observations collected from clean unimpacted locations.											
1702	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1703	represents a background data set and when many onsite observations need to be compared with the BTV.											
1704												
1705	PA_Pb <99											
1706												
1707	General Statistics											
1708	Total Number of Observations					210	Number of Distinct Observations					181
1709	Minimum					7	First Quartile					20.05
1710	Second Largest					97.5	Median					29.85
1711	Maximum					98	Third Quartile					43.03
1712	Mean					34.37	SD					19.87
1713	Coefficient of Variation					0.578	Skewness					1.344
1714	Mean of logged Data					3.387	SD of logged Data					0.55
1715												
1716	Critical Values for Background Threshold Values (BTVs)											
1717	Tolerance Factor K (For UTL)					1.831	d2max (for USL)					3.447
1718												
1719	Normal GOF Test											
1720	Shapiro Wilk Test Statistic					0.864	Normal GOF Test					
1721	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
1722	Lilliefors Test Statistic					0.136	Lilliefors GOF Test					
1723	1% Lilliefors Critical Value					0.0712	Data Not Normal at 1% Significance Level					
1724	Data Not Normal at 1% Significance Level											
1725												
1726	Background Statistics Assuming Normal Distribution											
1727	95% UTL with	95% Coverage		70.74				90% Percentile (z)		59.82		
1728		95% UPL (t)		67.27				95% Percentile (z)		67.04		
1729		95% USL		102.8				99% Percentile (z)		80.58		
1730												
1731	Gamma GOF Test											
1732	A-D Test Statistic					1.467	Anderson-Darling Gamma GOF Test					
1733	5% A-D Critical Value					0.759	Data Not Gamma Distributed at 5% Significance Level					
1734	K-S Test Statistic					0.0679	Kolmogorov-Smirnov Gamma GOF Test					
1735	5% K-S Critical Value					0.0628	Data Not Gamma Distributed at 5% Significance Level					
1736	Data Not Gamma Distributed at 5% Significance Level											
1737												
1738	Gamma Statistics											
1739	k hat (MLE)					3.484	k star (bias corrected MLE)					3.437
1740	Theta hat (MLE)					9.864	Theta star (bias corrected MLE)					9.997
1741	nu hat (MLE)					1463	nu star (bias corrected)					1444
1742	MLE Mean (bias corrected)					34.37	MLE Sd (bias corrected)					18.54
1743												
1744	Background Statistics Assuming Gamma Distribution											
1745	95% Wilson Hilferty (WH) Approx.	Gamma UPL		69.31				90% Percentile		59.22		
1746	95% Hawkins Wixley (HW) Approx.	Gamma UPL		70.05				95% Percentile		69.4		
1747	95% WH Approx.	Gamma UTL with	95% Coverage	74.58				99% Percentile		91.33		
1748	95% HW Approx.	Gamma UTL with	95% Coverage	75.73								
1749		95% WH USL		136.5				95% HW USL		146		
1750												
1751	Lognormal GOF Test											
1752	Shapiro Wilk Test Statistic					0.975	Shapiro Wilk Lognormal GOF Test					
1753	10% Shapiro Wilk P Value					0.0791	Data Not Lognormal at 10% Significance Level					
1754	Lilliefors Test Statistic					0.0421	Lilliefors Lognormal GOF Test					
1755	10% Lilliefors Critical Value					0.0563	Data appear Lognormal at 10% Significance Level					
1756	Data appear Approximate Lognormal at 10% Significance Level											
1757												
1758	Background Statistics assuming Lognormal Distribution											
1759	95% UTL with	95% Coverage		80.99				90% Percentile (z)		59.86		
1760		95% UPL (t)		73.56				95% Percentile (z)		73.11		
1761		95% USL		197.1				99% Percentile (z)		106.4		
1762												
1763	Nonparametric Distribution Free Background Statistics											
1764	Data appear Approximate Lognormal at 10% Significance Level											
1765												
1766	Nonparametric Upper Limits for Background Threshold Values											
1767	Order of Statistic, order					205	95% UTL with 95% Coverage					88.7
1768	Approx. f used to compute achieved CC					1.534	Approximate Actual Confidence Coefficient achieved by UTL					0.904

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	A	B	C	D	E	F	G	H	I	J	K	L
1769							Approximate Sample Size needed to achieve specified CC					208
1770	95% Percentile Bootstrap UTL with 95% Coverage					85.3	95% BCA Bootstrap UTL with 95% Coverage					85.3
1771	95% UPL					82.89	90% Percentile					59.26
1772	90% Chebyshev UPL					94.1	95% Percentile					81.67
1773	95% Chebyshev UPL					121.2	99% Percentile					96.51
1774	95% USL					98						
1775												
1776	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1777	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1778	and consists of observations collected from clean unimpacted locations.											
1779	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1780	represents a background data set and when many onsite observations need to be compared with the BTV.											
1781												
1782	PA_Pb <74											
1783												
1784	General Statistics											
1785	Total Number of Observations					196	Number of Distinct Observations					167
1786	Minimum					7	First Quartile					19.75
1787	Second Largest					71.5	Median					28.35
1788	Maximum					73.8	Third Quartile					38.05
1789	Mean					30.58	SD					14.25
1790	Coefficient of Variation					0.466	Skewness					0.79
1791	Mean of logged Data					3.31	SD of logged Data					0.484
1792												
1793	Critical Values for Background Threshold Values (BTVs)											
1794	Tolerance Factor K (For UTL)					1.838	d2max (for USL)					3.426
1795												
1796	Normal GOF Test											
1797	Shapiro Wilk Test Statistic					0.933	Normal GOF Test					
1798	1% Shapiro Wilk P Value					4.494E-11	Data Not Normal at 1% Significance Level					
1799	Lilliefors Test Statistic					0.101	Lilliefors GOF Test					
1800	1% Lilliefors Critical Value					0.0737	Data Not Normal at 1% Significance Level					
1801	Data Not Normal at 1% Significance Level											
1802												
1803	Background Statistics Assuming Normal Distribution											
1804	95% UTL with 95% Coverage					56.76	90% Percentile (z)					48.84
1805	95% UPL (t)					54.19	95% Percentile (z)					54.02
1806	95% USL					79.4	99% Percentile (z)					63.73
1807												
1808	Gamma GOF Test											
1809	A-D Test Statistic					0.442	Anderson-Darling Gamma GOF Test					
1810	5% A-D Critical Value					0.756	Detected data appear Gamma Distributed at 5% Significance Level					
1811	K-S Test Statistic					0.0576	Kolmogorov-Smirnov Gamma GOF Test					
1812	5% K-S Critical Value					0.0649	Detected data appear Gamma Distributed at 5% Significance Level					
1813	Detected data appear Gamma Distributed at 5% Significance Level											
1814												
1815	Gamma Statistics											
1816	k hat (MLE)					4.677	k star (bias corrected MLE)					4.609
1817	Theta hat (MLE)					6.538	Theta star (bias corrected MLE)					6.635
1818	nu hat (MLE)					1833	nu star (bias corrected)					1807
1819	MLE Mean (bias corrected)					30.58	MLE Sd (bias corrected)					14.24
1820												
1821	Background Statistics Assuming Gamma Distribution											
1822	95% Wilson Hilferty (WH) Approx. Gamma UPL					57.2	90% Percentile					49.66
1823	95% Hawkins Wixley (HW) Approx. Gamma UPL					57.93	95% Percentile					57.13
1824	95% WH Approx. Gamma UTL with 95% Coverage					61.18	99% Percentile					73
1825	95% HW Approx. Gamma UTL with 95% Coverage					62.22						
1826	95% WH USL					104.3	95% HW USL					110.8
1827												
1828	Lognormal GOF Test											
1829	Shapiro Wilk Test Statistic					0.972	Shapiro Wilk Lognormal GOF Test					
1830	10% Shapiro Wilk P Value					0.0456	Data Not Lognormal at 10% Significance Level					
1831	Lilliefors Test Statistic					0.0394	Lilliefors Lognormal GOF Test					
1832	10% Lilliefors Critical Value					0.0583	Data appear Lognormal at 10% Significance Level					
1833	Data appear Approximate Lognormal at 10% Significance Level											
1834												
1835	Background Statistics assuming Lognormal Distribution											
1836	95% UTL with 95% Coverage					66.63	90% Percentile (z)					50.9

	A	B	C	D	E	F	G	H	I	J	K	L		
1837					95% UPL (t)	61.05				95% Percentile (z)		60.69		
1838					95% USL	143.8				99% Percentile (z)		84.41		
1839														
1840	Nonparametric Distribution Free Background Statistics													
1841	Data appear Gamma Distributed at 5% Significance Level													
1842														
1843	Nonparametric Upper Limits for Background Threshold Values													
1844	Order of Statistic, order					192	95% UTL with 95% Coverage					66.5		
1845	Approx, f used to compute achieved CC					1.675	Approximate Actual Confidence Coefficient achieved by UTL					0.93		
1846							Approximate Sample Size needed to achieve specified CC					181		
1847	95% Percentile Bootstrap UTL with 95% Coverage					61.35	95% BCA Bootstrap UTL with 95% Coverage					61.35		
1848						95% UPL	58.26						90% Percentile	51.1
1849						90% Chebyshev UPL	73.43						95% Percentile	58.13
1850						95% Chebyshev UPL	92.85						99% Percentile	70.74
1851						95% USL	73.8							
1852														
1853	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.													
1854	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers													
1855	and consists of observations collected from clean unimpacted locations.													
1856	The use of USL tends to provide a balance between false positives and false negatives provided the data													
1857	represents a background data set and when many onsite observations need to be compared with the BTV.													
1858														
1859	RI_As													
1860														
1861	General Statistics													
1862	Total Number of Observations					6	Number of Distinct Observations					6		
1863	Minimum					2.8	First Quartile					3.25		
1864	Second Largest					4.1	Median					3.75		
1865	Maximum					4.3	Third Quartile					4.025		
1866	Mean					3.633	SD					0.579		
1867	Coefficient of Variation					0.159	Skewness					-0.508		
1868	Mean of logged Data					1.279	SD of logged Data					0.166		
1869														
1870														
1871	Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,													
1872	refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.													
1873	Critical Values for Background Threshold Values (BTVs)													
1874	Tolerance Factor K (For UTL)					3.708	d2max (for USL)					1.822		
1875														
1876	Normal GOF Test													
1877	Shapiro Wilk Test Statistic					0.94	Shapiro Wilk GOF Test							
1878	1% Shapiro Wilk Critical Value					0.713	Data appear Normal at 1% Significance Level							
1879	Lilliefors Test Statistic					0.213	Lilliefors GOF Test							
1880	1% Lilliefors Critical Value					0.373	Data appear Normal at 1% Significance Level							
1881	Data appear Normal at 1% Significance Level													
1882	Note GOF tests may be unreliable for small sample sizes													
1883														
1884	Background Statistics Assuming Normal Distribution													
1885	95% UTL with 95% Coverage					5.778	90% Percentile (z)					4.375		
1886						95% UPL (t)	4.892	95% Percentile (z)					4.585	
1887						95% USL	4.687	99% Percentile (z)					4.979	
1888														
1889	Gamma GOF Test													
1890	A-D Test Statistic					0.317	Anderson-Darling Gamma GOF Test							
1891	5% A-D Critical Value					0.697	Detected data appear Gamma Distributed at 5% Significance Level							
1892	K-S Test Statistic					0.235	Kolmogorov-Smirnov Gamma GOF Test							
1893	5% K-S Critical Value					0.332	Detected data appear Gamma Distributed at 5% Significance Level							
1894	Detected data appear Gamma Distributed at 5% Significance Level													
1895	Note GOF tests may be unreliable for small sample sizes													
1896														
1897	Gamma Statistics													
1898	k hat (MLE)					44.98	k star (bias corrected MLE)					22.6		
1899	Theta hat (MLE)					0.0808	Theta star (bias corrected MLE)					0.161		
1900	nu hat (MLE)					539.7	nu star (bias corrected)					271.2		
1901	MLE Mean (bias corrected)					3.633	MLE Sd (bias corrected)					0.764		
1902														
1903	Background Statistics Assuming Gamma Distribution													
1904	95% Wilson Hiferty (WH) Approx. Gamma UPL					5.051	90% Percentile					4.641		

	A	B	C	D	E	F	G	H	I	J	K	L
1905	95% Hawkins Wixley (HW) Approx. Gamma UPL					5.075	95% Percentile					4.975
1906	95% WH Approx. Gamma UTL with 95% Coverage					6.27	99% Percentile					5.643
1907	95% HW Approx. Gamma UTL with 95% Coverage					6.353						
1908	95% WH USL					4.794	95% HW USL					4.809
1909												
1910	Lognormal GOF Test											
1911	Shapiro Wilk Test Statistic					0.924	Shapiro Wilk Lognormal GOF Test					
1912	10% Shapiro Wilk Critical Value					0.826	Data appear Lognormal at 10% Significance Level					
1913	Lilliefors Test Statistic					0.237	Lilliefors Lognormal GOF Test					
1914	10% Lilliefors Critical Value					0.298	Data appear Lognormal at 10% Significance Level					
1915	Data appear Lognormal at 10% Significance Level											
1916	Note GOF tests may be unreliable for small sample sizes											
1917												
1918	Background Statistics assuming Lognormal Distribution											
1919	95% UTL with	95% Coverage			6.647		90% Percentile (z)					4.444
1920		95% UPL (t)			5.156		95% Percentile (z)					4.72
1921		95% USL			4.861		99% Percentile (z)					5.286
1922												
1923	Nonparametric Distribution Free Background Statistics											
1924	Data appear Normal at 1% Significance Level											
1925												
1926	Nonparametric Upper Limits for Background Threshold Values											
1927	Order of Statistic, order					6	95% UTL with 95% Coverage					4.3
1928	Approx, f used to compute achieved CC					0.316	Approximate Actual Confidence Coefficient achieved by UTL					0.265
1929							Approximate Sample Size needed to achieve specified CC					59
1930	95% Percentile Bootstrap UTL with	95% Coverage			4.3	95% BCA Bootstrap UTL with 95% Coverage					4.3	
1931		95% UPL			4.3	90% Percentile					4.2	
1932		90% Chebyshev UPL			5.508	95% Percentile					4.25	
1933		95% Chebyshev UPL			6.357	99% Percentile					4.29	
1934		95% USL			4.3							
1935												
1936	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
1937	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
1938	and consists of observations collected from clean unimpacted locations.											
1939	The use of USL tends to provide a balance between false positives and false negatives provided the data											
1940	represents a background data set and when many onsite observations need to be compared with the BTV.											
1941												
1942	RI_Pb											
1943												
1944	General Statistics											
1945	Total Number of Observations					6	Number of Distinct Observations					6
1946	Minimum					21.3	First Quartile					28.65
1947	Second Largest					66.5	Median					49.25
1948	Maximum					68.2	Third Quartile					63.4
1949	Mean					46.32	SD					20.5
1950	Coefficient of Variation					0.443	Skewness					-0.297
1951	Mean of logged Data					3.736	SD of logged Data					0.513
1952												
1953												
1954	Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,											
1955	refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.											
1956	Critical Values for Background Threshold Values (BTVs)											
1957	Tolerance Factor K (For UTL)					3.708	d2max (for USL)					1.822
1958												
1959	Normal GOF Test											
1960	Shapiro Wilk Test Statistic					0.884	Shapiro Wilk GOF Test					
1961	1% Shapiro Wilk Critical Value					0.713	Data appear Normal at 1% Significance Level					
1962	Lilliefors Test Statistic					0.202	Lilliefors GOF Test					
1963	1% Lilliefors Critical Value					0.373	Data appear Normal at 1% Significance Level					
1964	Data appear Normal at 1% Significance Level											
1965	Note GOF tests may be unreliable for small sample sizes											
1966												
1967	Background Statistics Assuming Normal Distribution											
1968	95% UTL with	95% Coverage			122.3	90% Percentile (z)					72.59	
1969		95% UPL (t)			90.94	95% Percentile (z)					80.04	
1970		95% USL			83.67	99% Percentile (z)					94.01	
1971												
1972	Gamma GOF Test											

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L						
1973	A-D Test Statistic					0.465	Anderson-Darling Gamma GOF Test											
1974	5% A-D Critical Value					0.698	Detected data appear Gamma Distributed at 5% Significance Level											
1975	K-S Test Statistic					0.226	Kolmogorov-Smirnov Gamma GOF Test											
1976	5% K-S Critical Value					0.333	Detected data appear Gamma Distributed at 5% Significance Level											
1977	Detected data appear Gamma Distributed at 5% Significance Level																	
1978	Note GOF tests may be unreliable for small sample sizes																	
1979																		
1980	Gamma Statistics																	
1981	k hat (MLE)					5.179	k star (bias corrected MLE)					2.701						
1982	Theta hat (MLE)					8.943	Theta star (bias corrected MLE)					17.15						
1983	nu hat (MLE)					62.15	nu star (bias corrected)					32.41						
1984	MLE Mean (bias corrected)					46.32	MLE Sd (bias corrected)					28.18						
1985																		
1986	Background Statistics Assuming Gamma Distribution																	
1987	95% Wilson Hilferty (WH) Approx. Gamma UPL					108.7	90% Percentile					84.09						
1988	95% Hawkins Wixley (HW) Approx. Gamma UPL					112.4	95% Percentile					100.2						
1989	95% WH Approx. Gamma UTL with 95% Coverage					180.9	99% Percentile					135.4						
1990	95% HW Approx. Gamma UTL with 95% Coverage					196.6												
1991	95% WH USL					95.27	95% HW USL					97.59						
1992																		
1993	Lognormal GOF Test																	
1994	Shapiro Wilk Test Statistic					0.852	Shapiro Wilk Lognormal GOF Test											
1995	10% Shapiro Wilk Critical Value					0.826	Data appear Lognormal at 10% Significance Level											
1996	Lilliefors Test Statistic					0.211	Lilliefors Lognormal GOF Test											
1997	10% Lilliefors Critical Value					0.298	Data appear Lognormal at 10% Significance Level											
1998	Data appear Lognormal at 10% Significance Level																	
1999	Note GOF tests may be unreliable for small sample sizes																	
2000																		
2001	Background Statistics assuming Lognormal Distribution																	
2002	95% UTL with 95% Coverage					281	90% Percentile (z)					80.92						
2003	95% UPL (t)					128.1	95% Percentile (z)					97.5						
2004	95% USL					106.8	99% Percentile (z)					138.3						
2005																		
2006	Nonparametric Distribution Free Background Statistics																	
2007	Data appear Normal at 1% Significance Level																	
2008																		
2009	Nonparametric Upper Limits for Background Threshold Values																	
2010	Order of Statistic, order					6	95% UTL with 95% Coverage					68.2						
2011	Approx, f used to compute achieved CC					0.316	Approximate Actual Confidence Coefficient achieved by UTL					0.265						
2012							Approximate Sample Size needed to achieve specified CC					59						
2013	95% Percentile Bootstrap UTL with 95% Coverage					68.2	95% BCA Bootstrap UTL with 95% Coverage					68.2						
2014	95% UPL					68.2	90% Percentile					67.35						
2015	90% Chebyshev UPL					112.7	95% Percentile					67.78						
2016	95% Chebyshev UPL					142.8	99% Percentile					68.12						
2017	95% USL					68.2												
2018																		
2019	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.																	
2020	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers																	
2021	and consists of observations collected from clean unimpacted locations.																	
2022	The use of USL tends to provide a balance between false positives and false negatives provided the data																	
2023	represents a background data set and when many onsite observations need to be compared with the BTV.																	
2024																		
2025	SC_As																	
2026																		
2027	General Statistics																	
2028	Total Number of Observations					150	Number of Distinct Observations					53						
2029	Minimum					0.3	First Quartile					1.3						
2030	Second Largest					8.2	Median					2.05						
2031	Maximum					9.4	Third Quartile					3.1						
2032	Mean					2.573	SD					1.902						
2033	Coefficient of Variation					0.739	Skewness					1.471						
2034	Mean of logged Data					0.693	SD of logged Data					0.734						
2035																		
2036	Critical Values for Background Threshold Values (BTVs)																	
2037	Tolerance Factor K (For UTL)					1.868	d2max (for USL)					3.343						
2038																		
2039	Normal GOF Test																	
2040	Shapiro Wilk Test Statistic					0.836	Normal GOF Test											

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L	
2041	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
2042	Lilliefors Test Statistic					0.166	Lilliefors GOF Test						
2043	1% Lilliefors Critical Value					0.0841	Data Not Normal at 1% Significance Level						
2044	Data Not Normal at 1% Significance Level												
2045													
2046	Background Statistics Assuming Normal Distribution												
2047	95% UTL with		95% Coverage		6.126	90% Percentile (z)					5.011		
2048			95% UPL (t)		5.732	95% Percentile (z)					5.702		
2049			95% USL		8.932	99% Percentile (z)					6.998		
2050													
2051	Gamma GOF Test												
2052	A-D Test Statistic					1.44	Anderson-Darling Gamma GOF Test						
2053	5% A-D Critical Value					0.765	Data Not Gamma Distributed at 5% Significance Level						
2054	K-S Test Statistic					0.0815	Kolmogorov-Smirnov Gamma GOF Test						
2055	5% K-S Critical Value					0.0775	Data Not Gamma Distributed at 5% Significance Level						
2056	Data Not Gamma Distributed at 5% Significance Level												
2057													
2058	Gamma Statistics												
2059	k hat (MLE)					2.137	k star (bias corrected MLE)					2.098	
2060	Theta hat (MLE)					1.204	Theta star (bias corrected MLE)					1.226	
2061	nu hat (MLE)					641	nu star (bias corrected)					629.5	
2062	MLE Mean (bias corrected)					2.573	MLE Sd (bias corrected)					1.776	
2063													
2064	Background Statistics Assuming Gamma Distribution												
2065	95% Wilson Hilferty (WH) Approx.		Gamma UPL		5.988	90% Percentile					4.949		
2066	95% Hawkins Wixley (HW) Approx.		Gamma UPL		6.107	95% Percentile					6.012		
2067	95% WH Approx.		Gamma UTL with 95% Coverage		6.651	99% Percentile					8.364		
2068	95% HW Approx.		Gamma UTL with 95% Coverage		6.842								
2069			95% WH USL		12.83	95% HW USL					14.16		
2070													
2071	Lognormal GOF Test												
2072	Shapiro Wilk Test Statistic					0.96	Shapiro Wilk Lognormal GOF Test						
2073	10% Shapiro Wilk P Value					0.00295	Data Not Lognormal at 10% Significance Level						
2074	Lilliefors Test Statistic					0.0543	Lilliefors Lognormal GOF Test						
2075	10% Lilliefors Critical Value					0.0666	Data appear Lognormal at 10% Significance Level						
2076	Data appear Approximate Lognormal at 10% Significance Level												
2077													
2078	Background Statistics assuming Lognormal Distribution												
2079	95% UTL with		95% Coverage		7.878	90% Percentile (z)					5.123		
2080			95% UPL (t)		6.767	95% Percentile (z)					6.689		
2081			95% USL		23.26	99% Percentile (z)					11.03		
2082													
2083	Nonparametric Distribution Free Background Statistics												
2084	Data appear Approximate Lognormal at 10% Significance Level												
2085													
2086	Nonparametric Upper Limits for Background Threshold Values												
2087	Order of Statistic, order					148	95% UTL with 95% Coverage					7.8	
2088	Approx, f used to compute achieved CC					1.934	Approximate Actual Confidence Coefficient achieved by UTL					0.945	
2089							Approximate Sample Size needed to achieve specified CC					124	
2090	95% Percentile Bootstrap UTL with		95% Coverage		7.7	95% BCA Bootstrap UTL with 95% Coverage					7.7		
2091			95% UPL		7.2	90% Percentile					5.63		
2092			90% Chebyshev UPL		8.299	95% Percentile					6.975		
2093			95% Chebyshev UPL		10.89	99% Percentile					8.004		
2094			95% USL		9.4								
2095													
2096	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
2097	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
2098	and consists of observations collected from clean unimpacted locations.												
2099	The use of USL tends to provide a balance between false positives and false negatives provided the data												
2100	represents a background data set and when many onsite observations need to be compared with the BTV.												
2101													
2102	SC_As <8												
2103													
2104	General Statistics												
2105	Total Number of Observations					148	Number of Distinct Observations					51	
2106	Minimum					0.3	First Quartile					1.275	
2107	Second Largest					7.8	Median					2	
2108	Maximum					7.8	Third Quartile					3.025	

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L
2109					Mean	2.489					SD	1.769
2110					Coefficient of Variation	0.711					Skewness	1.381
2111					Mean of logged Data	0.673					SD of logged Data	0.718
2112												
2113					Critical Values for Background Threshold Values (BTVs)							
2114					Tolerance Factor K (For UTL)	1.869					d2max (for USL)	3.339
2115												
2116					Normal GOF Test							
2117					Shapiro Wilk Test Statistic	0.842					Normal GOF Test	
2118					1% Shapiro Wilk P Value	0					Data Not Normal at 1% Significance Level	
2119					Lilliefors Test Statistic	0.153					Lilliefors GOF Test	
2120					1% Lilliefors Critical Value	0.0847					Data Not Normal at 1% Significance Level	
2121					Data Not Normal at 1% Significance Level							
2122												
2123					Background Statistics Assuming Normal Distribution							
2124					95% UTL with 95% Coverage	5.796					90% Percentile (z)	4.756
2125					95% UPL (t)	5.427					95% Percentile (z)	5.398
2126					95% USL	8.394					99% Percentile (z)	6.604
2127												
2128					Gamma GOF Test							
2129					A-D Test Statistic	1.226					Anderson-Darling Gamma GOF Test	
2130					5% A-D Critical Value	0.764					Data Not Gamma Distributed at 5% Significance Level	
2131					K-S Test Statistic	0.0781					Kolmogorov-Smirnov Gamma GOF Test	
2132					5% K-S Critical Value	0.078					Data Not Gamma Distributed at 5% Significance Level	
2133					Data Not Gamma Distributed at 5% Significance Level							
2134												
2135					Gamma Statistics							
2136					k hat (MLE)	2.248					k star (bias corrected MLE)	2.207
2137					Theta hat (MLE)	1.107					Theta star (bias corrected MLE)	1.128
2138					nu hat (MLE)	665.3					nu star (bias corrected)	653.2
2139					MLE Mean (bias corrected)	2.489					MLE Sd (bias corrected)	1.676
2140												
2141					Background Statistics Assuming Gamma Distribution							
2142					95% Wilson Hilferty (WH) Approx. Gamma UPL	5.708					90% Percentile	4.731
2143					95% Hawkins Wixley (HW) Approx. Gamma UPL	5.826					95% Percentile	5.725
2144					95% WH Approx. Gamma UTL with 95% Coverage	6.332					99% Percentile	7.917
2145					95% HW Approx. Gamma UTL with 95% Coverage	6.517						
2146					95% WH USL	12.05					95% HW USL	13.27
2147												
2148					Lognormal GOF Test							
2149					Shapiro Wilk Test Statistic	0.956					Shapiro Wilk Lognormal GOF Test	
2150					10% Shapiro Wilk P Value	8.0850E-4					Data Not Lognormal at 10% Significance Level	
2151					Lilliefors Test Statistic	0.055					Lilliefors Lognormal GOF Test	
2152					10% Lilliefors Critical Value	0.067					Data appear Lognormal at 10% Significance Level	
2153					Data appear Approximate Lognormal at 10% Significance Level							
2154												
2155					Background Statistics assuming Lognormal Distribution							
2156					95% UTL with 95% Coverage	7.507					90% Percentile (z)	4.922
2157					95% UPL (t)	6.463					95% Percentile (z)	6.389
2158					95% USL	21.56					99% Percentile (z)	10.42
2159												
2160					Nonparametric Distribution Free Background Statistics							
2161					Data appear Approximate Lognormal at 10% Significance Level							
2162												
2163					Nonparametric Upper Limits for Background Threshold Values							
2164					Order of Statistic, order	146					95% UTL with 95% Coverage	7.7
2165					Approx, f used to compute achieved CC	1.908					Approximate Actual Confidence Coefficient achieved by UTL	0.941
2166											Approximate Sample Size needed to achieve specified CC	124
2167					95% Percentile Bootstrap UTL with 95% Coverage	7.33					95% BCA Bootstrap UTL with 95% Coverage	7.2
2168					95% UPL	6.655					90% Percentile	5.3
2169					90% Chebyshev UPL	7.813					95% Percentile	6.565
2170					95% Chebyshev UPL	10.22					99% Percentile	7.753
2171					95% USL	7.8						
2172												
2173					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
2174					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.							
2175												
2176					The use of USL tends to provide a balance between false positives and false negatives provided the data							

	A	B	C	D	E	F	G	H	I	J	K	L
2177	represents a background data set and when many onsite observations need to be compared with the BTV.											
2178												
2179	SC_As <6											
2180												
2181	General Statistics											
2182	Total Number of Observations					136	Number of Distinct Observations					41
2183	Minimum					0.3	First Quartile					1.2
2184	Second Largest					5.6	Median					1.8
2185	Maximum					5.9	Third Quartile					2.725
2186	Mean					2.096	SD					1.205
2187	Coefficient of Variation					0.575	Skewness					0.964
2188	Mean of logged Data					0.562	SD of logged Data					0.638
2189												
2190	Critical Values for Background Threshold Values (BTVs)											
2191	Tolerance Factor K (For UTL)					1.88	d2max (for USL)					3.311
2192												
2193	Normal GOF Test											
2194	Shapiro Wilk Test Statistic					0.917	Normal GOF Test					
2195	1% Shapiro Wilk P Value					6.889E-10	Data Not Normal at 1% Significance Level					
2196	Lilliefors Test Statistic					0.127	Lilliefors GOF Test					
2197	1% Lilliefors Critical Value					0.0883	Data Not Normal at 1% Significance Level					
2198	Data Not Normal at 1% Significance Level											
2199												
2200	Background Statistics Assuming Normal Distribution											
2201	95% UTL with	95% Coverage				4.363	90% Percentile (z)					3.641
2202		95% UPL (t)				4.1	95% Percentile (z)					4.079
2203		95% USL				6.088	99% Percentile (z)					4.901
2204												
2205	Gamma GOF Test											
2206	A-D Test Statistic					0.511	Anderson-Darling Gamma GOF Test					
2207	5% A-D Critical Value					0.759	Detected data appear Gamma Distributed at 5% Significance Level					
2208	K-S Test Statistic					0.0605	Kolmogorov-Smirnov Gamma GOF Test					
2209	5% K-S Critical Value					0.0807	Detected data appear Gamma Distributed at 5% Significance Level					
2210	Detected data appear Gamma Distributed at 5% Significance Level											
2211												
2212	Gamma Statistics											
2213	k hat (MLE)					2.964	k star (bias corrected MLE)					2.904
2214	Theta hat (MLE)					0.707	Theta star (bias corrected MLE)					0.722
2215	nu hat (MLE)					806.3	nu star (bias corrected)					789.8
2216	MLE Mean (bias corrected)					2.096	MLE Sd (bias corrected)					1.23
2217												
2218	Background Statistics Assuming Gamma Distribution											
2219	95% Wilson Hiferty (WH) Approx.	Gamma UPL				4.446	90% Percentile					3.746
2220	95% Hawkins Wixley (HW) Approx.	Gamma UPL				4.551	95% Percentile					4.441
2221	95% WH Approx.	Gamma UTL with	95% Coverage			4.898	99% Percentile					5.951
2222	95% HW Approx.	Gamma UTL with	95% Coverage			5.053						
2223		95% WH USL				8.655	95% HW USL					9.461
2224												
2225	Lognormal GOF Test											
2226	Shapiro Wilk Test Statistic					0.944	Shapiro Wilk Lognormal GOF Test					
2227	10% Shapiro Wilk P Value					2.3833E-5	Data Not Lognormal at 10% Significance Level					
2228	Lilliefors Test Statistic					0.078	Lilliefors Lognormal GOF Test					
2229	10% Lilliefors Critical Value					0.0699	Data Not Lognormal at 10% Significance Level					
2230	Data Not Lognormal at 10% Significance Level											
2231												
2232	Background Statistics assuming Lognormal Distribution											
2233	95% UTL with	95% Coverage				5.823	90% Percentile (z)					3.975
2234		95% UPL (t)				5.068	95% Percentile (z)					5.012
2235		95% USL				14.52	99% Percentile (z)					7.742
2236												
2237	Nonparametric Distribution Free Background Statistics											
2238	Data appear Gamma Distributed at 5% Significance Level											
2239												
2240	Nonparametric Upper Limits for Background Threshold Values											
2241	Order of Statistic, order					134	95% UTL with 95% Coverage					5.3
2242	Approx, f used to compute achieved CC					1.75	Approximate Actual Confidence Coefficient achieved by UTL					0.913
2243							Approximate Sample Size needed to achieve specified CC					124
2244	95% Percentile Bootstrap UTL with	95% Coverage				5.15	95% BCA Bootstrap UTL with 95% Coverage					5.15

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L
2245					95% UPL	4.56					90% Percentile	3.75
2246					90% Chebyshev UPL	5.726					95% Percentile	4.425
2247					95% Chebyshev UPL	7.37					99% Percentile	5.495
2248					95% USL	5.9						
2249												
2250					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
2251					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
2252					and consists of observations collected from clean unimpacted locations.							
2253					The use of USL tends to provide a balance between false positives and false negatives provided the data							
2254					represents a background data set and when many onsite observations need to be compared with the BTV.							
2255												
2256	SC_As <5											
2257												
2258	General Statistics											
2259					Total Number of Observations	131					Number of Distinct Observations	37
2260					Minimum	0.3					First Quartile	1.2
2261					Second Largest	4.5					Median	1.7
2262					Maximum	4.9					Third Quartile	2.65
2263					Mean	1.969					SD	1.029
2264					Coefficient of Variation	0.523					Skewness	0.62
2265					Mean of logged Data	0.519					SD of logged Data	0.61
2266												
2267					Critical Values for Background Threshold Values (BTVs)							
2268					Tolerance Factor K (For UTL)	1.885					d2max (for USL)	3.299
2269												
2270					Normal GOF Test							
2271					Shapiro Wilk Test Statistic	0.941					Normal GOF Test	
2272					1% Shapiro Wilk P Value	1.7806E-5					Data Not Normal at 1% Significance Level	
2273					Lilliefors Test Statistic	0.121					Lilliefors GOF Test	
2274					1% Lilliefors Critical Value	0.0899					Data Not Normal at 1% Significance Level	
2275					Data Not Normal at 1% Significance Level							
2276												
2277					Background Statistics Assuming Normal Distribution							
2278					95% UTL with 95% Coverage	3.909					90% Percentile (z)	3.288
2279					95% UPL (t)	3.68					95% Percentile (z)	3.662
2280					95% USL	5.365					99% Percentile (z)	4.363
2281												
2282					Gamma GOF Test							
2283					A-D Test Statistic	0.642					Anderson-Darling Gamma GOF Test	
2284					5% A-D Critical Value	0.758					Detected data appear Gamma Distributed at 5% Significance Level	
2285					K-S Test Statistic	0.0767					Kolmogorov-Smirnov Gamma GOF Test	
2286					5% K-S Critical Value	0.0819					Detected data appear Gamma Distributed at 5% Significance Level	
2287					Detected data appear Gamma Distributed at 5% Significance Level							
2288												
2289					Gamma Statistics							
2290					k hat (MLE)	3.314					k star (bias corrected MLE)	3.243
2291					Theta hat (MLE)	0.594					Theta star (bias corrected MLE)	0.607
2292					nu hat (MLE)	868.3					nu star (bias corrected)	849.7
2293					MLE Mean (bias corrected)	1.969					MLE Sd (bias corrected)	1.093
2294												
2295					Background Statistics Assuming Gamma Distribution							
2296					95% Wilson Hilferty (WH) Approx. Gamma UPL	4.051					90% Percentile	3.435
2297					95% Hawkins Wixley (HW) Approx. Gamma UPL	4.152					95% Percentile	4.041
2298					95% WH Approx. Gamma UTL with 95% Coverage	4.452					99% Percentile	5.35
2299					95% HW Approx. Gamma UTL with 95% Coverage	4.597						
2300					95% WH USL	7.644					95% HW USL	8.337
2301												
2302					Lognormal GOF Test							
2303					Shapiro Wilk Test Statistic	0.929					Shapiro Wilk Lognormal GOF Test	
2304					10% Shapiro Wilk P Value	1.6357E-7					Data Not Lognormal at 10% Significance Level	
2305					Lilliefors Test Statistic	0.087					Lilliefors Lognormal GOF Test	
2306					10% Lilliefors Critical Value	0.0712					Data Not Lognormal at 10% Significance Level	
2307					Data Not Lognormal at 10% Significance Level							
2308												
2309					Background Statistics assuming Lognormal Distribution							
2310					95% UTL with 95% Coverage	5.303					90% Percentile (z)	3.671
2311					95% UPL (t)	4.632					95% Percentile (z)	4.581
2312					95% USL	12.56					99% Percentile (z)	6.941

	A	B	C	D	E	F	G	H	I	J	K	L	
2313													
2314	Nonparametric Distribution Free Background Statistics												
2315	Data appear Gamma Distributed at 5% Significance Level												
2316													
2317	Nonparametric Upper Limits for Background Threshold Values												
2318	Order of Statistic, order					129	95% UTL with 95% Coverage					4.4	
2319	Approx, f used to compute achieved CC					1.684	Approximate Actual Confidence Coefficient achieved by UTL					0.898	
2320							Approximate Sample Size needed to achieve specified CC					124	
2321	95% Percentile Bootstrap UTL with 95% Coverage					4.4	95% BCA Bootstrap UTL with 95% Coverage					3.9	
2322	95% UPL					3.84	90% Percentile					3.4	
2323	90% Chebyshev UPL					5.069	95% Percentile					3.8	
2324	95% Chebyshev UPL					6.473	99% Percentile					4.47	
2325	95% USL					4.9							
2326													
2327	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
2328	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
2329	and consists of observations collected from clean unimpacted locations.												
2330	The use of USL tends to provide a balance between false positives and false negatives provided the data												
2331	represents a background data set and when many onsite observations need to be compared with the BTV.												
2332													
2333	SC_Pb												
2334													
2335	General Statistics												
2336	Total Number of Observations					150	Number of Distinct Observations					114	
2337	Minimum					2.3	First Quartile					7.775	
2338	Second Largest					89.4	Median					12.6	
2339	Maximum					97.8	Third Quartile					21.18	
2340	Mean					16.14	SD					13.11	
2341	Coefficient of Variation					0.812	Skewness					3.011	
2342	Mean of logged Data					2.528	SD of logged Data					0.717	
2343													
2344	Critical Values for Background Threshold Values (BTVs)												
2345	Tolerance Factor K (For UTL)					1.868	d2max (for USL)					3.343	
2346													
2347	Normal GOF Test												
2348	Shapiro Wilk Test Statistic					0.763	Normal GOF Test						
2349	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
2350	Lilliefors Test Statistic					0.153	Lilliefors GOF Test						
2351	1% Lilliefors Critical Value					0.0841	Data Not Normal at 1% Significance Level						
2352	Data Not Normal at 1% Significance Level												
2353													
2354	Background Statistics Assuming Normal Distribution												
2355	95% UTL with 95% Coverage					40.64	90% Percentile (z)					32.95	
2356	95% UPL (t)					37.92	95% Percentile (z)					37.71	
2357	95% USL					59.98	99% Percentile (z)					46.65	
2358													
2359	Gamma GOF Test												
2360	A-D Test Statistic					0.946	Anderson-Darling Gamma GOF Test						
2361	5% A-D Critical Value					0.765	Data Not Gamma Distributed at 5% Significance Level						
2362	K-S Test Statistic					0.0623	Kolmogorov-Smirnov Gamma GOF Test						
2363	5% K-S Critical Value					0.0775	Detected data appear Gamma Distributed at 5% Significance Level						
2364	Detected data follow Appr. Gamma Distribution at 5% Significance Level												
2365													
2366	Gamma Statistics												
2367	k hat (MLE)					2.12	k star (bias corrected MLE)					2.082	
2368	Theta hat (MLE)					7.613	Theta star (bias corrected MLE)					7.752	
2369	nu hat (MLE)					636.1	nu star (bias corrected)					624.7	
2370	MLE Mean (bias corrected)					16.14	MLE Sd (bias corrected)					11.19	
2371													
2372	Background Statistics Assuming Gamma Distribution												
2373	95% Wilson Hilferty (WH) Approx. Gamma UPL					37.55	90% Percentile					31.1	
2374	95% Hawkins Wixley (HW) Approx. Gamma UPL					38.1	95% Percentile					37.81	
2375	95% WH Approx. Gamma UTL with 95% Coverage					41.72	99% Percentile					52.64	
2376	95% HW Approx. Gamma UTL with 95% Coverage					42.68							
2377	95% WH USL					80.66	95% HW USL					88.24	
2378													
2379	Lognormal GOF Test												
2380	Shapiro Wilk Test Statistic					0.971	Shapiro Wilk Lognormal GOF Test						

	A	B	C	D	E	F	G	H	I	J	K	L	
2381	10% Shapiro Wilk P Value				0.0752	Data Not Lognormal at 10% Significance Level							
2382	Lilliefors Test Statistic				0.0731	Lilliefors Lognormal GOF Test							
2383	10% Lilliefors Critical Value				0.0666	Data Not Lognormal at 10% Significance Level							
2384	Data Not Lognormal at 10% Significance Level												
2385													
2386	Background Statistics assuming Lognormal Distribution												
2387	95% UTL with 95% Coverage				47.81					90% Percentile (z)		31.4	
2388	95% UPL (t)				41.21					95% Percentile (z)		40.75	
2389	95% USL				137.7					99% Percentile (z)		66.43	
2390													
2391	Nonparametric Distribution Free Background Statistics												
2392	Data appear Approximate Gamma Distribution at 5% Significance Level												
2393													
2394	Nonparametric Upper Limits for Background Threshold Values												
2395	Order of Statistic, order				148	95% UTL with 95% Coverage				40.7			
2396	Approx, f used to compute achieved CC				1.934	Approximate Actual Confidence Coefficient achieved by UTL				0.945			
2397						Approximate Sample Size needed to achieve specified CC				124			
2398	95% Percentile Bootstrap UTL with 95% Coverage				39.2	95% BCA Bootstrap UTL with 95% Coverage				39.2			
2399					95% UPL	34.14					90% Percentile		30.97
2400					90% Chebyshev UPL	55.62					95% Percentile		33.51
2401					95% Chebyshev UPL	73.49					99% Percentile		65.54
2402					95% USL	97.8							
2403													
2404	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
2405	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
2406	and consists of observations collected from clean unimpacted locations.												
2407	The use of USL tends to provide a balance between false positives and false negatives provided the data												
2408	represents a background data set and when many onsite observations need to be compared with the BTV.												
2409													
2410	SC_Pb <41												
2411													
2412	General Statistics												
2413	Total Number of Observations				148	Number of Distinct Observations				112			
2414	Minimum				2.3	First Quartile				7.7			
2415	Second Largest				40.7	Median				12.45			
2416	Maximum				40.7	Third Quartile				20.73			
2417	Mean				15.1	SD				9.557			
2418	Coefficient of Variation				0.633	Skewness				0.814			
2419	Mean of logged Data				2.5	SD of logged Data				0.682			
2420													
2421	Critical Values for Background Threshold Values (BTVs)												
2422	Tolerance Factor K (For UTL)				1.869	d2max (for USL)				3.339			
2423													
2424	Normal GOF Test												
2425	Shapiro Wilk Test Statistic				0.899	Normal GOF Test							
2426	1% Shapiro Wilk P Value				4.330E-15	Data Not Normal at 1% Significance Level							
2427	Lilliefors Test Statistic				0.129	Lilliefors GOF Test							
2428	1% Lilliefors Critical Value				0.0847	Data Not Normal at 1% Significance Level							
2429	Data Not Normal at 1% Significance Level												
2430													
2431	Background Statistics Assuming Normal Distribution												
2432	95% UTL with 95% Coverage				32.96	90% Percentile (z)				27.34			
2433	95% UPL (t)				30.97	95% Percentile (z)				30.82			
2434	95% USL				47	99% Percentile (z)				37.33			
2435													
2436	Gamma GOF Test												
2437	A-D Test Statistic				1.025	Anderson-Darling Gamma GOF Test							
2438	5% A-D Critical Value				0.763	Data Not Gamma Distributed at 5% Significance Level							
2439	K-S Test Statistic				0.0694	Kolmogorov-Smirnov Gamma GOF Test							
2440	5% K-S Critical Value				0.0778	Detected data appear Gamma Distributed at 5% Significance Level							
2441	Detected data follow Appr. Gamma Distribution at 5% Significance Level												
2442													
2443	Gamma Statistics												
2444	k hat (MLE)				2.489	k star (bias corrected MLE)				2.443			
2445	Theta hat (MLE)				6.064	Theta star (bias corrected MLE)				6.178			
2446	nu hat (MLE)				736.9	nu star (bias corrected)				723.3			
2447	MLE Mean (bias corrected)				15.1	MLE Sd (bias corrected)				9.658			
2448													

	A	B	C	D	E	F	G	H	I	J	K	L
2449	Background Statistics Assuming Gamma Distribution											
2450	95% Wilson Hilferty (WH) Approx. Gamma UPL					33.71	90% Percentile					28.03
2451	95% Hawkins Wixley (HW) Approx. Gamma UPL					34.45	95% Percentile					33.66
2452	95% WH Approx. Gamma UTL with 95% Coverage					37.25	99% Percentile					45.99
2453	95% HW Approx. Gamma UTL with 95% Coverage					38.38						
2454	95% WH USL					69.4	95% HW USL					76.3
2455												
2456	Lognormal GOF Test											
2457	Shapiro Wilk Test Statistic					0.951	Shapiro Wilk Lognormal GOF Test					
2458	10% Shapiro Wilk P Value					1.4265E-4	Data Not Lognormal at 10% Significance Level					
2459	Lilliefors Test Statistic					0.0827	Lilliefors Lognormal GOF Test					
2460	10% Lilliefors Critical Value					0.067	Data Not Lognormal at 10% Significance Level					
2461	Data Not Lognormal at 10% Significance Level											
2462												
2463	Background Statistics assuming Lognormal Distribution											
2464	95% UTL with 95% Coverage					43.65	90% Percentile (z)					29.22
2465	95% UPL (t)					37.86	95% Percentile (z)					37.45
2466	95% USL					119	99% Percentile (z)					59.62
2467												
2468	Nonparametric Distribution Free Background Statistics											
2469	Data appear Approximate Gamma Distribution at 5% Significance Level											
2470												
2471	Nonparametric Upper Limits for Background Threshold Values											
2472	Order of Statistic, order					146	95% UTL with 95% Coverage					39.2
2473	Approx, f used to compute achieved CC					1.908	Approximate Actual Confidence Coefficient achieved by UTL					0.941
2474							Approximate Sample Size needed to achieve specified CC					124
2475	95% Percentile Bootstrap UTL with 95% Coverage					36.78	95% BCA Bootstrap UTL with 95% Coverage					34.8
2476	95% UPL					33.4	90% Percentile					29.82
2477	90% Chebyshev UPL					43.86	95% Percentile					33.33
2478	95% Chebyshev UPL					56.9	99% Percentile					40
2479	95% USL					40.7						
2480												
2481	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2482	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2483	and consists of observations collected from clean unimpacted locations.											
2484	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2485	represents a background data set and when many onsite observations need to be compared with the BTV.											
2486												
2487	SC_Pb <35											
2488												
2489	General Statistics											
2490	Total Number of Observations					144	Number of Distinct Observations					109
2491	Minimum					2.3	First Quartile					7.65
2492	Second Largest					33.6	Median					12.2
2493	Maximum					34.8	Third Quartile					20.33
2494	Mean					14.41	SD					8.737
2495	Coefficient of Variation					0.606	Skewness					0.691
2496	Mean of logged Data					2.468	SD of logged Data					0.662
2497												
2498	Critical Values for Background Threshold Values (BTVs)											
2499	Tolerance Factor K (For UTL)					1.873	d2max (for USL)					3.33
2500												
2501	Normal GOF Test											
2502	Shapiro Wilk Test Statistic					0.9	Normal GOF Test					
2503	1% Shapiro Wilk P Value					2.698E-14	Data Not Normal at 1% Significance Level					
2504	Lilliefors Test Statistic					0.12	Lilliefors GOF Test					
2505	1% Lilliefors Critical Value					0.0858	Data Not Normal at 1% Significance Level					
2506	Data Not Normal at 1% Significance Level											
2507												
2508	Background Statistics Assuming Normal Distribution											
2509	95% UTL with 95% Coverage					30.77	90% Percentile (z)					25.61
2510	95% UPL (t)					28.92	95% Percentile (z)					28.78
2511	95% USL					43.5	99% Percentile (z)					34.73
2512												
2513	Gamma GOF Test											
2514	A-D Test Statistic					1.104	Anderson-Darling Gamma GOF Test					
2515	5% A-D Critical Value					0.762	Data Not Gamma Distributed at 5% Significance Level					
2516	K-S Test Statistic					0.0742	Kolmogorov-Smirnov Gamma GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L		
2517	5% K-S Critical Value					0.0788	Detected data appear Gamma Distributed at 5% Significance Level							
2518	Detected data follow Appr. Gamma Distribution at 5% Significance Level													
2519														
2520	Gamma Statistics													
2521	k hat (MLE)					2.649	k star (bias corrected MLE)					2.599		
2522	Theta hat (MLE)					5.439	Theta star (bias corrected MLE)					5.545		
2523	nu hat (MLE)					763	nu star (bias corrected)					748.4		
2524	MLE Mean (bias corrected)					14.41	MLE Sd (bias corrected)					8.939		
2525														
2526	Background Statistics Assuming Gamma Distribution													
2527	95% Wilson Hilferty (WH) Approx. Gamma UPL					31.61	90% Percentile					26.39		
2528	95% Hawkins Wixley (HW) Approx. Gamma UPL					32.31	95% Percentile					31.54		
2529	95% WH Approx. Gamma UTL with 95% Coverage					34.89	99% Percentile					42.79		
2530	95% HW Approx. Gamma UTL with 95% Coverage					35.94								
2531	95% WH USL					63.84	95% HW USL					69.97		
2532														
2533	Lognormal GOF Test													
2534	Shapiro Wilk Test Statistic					0.945	Shapiro Wilk Lognormal GOF Test							
2535	10% Shapiro Wilk P Value					1.9148E-5	Data Not Lognormal at 10% Significance Level							
2536	Lilliefors Test Statistic					0.0862	Lilliefors Lognormal GOF Test							
2537	10% Lilliefors Critical Value					0.0679	Data Not Lognormal at 10% Significance Level							
2538	Data Not Lognormal at 10% Significance Level													
2539														
2540	Background Statistics assuming Lognormal Distribution													
2541	95% UTL with		95% Coverage	40.76	90% Percentile (z)					27.55				
2542			95% UPL (t)	35.43	95% Percentile (z)					35.05				
2543			95% USL	107	99% Percentile (z)					55.03				
2544														
2545	Nonparametric Distribution Free Background Statistics													
2546	Data appear Approximate Gamma Distribution at 5% Significance Level													
2547														
2548	Nonparametric Upper Limits for Background Threshold Values													
2549	Order of Statistic, order					142	95% UTL with 95% Coverage					33.4		
2550	Approx, f used to compute achieved CC					1.855	Approximate Actual Confidence Coefficient achieved by UTL					0.933		
2551							Approximate Sample Size needed to achieve specified CC					124		
2552	95% Percentile Bootstrap UTL with		95% Coverage	33.34	95% BCA Bootstrap UTL with 95% Coverage					33.2				
2553			95% UPL	32.78	90% Percentile					29.04				
2554			90% Chebyshev UPL	40.71	95% Percentile					32.03				
2555			95% Chebyshev UPL	52.62	99% Percentile					33.51				
2556			95% USL	34.8										
2557														
2558	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.													
2559	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers													
2560	and consists of observations collected from clean unimpacted locations.													
2561	The use of USL tends to provide a balance between false positives and false negatives provided the data													
2562	represents a background data set and when many onsite observations need to be compared with the BTV.													
2563														
2564	SC_Pb <30													
2565														
2566	General Statistics													
2567	Total Number of Observations					133	Number of Distinct Observations					100		
2568	Minimum					2.3	First Quartile					7.2		
2569	Second Largest					29.6	Median					11.3		
2570	Maximum					29.7	Third Quartile					19.2		
2571	Mean					12.9	SD					7.249		
2572	Coefficient of Variation					0.562	Skewness					0.589		
2573	Mean of logged Data					2.383	SD of logged Data					0.618		
2574														
2575	Critical Values for Background Threshold Values (BTVs)													
2576	Tolerance Factor K (For UTL)					1.883	d2max (for USL)					3.304		
2577														
2578	Normal GOF Test													
2579	Shapiro Wilk Test Statistic					0.914	Normal GOF Test							
2580	1% Shapiro Wilk P Value					3.299E-10	Data Not Normal at 1% Significance Level							
2581	Lilliefors Test Statistic					0.0961	Lilliefors GOF Test							
2582	1% Lilliefors Critical Value					0.0893	Data Not Normal at 1% Significance Level							
2583	Data Not Normal at 1% Significance Level													
2584														

	A	B	C	D	E	F	G	H	I	J	K	L
2585	Background Statistics Assuming Normal Distribution											
2586	95% UTL with		95% Coverage		26.55				90% Percentile (z)		22.19	
2587			95% UPL (t)		24.96				95% Percentile (z)		24.83	
2588			95% USL		36.86				99% Percentile (z)		29.77	
2589												
2590	Gamma GOF Test											
2591	A-D Test Statistic				1.086		Anderson-Darling Gamma GOF Test					
2592	5% A-D Critical Value				0.759		Data Not Gamma Distributed at 5% Significance Level					
2593	K-S Test Statistic				0.0845		Kolmogorov-Smirnov Gamma GOF Test					
2594	5% K-S Critical Value				0.0815		Data Not Gamma Distributed at 5% Significance Level					
2595	Data Not Gamma Distributed at 5% Significance Level											
2596												
2597	Gamma Statistics											
2598	k hat (MLE)				3.029		k star (bias corrected MLE)				2.966	
2599	Theta hat (MLE)				4.259		Theta star (bias corrected MLE)				4.35	
2600	nu hat (MLE)				805.8		nu star (bias corrected)				789	
2601	MLE Mean (bias corrected)				12.9		MLE Sd (bias corrected)				7.492	
2602												
2603	Background Statistics Assuming Gamma Distribution											
2604	95% Wilson Hilferty (WH) Approx.		Gamma UPL		27.25				90% Percentile		22.95	
2605	95% Hawkins Wixley (HW) Approx.		Gamma UPL		27.82				95% Percentile		27.17	
2606	95% WH Approx. Gamma UTL with		95% Coverage		30.04				99% Percentile		36.32	
2607	95% HW Approx. Gamma UTL with		95% Coverage		30.89							
2608			95% WH USL		52.73				95% HW USL		57.31	
2609												
2610	Lognormal GOF Test											
2611	Shapiro Wilk Test Statistic				0.944		Shapiro Wilk Lognormal GOF Test					
2612	10% Shapiro Wilk P Value				3.4110E-5		Data Not Lognormal at 10% Significance Level					
2613	Lilliefors Test Statistic				0.0904		Lilliefors Lognormal GOF Test					
2614	10% Lilliefors Critical Value				0.0706		Data Not Lognormal at 10% Significance Level					
2615	Data Not Lognormal at 10% Significance Level											
2616												
2617	Background Statistics assuming Lognormal Distribution											
2618	95% UTL with		95% Coverage		34.69				90% Percentile (z)		23.92	
2619			95% UPL (t)		30.28				95% Percentile (z)		29.94	
2620			95% USL		83.45				99% Percentile (z)		45.61	
2621												
2622	Nonparametric Distribution Free Background Statistics											
2623	Data do not follow a Discernible Distribution											
2624												
2625	Nonparametric Upper Limits for Background Threshold Values											
2626	Order of Statistic, order				131		95% UTL with 95% Coverage				29.4	
2627	Approx, f used to compute achieved CC				1.711		Approximate Actual Confidence Coefficient achieved by UTL				0.904	
2628							Approximate Sample Size needed to achieve specified CC				124	
2629	95% Percentile Bootstrap UTL with		95% Coverage		28.68		95% BCA Bootstrap UTL with		95% Coverage		28.68	
2630			95% UPL		26.9				90% Percentile		23.38	
2631			90% Chebyshev UPL		34.73				95% Percentile		26.36	
2632			95% Chebyshev UPL		44.62				99% Percentile		29.54	
2633			95% USL		29.7							
2634												
2635	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2636	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2637	and consists of observations collected from clean unimpacted locations.											
2638	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2639	represents a background data set and when many onsite observations need to be compared with the BTV.											
2640												
2641	SD_As											
2642												
2643	General Statistics											
2644	Total Number of Observations				360		Number of Distinct Observations				129	
2645	Minimum				0.9		First Quartile				6.275	
2646	Second Largest				25		Median				8	
2647	Maximum				46.7		Third Quartile				9.7	
2648	Mean				8.477		SD				4.036	
2649	Coefficient of Variation				0.476		Skewness				3.256	
2650	Mean of logged Data				2.044		SD of logged Data				0.441	
2651												
2652	Critical Values for Background Threshold Values (BTVs)											

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	A	B	C	D	E	F	G	H	I	J	K	L	
2653	Tolerance Factor K (For UTL)					1.785	d2max (for USL)					3.604	
2654													
2655	Normal GOF Test												
2656	Shapiro Wilk Test Statistic					0.824	Normal GOF Test						
2657	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
2658	Lilliefors Test Statistic					0.147	Lilliefors GOF Test						
2659	1% Lilliefors Critical Value					0.0545	Data Not Normal at 1% Significance Level						
2660	Data Not Normal at 1% Significance Level												
2661													
2662	Background Statistics Assuming Normal Distribution												
2663	95% UTL with	95% Coverage			15.68	90% Percentile (z)					13.65		
2664		95% UPL (t)			15.14	95% Percentile (z)					15.12		
2665		95% USL			23.02	99% Percentile (z)					17.87		
2666													
2667	Gamma GOF Test												
2668	A-D Test Statistic					3.863	Anderson-Darling Gamma GOF Test						
2669	5% A-D Critical Value					0.757	Data Not Gamma Distributed at 5% Significance Level						
2670	K-S Test Statistic					0.089	Kolmogorov-Smirnov Gamma GOF Test						
2671	5% K-S Critical Value					0.0481	Data Not Gamma Distributed at 5% Significance Level						
2672	Data Not Gamma Distributed at 5% Significance Level												
2673													
2674	Gamma Statistics												
2675	k hat (MLE)					5.528	k star (bias corrected MLE)					5.483	
2676	Theta hat (MLE)					1.534	Theta star (bias corrected MLE)					1.546	
2677	nu hat (MLE)					3980	nu star (bias corrected)					3948	
2678	MLE Mean (bias corrected)					8.477	MLE Sd (bias corrected)					3.62	
2679													
2680	Background Statistics Assuming Gamma Distribution												
2681	95% Wilson Hilferty (WH) Approx.	Gamma UPL			15.12	90% Percentile					13.32		
2682	95% Hawkins Wixley (HW) Approx.	Gamma UPL			15.26	95% Percentile					15.17		
2683	95% WH Approx.	Gamma UTL with	95% Coverage		15.84	99% Percentile					19.07		
2684	95% HW Approx.	Gamma UTL with	95% Coverage		16.02								
2685		95% WH USL			27.96	95% HW USL					29.52		
2686													
2687	Lognormal GOF Test												
2688	Shapiro Wilk Test Statistic					0.962	Shapiro Wilk Lognormal GOF Test						
2689	10% Shapiro Wilk P Value					2.8364E-7	Data Not Lognormal at 10% Significance Level						
2690	Lilliefors Test Statistic					0.0791	Lilliefors Lognormal GOF Test						
2691	10% Lilliefors Critical Value					0.0431	Data Not Lognormal at 10% Significance Level						
2692	Data Not Lognormal at 10% Significance Level												
2693													
2694	Background Statistics assuming Lognormal Distribution												
2695	95% UTL with	95% Coverage			16.97	90% Percentile (z)					13.59		
2696		95% UPL (t)			16	95% Percentile (z)					15.96		
2697		95% USL			37.88	99% Percentile (z)					21.55		
2698													
2699	Nonparametric Distribution Free Background Statistics												
2700	Data do not follow a Discernible Distribution												
2701													
2702	Nonparametric Upper Limits for Background Threshold Values												
2703	Order of Statistic, order					350	95% UTL with					95% Coverage	16.9
2704	Approx, f used to compute achieved CC					1.531	Approximate Actual Confidence Coefficient achieved by UTL					0.949	
2705							Approximate Sample Size needed to achieve specified CC					336	
2706	95% Percentile Bootstrap UTL with	95% Coverage			16.61	95% BCA Bootstrap UTL with					95% Coverage	16.8	
2707		95% UPL			15.68						90% Percentile	12.3	
2708		90% Chebyshev UPL			20.6						95% Percentile	15.32	
2709		95% Chebyshev UPL			26.09						99% Percentile	23.42	
2710		95% USL			46.7								
2711													
2712	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
2713	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
2714	and consists of observations collected from clean unimpacted locations.												
2715	The use of USL tends to provide a balance between false positives and false negatives provided the data												
2716	represents a background data set and when many onsite observations need to be compared with the BTV.												
2717													
2718	SD_As <26												
2719													
2720	General Statistics												

	A	B	C	D	E	F	G	H	I	J	K	L
2721	Total Number of Observations					359	Number of Distinct Observations					128
2722	Minimum					0.9	First Quartile					6.25
2723	Second Largest					24.3	Median					8
2724	Maximum					25	Third Quartile					9.7
2725	Mean					8.371	SD					3.499
2726	Coefficient of Variation					0.418	Skewness					1.441
2727	Mean of logged Data					2.039	SD of logged Data					0.431
2728												
2729	Critical Values for Background Threshold Values (BTVs)											
2730	Tolerance Factor K (For UTL)					1.785	d2max (for USL)					3.604
2731												
2732	Normal GOF Test											
2733	Shapiro Wilk Test Statistic					0.905	Normal GOF Test					
2734	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
2735	Lilliefors Test Statistic					0.116	Lilliefors GOF Test					
2736	1% Lilliefors Critical Value					0.0545	Data Not Normal at 1% Significance Level					
2737	Data Not Normal at 1% Significance Level											
2738												
2739	Background Statistics Assuming Normal Distribution											
2740	95% UTL with	95% Coverage				14.62				90% Percentile (z)		12.85
2741		95% UPL (t)				14.15				95% Percentile (z)		14.13
2742		95% USL				20.98				99% Percentile (z)		16.51
2743												
2744	Gamma GOF Test											
2745	A-D Test Statistic					2.933	Anderson-Darling Gamma GOF Test					
2746	5% A-D Critical Value					0.757	Data Not Gamma Distributed at 5% Significance Level					
2747	K-S Test Statistic					0.0761	Kolmogorov-Smirnov Gamma GOF Test					
2748	5% K-S Critical Value					0.0481	Data Not Gamma Distributed at 5% Significance Level					
2749	Data Not Gamma Distributed at 5% Significance Level											
2750												
2751	Gamma Statistics											
2752	k hat (MLE)					6.006	k star (bias corrected MLE)					5.958
2753	Theta hat (MLE)					1.394	Theta star (bias corrected MLE)					1.405
2754	nu hat (MLE)					4313	nu star (bias corrected)					4278
2755	MLE Mean (bias corrected)					8.371	MLE Sd (bias corrected)					3.429
2756												
2757	Background Statistics Assuming Gamma Distribution											
2758	95% Wilson Hilferty (WH) Approx. Gamma UPL					14.67	90% Percentile					12.96
2759	95% Hawkins Wixley (HW) Approx. Gamma UPL					14.85	95% Percentile					14.69
2760	95% WH Approx. Gamma UTL with 95% Coverage					15.34	99% Percentile					18.33
2761	95% HW Approx. Gamma UTL with 95% Coverage					15.57						
2762	95% WH USL					26.62	95% HW USL					28.19
2763												
2764	Lognormal GOF Test											
2765	Shapiro Wilk Test Statistic					0.954	Shapiro Wilk Lognormal GOF Test					
2766	10% Shapiro Wilk P Value					1.386E-11	Data Not Lognormal at 10% Significance Level					
2767	Lilliefors Test Statistic					0.082	Lilliefors Lognormal GOF Test					
2768	10% Lilliefors Critical Value					0.0431	Data Not Lognormal at 10% Significance Level					
2769	Data Not Lognormal at 10% Significance Level											
2770												
2771	Background Statistics assuming Lognormal Distribution											
2772	95% UTL with	95% Coverage				16.6				90% Percentile (z)		13.36
2773		95% UPL (t)				15.67				95% Percentile (z)		15.62
2774		95% USL				36.37				99% Percentile (z)		20.96
2775												
2776	Nonparametric Distribution Free Background Statistics											
2777	Data do not follow a Discernible Distribution											
2778												
2779	Nonparametric Upper Limits for Background Threshold Values											
2780	Order of Statistic, order					349	95% UTL with 95% Coverage					16.8
2781	Approx, f used to compute achieved CC					1.526	Approximate Actual Confidence Coefficient achieved by UTL					0.948
2782							Approximate Sample Size needed to achieve specified CC					336
2783	95% Percentile Bootstrap UTL with	95% Coverage				16.24	95% BCA Bootstrap UTL with 95% Coverage					16.24
2784		95% UPL				15.3	90% Percentile					12.22
2785		90% Chebyshev UPL				18.88	95% Percentile					15.21
2786		95% Chebyshev UPL				23.64	99% Percentile					20.92
2787		95% USL				25						
2788												

	A	B	C	D	E	F	G	H	I	J	K	L
2789	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2790	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2791	and consists of observations collected from clean unpacted locations.											
2792	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2793	represents a background data set and when many onsite observations need to be compared with the BTV.											
2794												
2795	SD_As <20											
2796												
2797	General Statistics											
2798	Total Number of Observations				355	Number of Distinct Observations				124		
2799	Minimum				0.9	First Quartile				6.2		
2800	Second Largest				19.1	Median				7.9		
2801	Maximum				19.2	Third Quartile				9.6		
2802	Mean				8.194	SD				3.093		
2803	Coefficient of Variation				0.377	Skewness				0.793		
2804	Mean of logged Data				2.026	SD of logged Data				0.416		
2805												
2806	Critical Values for Background Threshold Values (BTVs)											
2807	Tolerance Factor K (For UTL)				1.786	d2max (for USL)				3.6		
2808												
2809	Normal GOF Test											
2810	Shapiro Wilk Test Statistic				0.948	Normal GOF Test						
2811	1% Shapiro Wilk P Value				7.550E-15	Data Not Normal at 1% Significance Level						
2812	Lilliefors Test Statistic				0.0829	Lilliefors GOF Test						
2813	1% Lilliefors Critical Value				0.0548	Data Not Normal at 1% Significance Level						
2814	Data Not Normal at 1% Significance Level											
2815												
2816	Background Statistics Assuming Normal Distribution											
2817	95% UTL with	95% Coverage	13.72					90% Percentile (z)	12.16			
2818		95% UPL (t)	13.3					95% Percentile (z)	13.28			
2819		95% USL	19.33					99% Percentile (z)	15.39			
2820												
2821	Gamma GOF Test											
2822	A-D Test Statistic				2.256	Anderson-Darling Gamma GOF Test						
2823	5% A-D Critical Value				0.756	Data Not Gamma Distributed at 5% Significance Level						
2824	K-S Test Statistic				0.0624	Kolmogorov-Smirnov Gamma GOF Test						
2825	5% K-S Critical Value				0.0484	Data Not Gamma Distributed at 5% Significance Level						
2826	Data Not Gamma Distributed at 5% Significance Level											
2827												
2828	Gamma Statistics											
2829	k hat (MLE)				6.65	k star (bias corrected MLE)				6.596		
2830	Theta hat (MLE)				1.232	Theta star (bias corrected MLE)				1.242		
2831	nu hat (MLE)				4721	nu star (bias corrected)				4683		
2832	MLE Mean (bias corrected)				8.194	MLE Sd (bias corrected)				3.191		
2833												
2834	Background Statistics Assuming Gamma Distribution											
2835	95% Wilson Hilferty (WH) Approx. Gamma UPL				14.04	90% Percentile				12.46		
2836	95% Hawkins Wixley (HW) Approx. Gamma UPL				14.24	95% Percentile				14.05		
2837	95% WH Approx. Gamma UTL with 95% Coverage				14.66	99% Percentile				17.37		
2838	95% HW Approx. Gamma UTL with 95% Coverage				14.9							
2839	95% WH USL				24.88	95% HW USL				26.36		
2840												
2841	Lognormal GOF Test											
2842	Shapiro Wilk Test Statistic				0.943	Shapiro Wilk Lognormal GOF Test						
2843	10% Shapiro Wilk P Value				0	Data Not Lognormal at 10% Significance Level						
2844	Lilliefors Test Statistic				0.089	Lilliefors Lognormal GOF Test						
2845	10% Lilliefors Critical Value				0.0434	Data Not Lognormal at 10% Significance Level						
2846	Data Not Lognormal at 10% Significance Level											
2847												
2848	Background Statistics assuming Lognormal Distribution											
2849	95% UTL with	95% Coverage	15.95					90% Percentile (z)	12.93			
2850		95% UPL (t)	15.09					95% Percentile (z)	15.05			
2851		95% USL	33.96					99% Percentile (z)	19.98			
2852												
2853	Nonparametric Distribution Free Background Statistics											
2854	Data do not follow a Discernible Distribution											
2855												
2856	Nonparametric Upper Limits for Background Threshold Values											

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	A	B	C	D	E	F	G	H	I	J	K	L		
2857	Order of Statistic, order					345	95% UTL with					95% Coverage	15.9	
2858	Approx, f used to compute achieved CC					1.509	Approximate Actual Confidence Coefficient achieved by UTL						0.943	
2859							Approximate Sample Size needed to achieve specified CC						336	
2860	95% Percentile Bootstrap UTL with					95% Coverage	15.7	95% BCA Bootstrap UTL with					95% Coverage	15.7
2861						95% UPL	14.6						90% Percentile	11.86
2862						90% Chebyshev UPL	17.49						95% Percentile	14.53
2863						95% Chebyshev UPL	21.69						99% Percentile	17.15
2864						95% USL	19.2							
2865														
2866	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.													
2867	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers													
2868	and consists of observations collected from clean unimpacted locations.													
2869	The use of USL tends to provide a balance between false positives and false negatives provided the data													
2870	represents a background data set and when many onsite observations need to be compared with the BTV.													
2871														
2872	SD_As <15													
2873														
2874	General Statistics													
2875	Total Number of Observations					339	Number of Distinct Observations						109	
2876	Minimum					0.9	First Quartile						6.2	
2877	Second Largest					14.6	Median						7.8	
2878	Maximum					14.6	Third Quartile						9.35	
2879	Mean					7.796	SD						2.533	
2880	Coefficient of Variation					0.325	Skewness						0.115	
2881	Mean of logged Data					1.989	SD of logged Data						0.389	
2882														
2883	Critical Values for Background Threshold Values (BTVs)													
2884	Tolerance Factor K (For UTL)					1.789	d2max (for USL)						3.587	
2885														
2886	Normal GOF Test													
2887	Shapiro Wilk Test Statistic					0.979	Normal GOF Test							
2888	1% Shapiro Wilk P Value					0.109	Data appear Normal at 1% Significance Level							
2889	Lilliefors Test Statistic					0.0346	Lilliefors GOF Test							
2890	1% Lilliefors Critical Value					0.0561	Data appear Normal at 1% Significance Level							
2891	Data appear Normal at 1% Significance Level													
2892														
2893	Background Statistics Assuming Normal Distribution													
2894	95% UTL with					95% Coverage	12.33	90% Percentile (z)						11.04
2895						95% UPL (t)	11.98	95% Percentile (z)						11.96
2896						95% USL	16.88	99% Percentile (z)						13.69
2897														
2898	Gamma GOF Test													
2899	A-D Test Statistic					2.854	Anderson-Darling Gamma GOF Test							
2900	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level							
2901	K-S Test Statistic					0.0853	Kolmogorov-Smirnov Gamma GOF Test							
2902	5% K-S Critical Value					0.0495	Data Not Gamma Distributed at 5% Significance Level							
2903	Data Not Gamma Distributed at 5% Significance Level													
2904														
2905	Gamma Statistics													
2906	k hat (MLE)					7.954	k star (bias corrected MLE)						7.886	
2907	Theta hat (MLE)					0.98	Theta star (bias corrected MLE)						0.989	
2908	nu hat (MLE)					5393	nu star (bias corrected)						5347	
2909	MLE Mean (bias corrected)					7.796	MLE Sd (bias corrected)						2.776	
2910														
2911	Background Statistics Assuming Gamma Distribution													
2912	95% Wilson Hilferty (WH) Approx. Gamma UPL					12.85	90% Percentile						11.5	
2913	95% Hawkins Wixley (HW) Approx. Gamma UPL					13.05	95% Percentile						12.85	
2914	95% WH Approx. Gamma UTL with					95% Coverage	13.39	99% Percentile						15.66
2915	95% HW Approx. Gamma UTL with					95% Coverage	13.63							
2916						95% WH USL	21.83	95% HW USL						23.1
2917														
2918	Lognormal GOF Test													
2919	Shapiro Wilk Test Statistic					0.911	Shapiro Wilk Lognormal GOF Test							
2920	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level							
2921	Lilliefors Test Statistic					0.107	Lilliefors Lognormal GOF Test							
2922	10% Lilliefors Critical Value					0.0444	Data Not Lognormal at 10% Significance Level							
2923	Data Not Lognormal at 10% Significance Level													
2924														

	A	B	C	D	E	F	G	H	I	J	K	L
2925	Background Statistics assuming Lognormal Distribution											
2926	95% UTL with		95% Coverage		14.65				90% Percentile (z)		12.03	
2927			95% UPL (t)		13.89				95% Percentile (z)		13.85	
2928			95% USL		29.47				99% Percentile (z)		18.05	
2929												
2930	Nonparametric Distribution Free Background Statistics											
2931	Data appear Normal at 1% Significance Level											
2932												
2933	Nonparametric Upper Limits for Background Threshold Values											
2934	Order of Statistic, order				329			95% UTL with		95% Coverage	12.9	
2935	Approx, f used to compute achieved CC				1.439	Approximate Actual Confidence Coefficient achieved by UTL				0.919		
2936						Approximate Sample Size needed to achieve specified CC				336		
2937	95% Percentile Bootstrap UTL with		95% Coverage		12.8	95% BCA Bootstrap UTL with		95% Coverage		12.72		
2938			95% UPL		12.2			90% Percentile		10.8		
2939			90% Chebyshev UPL		15.41			95% Percentile		12.2		
2940			95% Chebyshev UPL		18.85			99% Percentile		14.46		
2941			95% USL		14.6							
2942												
2943	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
2944	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
2945	and consists of observations collected from clean unimpacted locations.											
2946	The use of USL tends to provide a balance between false positives and false negatives provided the data											
2947	represents a background data set and when many onsite observations need to be compared with the BTV.											
2948												
2949	SD_Pb											
2950												
2951	General Statistics											
2952	Total Number of Observations				360	Number of Distinct Observations				129		
2953	Minimum				8.9	First Quartile				13.4		
2954	Second Largest				32.9	Median				15.5		
2955	Maximum				47.9	Third Quartile				17.9		
2956	Mean				15.95	SD				3.749		
2957	Coefficient of Variation				0.235	Skewness				2.2		
2958	Mean of logged Data				2.746	SD of logged Data				0.216		
2959												
2960	Critical Values for Background Threshold Values (BTVs)											
2961	Tolerance Factor K (For UTL)				1.785	d2max (for USL)				3.604		
2962												
2963	Normal GOF Test											
2964	Shapiro Wilk Test Statistic				0.902	Normal GOF Test						
2965	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level						
2966	Lilliefors Test Statistic				0.0648	Lilliefors GOF Test						
2967	1% Lilliefors Critical Value				0.0545	Data Not Normal at 1% Significance Level						
2968	Data Not Normal at 1% Significance Level											
2969												
2970	Background Statistics Assuming Normal Distribution											
2971	95% UTL with		95% Coverage		22.64				90% Percentile (z)		20.76	
2972			95% UPL (t)		22.14				95% Percentile (z)		22.12	
2973			95% USL		29.47				99% Percentile (z)		24.67	
2974												
2975	Gamma GOF Test											
2976	A-D Test Statistic				0.684	Anderson-Darling Gamma GOF Test						
2977	5% A-D Critical Value				0.751	Detected data appear Gamma Distributed at 5% Significance Level						
2978	K-S Test Statistic				0.0344	Kolmogorov-Smirnov Gamma GOF Test						
2979	5% K-S Critical Value				0.0478	Detected data appear Gamma Distributed at 5% Significance Level						
2980	Detected data appear Gamma Distributed at 5% Significance Level											
2981												
2982	Gamma Statistics											
2983	k hat (MLE)				20.96	k star (bias corrected MLE)				20.79		
2984	Theta hat (MLE)				0.761	Theta star (bias corrected MLE)				0.767		
2985	nu hat (MLE)				15092	nu star (bias corrected)				14967		
2986	MLE Mean (bias corrected)				15.95	MLE Sd (bias corrected)				3.499		
2987												
2988	Background Statistics Assuming Gamma Distribution											
2989	95% Wilson Hilferty (WH) Approx. Gamma UPL				22.11				90% Percentile		20.57	
2990	95% Hawkins Wixley (HW) Approx. Gamma UPL				22.13				95% Percentile		22.11	
2991	95% WH Approx. Gamma UTL with		95% Coverage		22.69				99% Percentile		25.2	
2992	95% HW Approx. Gamma UTL with		95% Coverage		22.72							

	A	B	C	D	E	F	G	H	I	J	K	L
2993	95% WH USL					31.69	95% HW USL					32.14
2994												
2995	Lognormal GOF Test											
2996	Shapiro Wilk Test Statistic					0.984	Shapiro Wilk Lognormal GOF Test					
2997	10% Shapiro Wilk P Value					0.498	Data appear Lognormal at 10% Significance Level					
2998	Lilliefors Test Statistic					0.0231	Lilliefors Lognormal GOF Test					
2999	10% Lilliefors Critical Value					0.0431	Data appear Lognormal at 10% Significance Level					
3000	Data appear Lognormal at 10% Significance Level											
3001												
3002	Background Statistics assuming Lognormal Distribution											
3003	95% UTL with		95% Coverage		22.88	90% Percentile (z)					20.53	
3004			95% UPL (t)		22.23	95% Percentile (z)					22.2	
3005			95% USL		33.87	99% Percentile (z)					25.71	
3006												
3007	Nonparametric Distribution Free Background Statistics											
3008	Data appear Gamma Distributed at 5% Significance Level											
3009												
3010	Nonparametric Upper Limits for Background Threshold Values											
3011	Order of Statistic, order				350	95% UTL with				95% Coverage	22.6	
3012	Approx, f used to compute achieved CC				1.531	Approximate Actual Confidence Coefficient achieved by UTL					0.949	
3013						Approximate Sample Size needed to achieve specified CC					336	
3014	95% Percentile Bootstrap UTL with		95% Coverage		22.31	95% BCA Bootstrap UTL with		95% Coverage		22.31		
3015			95% UPL		22			90% Percentile		20.5		
3016			90% Chebyshev UPL		27.21			95% Percentile		21.91		
3017			95% Chebyshev UPL		32.32			99% Percentile		23.89		
3018			95% USL		47.9							
3019												
3020	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
3021	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3022	and consists of observations collected from clean unimpacted locations.											
3023	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3024	represents a background data set and when many onsite observations need to be compared with the BTV.											
3025												
3026	SD_Pb <33											
3027												
3028	General Statistics											
3029	Total Number of Observations				359	Number of Distinct Observations				128		
3030	Minimum				8.9	First Quartile				13.4		
3031	Second Largest				28	Median				15.5		
3032	Maximum				32.9	Third Quartile				17.85		
3033	Mean				15.86	SD				3.352		
3034	Coefficient of Variation				0.211	Skewness				0.735		
3035	Mean of logged Data				2.742	SD of logged Data				0.208		
3036												
3037	Critical Values for Background Threshold Values (BTVs)											
3038	Tolerance Factor K (For UTL)				1.785	d2max (for USL)				3.604		
3039												
3040	Normal GOF Test											
3041	Shapiro Wilk Test Statistic				0.967	Normal GOF Test						
3042	1% Shapiro Wilk P Value				4.8726E-5	Data Not Normal at 1% Significance Level						
3043	Lilliefors Test Statistic				0.0529	Lilliefors GOF Test						
3044	1% Lilliefors Critical Value				0.0545	Data appear Normal at 1% Significance Level						
3045	Data appear Approximate Normal at 1% Significance Level											
3046												
3047	Background Statistics Assuming Normal Distribution											
3048	95% UTL with		95% Coverage		21.85	90% Percentile (z)					20.16	
3049			95% UPL (t)		21.4	95% Percentile (z)					21.38	
3050			95% USL		27.94	99% Percentile (z)					23.66	
3051												
3052	Gamma GOF Test											
3053	A-D Test Statistic				0.423	Anderson-Darling Gamma GOF Test						
3054	5% A-D Critical Value				0.751	Detected data appear Gamma Distributed at 5% Significance Level						
3055	K-S Test Statistic				0.0307	Kolmogorov-Smirnov Gamma GOF Test						
3056	5% K-S Critical Value				0.0479	Detected data appear Gamma Distributed at 5% Significance Level						
3057	Detected data appear Gamma Distributed at 5% Significance Level											
3058												
3059	Gamma Statistics											
3060	k hat (MLE)				23.34	k star (bias corrected MLE)					23.14	

	A	B	C	D	E	F	G	H	I	J	K	L
3061					Theta hat (MLE)	0.68				Theta star (bias corrected MLE)		0.685
3062					nu hat (MLE)	16755				nu star (bias corrected)		16617
3063					MLE Mean (bias corrected)	15.86				MLE Sd (bias corrected)		3.297
3064												
3065					Background Statistics Assuming Gamma Distribution							
3066					95% Wilson Hilferty (WH) Approx. Gamma UPL	21.65				90% Percentile		20.21
3067					95% Hawkins Wixley (HW) Approx. Gamma UPL	21.7				95% Percentile		21.65
3068					95% WH Approx. Gamma UTL with 95% Coverage	22.2				99% Percentile		24.52
3069					95% HW Approx. Gamma UTL with 95% Coverage	22.26						
3070					95% WH USL	30.55				95% HW USL		31.03
3071												
3072					Lognormal GOF Test							
3073					Shapiro Wilk Test Statistic	0.987				Shapiro Wilk Lognormal GOF Test		
3074					10% Shapiro Wilk P Value	0.776				Data appear Lognormal at 10% Significance Level		
3075					Lilliefors Test Statistic	0.0255				Lilliefors Lognormal GOF Test		
3076					10% Lilliefors Critical Value	0.0431				Data appear Lognormal at 10% Significance Level		
3077					Data appear Lognormal at 10% Significance Level							
3078												
3079					Background Statistics assuming Lognormal Distribution							
3080					95% UTL with 95% Coverage	22.48				90% Percentile (z)		20.25
3081					95% UPL (t)	21.87				95% Percentile (z)		21.84
3082					95% USL	32.79				99% Percentile (z)		25.16
3083												
3084					Nonparametric Distribution Free Background Statistics							
3085					Data appear Approximate Normal at 1% Significance Level							
3086												
3087					Nonparametric Upper Limits for Background Threshold Values							
3088					Order of Statistic, order	349				95% UTL with 95% Coverage		22.4
3089					Approx, f used to compute achieved CC	1.526				Approximate Actual Confidence Coefficient achieved by UTL		0.948
3090										Approximate Sample Size needed to achieve specified CC		336
3091					95% Percentile Bootstrap UTL with 95% Coverage	22.3				95% BCA Bootstrap UTL with 95% Coverage		22.3
3092					95% UPL	21.9				90% Percentile		20.5
3093					90% Chebyshev UPL	25.93				95% Percentile		21.81
3094					95% Chebyshev UPL	30.49				99% Percentile		23.43
3095					95% USL	32.9						
3096												
3097					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
3098					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
3099					and consists of observations collected from clean unimpacted locations.							
3100					The use of USL tends to provide a balance between false positives and false negatives provided the data							
3101					represents a background data set and when many onsite observations need to be compared with the BTV.							
3102												
3103					SD_Pb <24							
3104												
3105					General Statistics							
3106					Total Number of Observations	356				Number of Distinct Observations		125
3107					Minimum	8.9				First Quartile		13.38
3108					Second Largest	23.3				Median		15.5
3109					Maximum	23.6				Third Quartile		17.8
3110					Mean	15.76				SD		3.144
3111					Coefficient of Variation	0.2				Skewness		0.332
3112					Mean of logged Data	2.737				SD of logged Data		0.201
3113												
3114					Critical Values for Background Threshold Values (BTVs)							
3115					Tolerance Factor K (For UTL)	1.785				d2max (for USL)		3.601
3116												
3117					Normal GOF Test							
3118					Shapiro Wilk Test Statistic	0.963				Normal GOF Test		
3119					1% Shapiro Wilk P Value	1.4323E-6				Data Not Normal at 1% Significance Level		
3120					Lilliefors Test Statistic	0.0467				Lilliefors GOF Test		
3121					1% Lilliefors Critical Value	0.0548				Data appear Normal at 1% Significance Level		
3122					Data appear Approximate Normal at 1% Significance Level							
3123												
3124					Background Statistics Assuming Normal Distribution							
3125					95% UTL with 95% Coverage	21.37				90% Percentile (z)		19.79
3126					95% UPL (t)	20.95				95% Percentile (z)		20.93
3127					95% USL	27.08				99% Percentile (z)		23.07
3128												

	A	B	C	D	E	F	G	H	I	J	K	L						
3129	Gamma GOF Test																	
3130	A-D Test Statistic					0.533	Anderson-Darling Gamma GOF Test											
3131	5% A-D Critical Value					0.751	Detected data appear Gamma Distributed at 5% Significance Level											
3132	K-S Test Statistic					0.0331	Kolmogorov-Smirnov Gamma GOF Test											
3133	5% K-S Critical Value					0.0481	Detected data appear Gamma Distributed at 5% Significance Level											
3134	Detected data appear Gamma Distributed at 5% Significance Level																	
3135																		
3136	Gamma Statistics																	
3137	k hat (MLE)					25.26	k star (bias corrected MLE)					25.05						
3138	Theta hat (MLE)					0.624	Theta star (bias corrected MLE)					0.629						
3139	nu hat (MLE)					17988	nu star (bias corrected)					17837						
3140	MLE Mean (bias corrected)					15.76	MLE Sd (bias corrected)					3.148						
3141																		
3142	Background Statistics Assuming Gamma Distribution																	
3143	95% Wilson Hiferty (WH) Approx. Gamma UPL					21.28	90% Percentile					19.9						
3144	95% Hawkins Wixley (HW) Approx. Gamma UPL					21.33	95% Percentile					21.27						
3145	95% WH Approx. Gamma UTL with 95% Coverage					21.79	99% Percentile					23.99						
3146	95% HW Approx. Gamma UTL with 95% Coverage					21.86												
3147	95% WH USL					29.67	95% HW USL					30.13						
3148																		
3149	Lognormal GOF Test																	
3150	Shapiro Wilk Test Statistic					0.973	Shapiro Wilk Lognormal GOF Test											
3151	10% Shapiro Wilk P Value					0.00452	Data Not Lognormal at 10% Significance Level											
3152	Lilliefors Test Statistic					0.0337	Lilliefors Lognormal GOF Test											
3153	10% Lilliefors Critical Value					0.0433	Data appear Lognormal at 10% Significance Level											
3154	Data appear Approximate Lognormal at 10% Significance Level																	
3155																		
3156	Background Statistics assuming Lognormal Distribution																	
3157	95% UTL with 95% Coverage					22.1	90% Percentile (z)					19.98						
3158	95% UPL (t)					21.52	95% Percentile (z)					21.49						
3159	95% USL					31.82	99% Percentile (z)					24.64						
3160																		
3161	Nonparametric Distribution Free Background Statistics																	
3162	Data appear Approximate Normal at 1% Significance Level																	
3163																		
3164	Nonparametric Upper Limits for Background Threshold Values																	
3165	Order of Statistic, order					346	95% UTL with 95% Coverage					22.2						
3166	Approx, f used to compute achieved CC					1.513	Approximate Actual Confidence Coefficient achieved by UTL					0.945						
3167							Approximate Sample Size needed to achieve specified CC					336						
3168	95% Percentile Bootstrap UTL with 95% Coverage					22.1	95% BCA Bootstrap UTL with 95% Coverage					22.03						
3169	95% UPL					21.46	90% Percentile					20.3						
3170	90% Chebyshev UPL					25.2	95% Percentile					21.4						
3171	95% Chebyshev UPL					29.48	99% Percentile					23.1						
3172	95% USL					23.6												
3173																		
3174	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.																	
3175	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers																	
3176	and consists of observations collected from clean unimpacted locations.																	
3177	The use of USL tends to provide a balance between false positives and false negatives provided the data																	
3178	represents a background data set and when many onsite observations need to be compared with the BTV.																	
3179																		
3180	SD_Pb <22																	
3181																		
3182	General Statistics																	
3183	Total Number of Observations					342	Number of Distinct Observations					114						
3184	Minimum					8.9	First Quartile					13.2						
3185	Second Largest					21.8	Median					15.4						
3186	Maximum					21.9	Third Quartile					17.5						
3187	Mean					15.47	SD					2.872						
3188	Coefficient of Variation					0.186	Skewness					0.169						
3189	Mean of logged Data					2.722	SD of logged Data					0.189						
3190																		
3191	Critical Values for Background Threshold Values (BTVs)																	
3192	Tolerance Factor K (For UTL)					1.788	d2max (for USL)					3.59						
3193																		
3194	Normal GOF Test																	
3195	Shapiro Wilk Test Statistic					0.965	Normal GOF Test											
3196	1% Shapiro Wilk P Value					1.6298E-5	Data Not Normal at 1% Significance Level											

	A	B	C	D	E	F	G	H	I	J	K	L	
3197	Lilliefors Test Statistic					0.0442	Lilliefors GOF Test						
3198	1% Lilliefors Critical Value					0.0559	Data appear Normal at 1% Significance Level						
3199	Data appear Approximate Normal at 1% Significance Level												
3200													
3201	Background Statistics Assuming Normal Distribution												
3202	95% UTL with		95% Coverage		20.61						90% Percentile (z)	19.16	
3203			95% UPL (t)		20.22						95% Percentile (z)	20.2	
3204			95% USL		25.78						99% Percentile (z)	22.16	
3205													
3206	Gamma GOF Test												
3207	A-D Test Statistic					0.686	Anderson-Darling Gamma GOF Test						
3208	5% A-D Critical Value					0.751	Detected data appear Gamma Distributed at 5% Significance Level						
3209	K-S Test Statistic					0.0406	Kolmogorov-Smirnov Gamma GOF Test						
3210	5% K-S Critical Value					0.0491	Detected data appear Gamma Distributed at 5% Significance Level						
3211	Detected data appear Gamma Distributed at 5% Significance Level												
3212													
3213	Gamma Statistics												
3214	k hat (MLE)					28.73						k star (bias corrected MLE)	28.48
3215	Theta hat (MLE)					0.539						Theta star (bias corrected MLE)	0.543
3216	nu hat (MLE)					19649						nu star (bias corrected)	19478
3217	MLE Mean (bias corrected)					15.47						MLE Sd (bias corrected)	2.9
3218													
3219	Background Statistics Assuming Gamma Distribution												
3220	95% Wilson Hilferty (WH) Approx. Gamma UPL					20.54						90% Percentile	19.29
3221	95% Hawkins Wixley (HW) Approx. Gamma UPL					20.59						95% Percentile	20.53
3222	95% WH Approx. Gamma UTL with		95% Coverage		21.02						99% Percentile	23.01	
3223	95% HW Approx. Gamma UTL with		95% Coverage		21.09								
3224	95% WH USL					28.08						95% HW USL	28.49
3225													
3226	Lognormal GOF Test												
3227	Shapiro Wilk Test Statistic					0.968	Shapiro Wilk Lognormal GOF Test						
3228	10% Shapiro Wilk P Value					1.7434E-4	Data Not Lognormal at 10% Significance Level						
3229	Lilliefors Test Statistic					0.0458	Lilliefors Lognormal GOF Test						
3230	10% Lilliefors Critical Value					0.0442	Data Not Lognormal at 10% Significance Level						
3231	Data Not Lognormal at 10% Significance Level												
3232													
3233	Background Statistics assuming Lognormal Distribution												
3234	95% UTL with		95% Coverage		21.31						90% Percentile (z)	19.37	
3235			95% UPL (t)		20.77						95% Percentile (z)	20.74	
3236			95% USL		29.95						99% Percentile (z)	23.59	
3237													
3238	Nonparametric Distribution Free Background Statistics												
3239	Data appear Approximate Normal at 1% Significance Level												
3240													
3241	Nonparametric Upper Limits for Background Threshold Values												
3242	Order of Statistic, order					332	95% UTL with 95% Coverage					21.1	
3243	Approx, f used to compute achieved CC					1.452	Approximate Actual Confidence Coefficient achieved by UTL					0.924	
3244							Approximate Sample Size needed to achieve specified CC					336	
3245	95% Percentile Bootstrap UTL with		95% Coverage		21	95% BCA Bootstrap UTL with 95% Coverage					20.9		
3246			95% UPL		20.67						90% Percentile	19.49	
3247			90% Chebyshev UPL		24.1						95% Percentile	20.5	
3248			95% Chebyshev UPL		28.01						99% Percentile	21.4	
3249			95% USL		21.9								
3250													
3251	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
3252	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
3253	and consists of observations collected from clean unimpacted locations.												
3254	The use of USL tends to provide a balance between false positives and false negatives provided the data												
3255	represents a background data set and when many onsite observations need to be compared with the BTV.												
3256													
3257	TN_As												
3258													
3259	General Statistics												
3260	Total Number of Observations					198	Number of Distinct Observations					98	
3261	Minimum					1.2	First Quartile					5	
3262	Second Largest					33.7	Median					6.45	
3263	Maximum					38.6	Third Quartile					9.5	
3264	Mean					7.628	SD					5.107	

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	A	B	C	D	E	F	G	H	I	J	K	L
3265	Coefficient of Variation					0.669	Skewness					3.02
3266	Mean of logged Data					1.868	SD of logged Data					0.572
3267												
3268	Critical Values for Background Threshold Values (BTVs)											
3269	Tolerance Factor K (For UTL)					1.837	d2max (for USL)					3.429
3270												
3271	Normal GOF Test											
3272	Shapiro Wilk Test Statistic					0.747	Normal GOF Test					
3273	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
3274	Lilliefors Test Statistic					0.148	Lilliefors GOF Test					
3275	1% Lilliefors Critical Value					0.0733	Data Not Normal at 1% Significance Level					
3276	Data Not Normal at 1% Significance Level											
3277												
3278	Background Statistics Assuming Normal Distribution											
3279	95% UTL with	95% Coverage		17.01				90% Percentile (z)			14.17	
3280		95% UPL (t)		16.09				95% Percentile (z)			16.03	
3281		95% USL		25.14				99% Percentile (z)			19.51	
3282												
3283	Gamma GOF Test											
3284	A-D Test Statistic					2.159	Anderson-Darling Gamma GOF Test					
3285	5% A-D Critical Value					0.76	Data Not Gamma Distributed at 5% Significance Level					
3286	K-S Test Statistic					0.0736	Kolmogorov-Smirnov Gamma GOF Test					
3287	5% K-S Critical Value					0.0646	Data Not Gamma Distributed at 5% Significance Level					
3288	Data Not Gamma Distributed at 5% Significance Level											
3289												
3290	Gamma Statistics											
3291	k hat (MLE)					3.21	k star (bias corrected MLE)					3.164
3292	Theta hat (MLE)					2.377	Theta star (bias corrected MLE)					2.411
3293	nu hat (MLE)					1271	nu star (bias corrected)					1253
3294	MLE Mean (bias corrected)					7.628	MLE Sd (bias corrected)					4.288
3295												
3296	Background Statistics Assuming Gamma Distribution											
3297	95% Wilson Hilferty (WH) Approx. Gamma UPL					15.67	90% Percentile					13.38
3298	95% Hawkins Wixley (HW) Approx. Gamma UPL					15.81	95% Percentile					15.77
3299	95% WH Approx. Gamma UTL with 95% Coverage					16.94	99% Percentile					20.93
3300	95% HW Approx. Gamma UTL with 95% Coverage					17.17						
3301	95% WH USL					31.23	95% HW USL					33.37
3302												
3303	Lognormal GOF Test											
3304	Shapiro Wilk Test Statistic					0.968	Shapiro Wilk Lognormal GOF Test					
3305	10% Shapiro Wilk P Value					0.00836	Data Not Lognormal at 10% Significance Level					
3306	Lilliefors Test Statistic					0.0931	Lilliefors Lognormal GOF Test					
3307	10% Lilliefors Critical Value					0.058	Data Not Lognormal at 10% Significance Level					
3308	Data Not Lognormal at 10% Significance Level											
3309												
3310	Background Statistics assuming Lognormal Distribution											
3311	95% UTL with	95% Coverage		18.5				90% Percentile (z)			13.47	
3312		95% UPL (t)		16.69				95% Percentile (z)			16.58	
3313		95% USL		45.98				99% Percentile (z)			24.48	
3314												
3315	Nonparametric Distribution Free Background Statistics											
3316	Data do not follow a Discernible Distribution											
3317												
3318	Nonparametric Upper Limits for Background Threshold Values											
3319	Order of Statistic, order					194	95% UTL with 95% Coverage					25.5
3320	Approx, f used to compute achieved CC					1.693	Approximate Actual Confidence Coefficient achieved by UTL					0.934
3321							Approximate Sample Size needed to achieve specified CC					181
3322	95% Percentile Bootstrap UTL with	95% Coverage		17.88		95% BCA Bootstrap UTL with 95% Coverage					18.87	
3323		95% UPL		15.41		90% Percentile					11.76	
3324		90% Chebyshev UPL		22.99		95% Percentile					15.05	
3325		95% Chebyshev UPL		29.95		99% Percentile					31.08	
3326		95% USL		38.6								
3327												
3328	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
3329	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3330	and consists of observations collected from clean unimpacted locations.											
3331	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3332	represents a background data set and when many onsite observations need to be compared with the BTV.											

	A	B	C	D	E	F	G	H	I	J	K	L	
3333													
3334	TN_As <34												
3335													
3336	General Statistics												
3337	Total Number of Observations					197	Number of Distinct Observations					97	
3338	Minimum					1.2	First Quartile					5	
3339	Second Largest					31	Median					6.4	
3340	Maximum					33.7	Third Quartile					9.5	
3341	Mean					7.471	SD					4.615	
3342	Coefficient of Variation					0.618	Skewness					2.659	
3343	Mean of logged Data					1.859	SD of logged Data					0.559	
3344													
3345	Critical Values for Background Threshold Values (BTVs)												
3346	Tolerance Factor K (For UTL)					1.837	d2max (for USL)					3.428	
3347													
3348	Normal GOF Test												
3349	Shapiro Wilk Test Statistic					0.791	Normal GOF Test						
3350	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
3351	Lilliefors Test Statistic					0.135	Lilliefors GOF Test						
3352	1% Lilliefors Critical Value					0.0735	Data Not Normal at 1% Significance Level						
3353	Data Not Normal at 1% Significance Level												
3354													
3355	Background Statistics Assuming Normal Distribution												
3356	95% UTL with	95% Coverage			15.95	90% Percentile (z)					13.39		
3357		95% UPL (t)			15.12	95% Percentile (z)					15.06		
3358		95% USL			23.29	99% Percentile (z)					18.21		
3359													
3360	Gamma GOF Test												
3361	A-D Test Statistic					1.583	Anderson-Darling Gamma GOF Test						
3362	5% A-D Critical Value					0.759	Data Not Gamma Distributed at 5% Significance Level						
3363	K-S Test Statistic					0.0705	Kolmogorov-Smirnov Gamma GOF Test						
3364	5% K-S Critical Value					0.0648	Data Not Gamma Distributed at 5% Significance Level						
3365	Data Not Gamma Distributed at 5% Significance Level												
3366													
3367	Gamma Statistics												
3368	k hat (MLE)					3.447	k star (bias corrected MLE)					3.398	
3369	Theta hat (MLE)					2.168	Theta star (bias corrected MLE)					2.199	
3370	nu hat (MLE)					1358	nu star (bias corrected)					1339	
3371	MLE Mean (bias corrected)					7.471	MLE Sd (bias corrected)					4.053	
3372													
3373	Background Statistics Assuming Gamma Distribution												
3374	95% Wilson Hilferty (WH) Approx. Gamma UPL					15.08	90% Percentile					12.91	
3375	95% Hawkins Wixley (HW) Approx. Gamma UPL					15.25	95% Percentile					15.14	
3376	95% WH Approx. Gamma UTL with 95% Coverage					16.26	99% Percentile					19.94	
3377	95% HW Approx. Gamma UTL with 95% Coverage					16.53							
3378	95% WH USL					29.52	95% HW USL					31.58	
3379													
3380	Lognormal GOF Test												
3381	Shapiro Wilk Test Statistic					0.968	Shapiro Wilk Lognormal GOF Test						
3382	10% Shapiro Wilk P Value					0.00991	Data Not Lognormal at 10% Significance Level						
3383	Lilliefors Test Statistic					0.094	Lilliefors Lognormal GOF Test						
3384	10% Lilliefors Critical Value					0.0581	Data Not Lognormal at 10% Significance Level						
3385	Data Not Lognormal at 10% Significance Level												
3386													
3387	Background Statistics assuming Lognormal Distribution												
3388	95% UTL with	95% Coverage			17.91	90% Percentile (z)					13.13		
3389		95% UPL (t)			16.19	95% Percentile (z)					16.08		
3390		95% USL			43.55	99% Percentile (z)					23.54		
3391													
3392	Nonparametric Distribution Free Background Statistics												
3393	Data do not follow a Discernible Distribution												
3394													
3395	Nonparametric Upper Limits for Background Threshold Values												
3396	Order of Statistic, order					193	95% UTL with 95% Coverage					18.9	
3397	Approx, f used to compute achieved CC					1.684	Approximate Actual Confidence Coefficient achieved by UTL					0.932	
3398							Approximate Sample Size needed to achieve specified CC					181	
3399	95% Percentile Bootstrap UTL with 95% Coverage					17.7	95% BCA Bootstrap UTL with 95% Coverage					17.62	
3400						95% UPL	15.03	90% Percentile					11.64

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L
3401				90% Chebyshev UPL	21.35					95% Percentile		13.56
3402				95% Chebyshev UPL	27.64					99% Percentile		29.66
3403				95% USL	33.7							
3404												
3405				Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.								
3406				Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers								
3407				and consists of observations collected from clean unimpacted locations.								
3408				The use of USL tends to provide a balance between false positives and false negatives provided the data								
3409				represents a background data set and when many onsite observations need to be compared with the BTV.								
3410												
3411	TN_As <30											
3412												
3413	General Statistics											
3414				Total Number of Observations	195					Number of Distinct Observations		95
3415				Minimum	1.2					First Quartile		5
3416				Second Largest	25.5					Median		6.4
3417				Maximum	29.6					Third Quartile		9.15
3418				Mean	7.216					SD		3.879
3419				Coefficient of Variation	0.538					Skewness		1.95
3420				Mean of logged Data	1.842					SD of logged Data		0.537
3421												
3422				Critical Values for Background Threshold Values (BTVs)								
3423				Tolerance Factor K (For UTL)	1.838					d2max (for USL)		3.425
3424												
3425				Normal GOF Test								
3426				Shapiro Wilk Test Statistic	0.878					Normal GOF Test		
3427				1% Shapiro Wilk P Value	0					Data Not Normal at 1% Significance Level		
3428				Lilliefors Test Statistic	0.117					Lilliefors GOF Test		
3429				1% Lilliefors Critical Value	0.0739					Data Not Normal at 1% Significance Level		
3430				Data Not Normal at 1% Significance Level								
3431												
3432				Background Statistics Assuming Normal Distribution								
3433				95% UTL with 95% Coverage	14.35					90% Percentile (z)		12.19
3434				95% UPL (t)	13.64					95% Percentile (z)		13.6
3435				95% USL	20.5					99% Percentile (z)		16.24
3436												
3437				Gamma GOF Test								
3438				A-D Test Statistic	0.918					Anderson-Darling Gamma GOF Test		
3439				5% A-D Critical Value	0.757					Data Not Gamma Distributed at 5% Significance Level		
3440				K-S Test Statistic	0.0699					Kolmogorov-Smirnov Gamma GOF Test		
3441				5% K-S Critical Value	0.0652					Data Not Gamma Distributed at 5% Significance Level		
3442				Data Not Gamma Distributed at 5% Significance Level								
3443												
3444				Gamma Statistics								
3445				k hat (MLE)	3.894					k star (bias corrected MLE)		3.838
3446				Theta hat (MLE)	1.853					Theta star (bias corrected MLE)		1.88
3447				nu hat (MLE)	1519					nu star (bias corrected)		1497
3448				MLE Mean (bias corrected)	7.216					MLE Sd (bias corrected)		3.683
3449												
3450				Background Statistics Assuming Gamma Distribution								
3451				95% Wilson Hilferty (WH) Approx. Gamma UPL	14.13					90% Percentile		12.15
3452				95% Hawkins Wixley (HW) Approx. Gamma UPL	14.34					95% Percentile		14.14
3453				95% WH Approx. Gamma UTL with 95% Coverage	15.19					99% Percentile		18.4
3454				95% HW Approx. Gamma UTL with 95% Coverage	15.49							
3455				95% WH USL	26.84					95% HW USL		28.77
3456												
3457				Lognormal GOF Test								
3458				Shapiro Wilk Test Statistic	0.967					Shapiro Wilk Lognormal GOF Test		
3459				10% Shapiro Wilk P Value	0.00802					Data Not Lognormal at 10% Significance Level		
3460				Lilliefors Test Statistic	0.0962					Lilliefors Lognormal GOF Test		
3461				10% Lilliefors Critical Value	0.0584					Data Not Lognormal at 10% Significance Level		
3462				Data Not Lognormal at 10% Significance Level								
3463												
3464				Background Statistics assuming Lognormal Distribution								
3465				95% UTL with 95% Coverage	16.93					90% Percentile (z)		12.56
3466				95% UPL (t)	15.36					95% Percentile (z)		15.26
3467				95% USL	39.66					99% Percentile (z)		22
3468												

	A	B	C	D	E	F	G	H	I	J	K	L
3469	Nonparametric Distribution Free Background Statistics											
3470	Data do not follow a Discernible Distribution											
3471												
3472	Nonparametric Upper Limits for Background Threshold Values											
3473	Order of Statistic, order					191	95% UTL with 95% Coverage					17.6
3474	Approx, f used to compute achieved CC					1.667	Approximate Actual Confidence Coefficient achieved by UTL					0.928
3475							Approximate Sample Size needed to achieve specified CC					181
3476	95% Percentile Bootstrap UTL with 95% Coverage					15.99	95% BCA Bootstrap UTL with 95% Coverage					15.96
3477	95% UPL					12.72	90% Percentile					11.52
3478	90% Chebyshev UPL					18.88	95% Percentile					12.53
3479	95% Chebyshev UPL					24.17	99% Percentile					19.3
3480	95% USL					29.6						
3481												
3482	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
3483	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3484	and consists of observations collected from clean unimpacted locations.											
3485	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3486	represents a background data set and when many onsite observations need to be compared with the BTV.											
3487												
3488	TN_As <19											
3489												
3490	General Statistics											
3491	Total Number of Observations					193	Number of Distinct Observations					93
3492	Minimum					1.2	First Quartile					5
3493	Second Largest					17.7	Median					6.4
3494	Maximum					18.9	Third Quartile					9.1
3495	Mean					7.005	SD					3.288
3496	Coefficient of Variation					0.469	Skewness					0.866
3497	Mean of logged Data					1.827	SD of logged Data					0.518
3498												
3499	Critical Values for Background Threshold Values (BTVs)											
3500	Tolerance Factor K (For UTL)					1.839	d2max (for USL)					3.422
3501												
3502	Normal GOF Test											
3503	Shapiro Wilk Test Statistic					0.943	Normal GOF Test					
3504	1% Shapiro Wilk P Value					4.5155E-8	Data Not Normal at 1% Significance Level					
3505	Lilliefors Test Statistic					0.0999	Lilliefors GOF Test					
3506	1% Lilliefors Critical Value					0.0742	Data Not Normal at 1% Significance Level					
3507	Data Not Normal at 1% Significance Level											
3508												
3509	Background Statistics Assuming Normal Distribution											
3510	95% UTL with 95% Coverage					13.05	90% Percentile (z)					11.22
3511	95% UPL (t)					12.45	95% Percentile (z)					12.41
3512	95% USL					18.26	99% Percentile (z)					14.65
3513												
3514	Gamma GOF Test											
3515	A-D Test Statistic					0.752	Anderson-Darling Gamma GOF Test					
3516	5% A-D Critical Value					0.756	Detected data appear Gamma Distributed at 5% Significance Level					
3517	K-S Test Statistic					0.0699	Kolmogorov-Smirnov Gamma GOF Test					
3518	5% K-S Critical Value					0.0657	Data Not Gamma Distributed at 5% Significance Level					
3519	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
3520												
3521	Gamma Statistics											
3522	k hat (MLE)					4.345	k star (bias corrected MLE)					4.281
3523	Theta hat (MLE)					1.612	Theta star (bias corrected MLE)					1.636
3524	nu hat (MLE)					1677	nu star (bias corrected)					1652
3525	MLE Mean (bias corrected)					7.005	MLE Sd (bias corrected)					3.386
3526												
3527	Background Statistics Assuming Gamma Distribution											
3528	95% Wilson Hilferty (WH) Approx. Gamma UPL					13.35	90% Percentile					11.54
3529	95% Hawkins Wixley (HW) Approx. Gamma UPL					13.59	95% Percentile					13.34
3530	95% WH Approx. Gamma UTL with 95% Coverage					14.32	99% Percentile					17.17
3531	95% HW Approx. Gamma UTL with 95% Coverage					14.64						
3532	95% WH USL					24.71	95% HW USL					26.54
3533												
3534	Lognormal GOF Test											
3535	Shapiro Wilk Test Statistic					0.953	Shapiro Wilk Lognormal GOF Test					
3536	10% Shapiro Wilk P Value					1.2804E-5	Data Not Lognormal at 10% Significance Level					

A	B	C	D	E	F	G	H	I	J	K	L
3537				Lilliefors Test Statistic	0.0987	Lilliefors Lognormal GOF Test					
3538				10% Lilliefors Critical Value	0.0587	Data Not Lognormal at 10% Significance Level					
3539	Data Not Lognormal at 10% Significance Level										
3540											
3541	Background Statistics assuming Lognormal Distribution										
3542		95% UTL with	95% Coverage	16.12					90% Percentile (z)	12.07	
3543			95% UPL (t)	14.66					95% Percentile (z)	14.57	
3544			95% USL	36.57					99% Percentile (z)	20.74	
3545											
3546	Nonparametric Distribution Free Background Statistics										
3547	Data appear Approximate Gamma Distribution at 5% Significance Level										
3548											
3549	Nonparametric Upper Limits for Background Threshold Values										
3550		Order of Statistic, order	189					95% UTL with	95% Coverage	15.3	
3551		Approx, f used to compute achieved CC	1.649			Approximate Actual Confidence Coefficient achieved by UTL				0.924	
3552						Approximate Sample Size needed to achieve specified CC				181	
3553		95% Percentile Bootstrap UTL with	95% Coverage	13.92				95% BCA Bootstrap UTL with	95% Coverage	13.92	
3554			95% UPL	12.43					90% Percentile	11.12	
3555			90% Chebyshev UPL	16.9					95% Percentile	12.34	
3556			95% Chebyshev UPL	21.37					99% Percentile	17.61	
3557			95% USL	18.9							
3558											
3559	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.										
3560	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers										
3561	and consists of observations collected from clean unimpacted locations.										
3562	The use of USL tends to provide a balance between false positives and false negatives provided the data										
3563	represents a background data set and when many onsite observations need to be compared with the BTV.										
3564											
3565	TN_Pb										
3566											
3567	General Statistics										
3568		Total Number of Observations	198					Number of Distinct Observations	138		
3569		Minimum	3.3					First Quartile	15.7		
3570		Second Largest	151					Median	19.7		
3571		Maximum	187					Third Quartile	25		
3572		Mean	23.61					SD	19.65		
3573		Coefficient of Variation	0.832					Skewness	5.582		
3574		Mean of logged Data	3.015					SD of logged Data	0.482		
3575											
3576	Critical Values for Background Threshold Values (BTVs)										
3577		Tolerance Factor K (For UTL)	1.837					d2max (for USL)	3.429		
3578											
3579	Normal GOF Test										
3580		Shapiro Wilk Test Statistic	0.508			Normal GOF Test					
3581		1% Shapiro Wilk P Value	0			Data Not Normal at 1% Significance Level					
3582		Lilliefors Test Statistic	0.234			Lilliefors GOF Test					
3583		1% Lilliefors Critical Value	0.0733			Data Not Normal at 1% Significance Level					
3584	Data Not Normal at 1% Significance Level										
3585											
3586	Background Statistics Assuming Normal Distribution										
3587		95% UTL with	95% Coverage	59.7				90% Percentile (z)	48.79		
3588			95% UPL (t)	56.17				95% Percentile (z)	55.93		
3589			95% USL	91				99% Percentile (z)	69.32		
3590											
3591	Gamma GOF Test										
3592		A-D Test Statistic	8.022			Anderson-Darling Gamma GOF Test					
3593		5% A-D Critical Value	0.758			Data Not Gamma Distributed at 5% Significance Level					
3594		K-S Test Statistic	0.149			Kolmogorov-Smirnov Gamma GOF Test					
3595		5% K-S Critical Value	0.0645			Data Not Gamma Distributed at 5% Significance Level					
3596	Data Not Gamma Distributed at 5% Significance Level										
3597											
3598	Gamma Statistics										
3599		k hat (MLE)	3.567					k star (bias corrected MLE)	3.516		
3600		Theta hat (MLE)	6.618					Theta star (bias corrected MLE)	6.713		
3601		nu hat (MLE)	1413					nu star (bias corrected)	1393		
3602		MLE Mean (bias corrected)	23.61					MLE Sd (bias corrected)	12.59		
3603											
3604	Background Statistics Assuming Gamma Distribution										

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	A	B	C	D	E	F	G	H	I	J	K	L
3605	95% Wilson Hilferty (WH) Approx. Gamma UPL					46.54	90% Percentile					40.49
3606	95% Hawkins Wixley (HW) Approx. Gamma UPL					45.97	95% Percentile					47.38
3607	95% WH Approx. Gamma UTL with 95% Coverage					50.11	99% Percentile					62.2
3608	95% HW Approx. Gamma UTL with 95% Coverage					49.63						
3609	95% WH USL					90.06	95% HW USL					92.25
3610												
3611	Lognormal GOF Test											
3612	Shapiro Wilk Test Statistic					0.93	Shapiro Wilk Lognormal GOF Test					
3613	10% Shapiro Wilk P Value					3.984E-12	Data Not Lognormal at 10% Significance Level					
3614	Lilliefors Test Statistic					0.0984	Lilliefors Lognormal GOF Test					
3615	10% Lilliefors Critical Value					0.058	Data Not Lognormal at 10% Significance Level					
3616	Data Not Lognormal at 10% Significance Level											
3617												
3618	Background Statistics assuming Lognormal Distribution											
3619	95% UTL with 95% Coverage					49.4	90% Percentile (z)					37.81
3620	95% UPL (t)					45.3	95% Percentile (z)					45.04
3621	95% USL					106.4	99% Percentile (z)					62.55
3622												
3623	Nonparametric Distribution Free Background Statistics											
3624	Data do not follow a Discernible Distribution											
3625												
3626	Nonparametric Upper Limits for Background Threshold Values											
3627	Order of Statistic, order					194	95% UTL with 95% Coverage					70.5
3628	Approx, f used to compute achieved CC					1.693	Approximate Actual Confidence Coefficient achieved by UTL					0.934
3629							Approximate Sample Size needed to achieve specified CC					181
3630	95% Percentile Bootstrap UTL with 95% Coverage					49.15	95% BCA Bootstrap UTL with 95% Coverage					49.15
3631	95% UPL					42.56	90% Percentile					34.01
3632	90% Chebyshev UPL					82.71	95% Percentile					40.46
3633	95% Chebyshev UPL					109.5	99% Percentile					138.4
3634	95% USL					187						
3635												
3636	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
3637	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3638	and consists of observations collected from clean unimpacted locations.											
3639	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3640	represents a background data set and when many onsite observations need to be compared with the BTV.											
3641												
3642	TN_Pb <79											
3643												
3644	General Statistics											
3645	Total Number of Observations					195	Number of Distinct Observations					135
3646	Minimum					3.3	First Quartile					15.7
3647	Second Largest					70.5	Median					19.6
3648	Maximum					78.2	Third Quartile					24.3
3649	Mean					21.53	SD					9.954
3650	Coefficient of Variation					0.462	Skewness					2.406
3651	Mean of logged Data					2.983	SD of logged Data					0.412
3652												
3653	Critical Values for Background Threshold Values (BTVs)											
3654	Tolerance Factor K (For UTL)					1.838	d2max (for USL)					3.425
3655												
3656	Normal GOF Test											
3657	Shapiro Wilk Test Statistic					0.829	Normal GOF Test					
3658	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
3659	Lilliefors Test Statistic					0.151	Lilliefors GOF Test					
3660	1% Lilliefors Critical Value					0.0739	Data Not Normal at 1% Significance Level					
3661	Data Not Normal at 1% Significance Level											
3662												
3663	Background Statistics Assuming Normal Distribution											
3664	95% UTL with 95% Coverage					39.83	90% Percentile (z)					34.29
3665	95% UPL (t)					38.02	95% Percentile (z)					37.9
3666	95% USL					55.62	99% Percentile (z)					44.69
3667												
3668	Gamma GOF Test											
3669	A-D Test Statistic					1.902	Anderson-Darling Gamma GOF Test					
3670	5% A-D Critical Value					0.755	Data Not Gamma Distributed at 5% Significance Level					
3671	K-S Test Statistic					0.0951	Kolmogorov-Smirnov Gamma GOF Test					
3672	5% K-S Critical Value					0.065	Data Not Gamma Distributed at 5% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L
3673	Data Not Gamma Distributed at 5% Significance Level											
3674												
3675	Gamma Statistics											
3676	k hat (MLE)				5.977	k star (bias corrected MLE)				5.889		
3677	Theta hat (MLE)				3.602	Theta star (bias corrected MLE)				3.656		
3678	nu hat (MLE)				2331	nu star (bias corrected)				2297		
3679	MLE Mean (bias corrected)				21.53	MLE Sd (bias corrected)				8.872		
3680												
3681	Background Statistics Assuming Gamma Distribution											
3682	95% Wilson Hilferty (WH) Approx. Gamma UPL				37.82	90% Percentile				33.39		
3683	95% Hawkins Wixley (HW) Approx. Gamma UPL				38.02	95% Percentile				37.89		
3684	95% WH Approx. Gamma UTL with 95% Coverage				40.19	99% Percentile				47.32		
3685	95% HW Approx. Gamma UTL with 95% Coverage				40.52							
3686	95% WH USL				65.28	95% HW USL				67.96		
3687												
3688	Lognormal GOF Test											
3689	Shapiro Wilk Test Statistic				0.981	Shapiro Wilk Lognormal GOF Test						
3690	10% Shapiro Wilk P Value				0.403	Data appear Lognormal at 10% Significance Level						
3691	Lilliefors Test Statistic				0.0672	Lilliefors Lognormal GOF Test						
3692	10% Lilliefors Critical Value				0.0584	Data Not Lognormal at 10% Significance Level						
3693	Data appear Approximate Lognormal at 10% Significance Level											
3694												
3695	Background Statistics assuming Lognormal Distribution											
3696	95% UTL with		95% Coverage	42.16	90% Percentile (z)				33.51			
3697			95% UPL (t)	39.12	95% Percentile (z)				38.92			
3698			95% USL	81.08	99% Percentile (z)				51.55			
3699												
3700	Nonparametric Distribution Free Background Statistics											
3701	Data appear Approximate Lognormal at 10% Significance Level											
3702												
3703	Nonparametric Upper Limits for Background Threshold Values											
3704	Order of Statistic, order			191	95% UTL with 95% Coverage				44.1			
3705	Approx, f used to compute achieved CC			1.667	Approximate Actual Confidence Coefficient achieved by UTL				0.928			
3706					Approximate Sample Size needed to achieve specified CC				181			
3707	95% Percentile Bootstrap UTL with		95% Coverage	42.83	95% BCA Bootstrap UTL with		95% Coverage	42.83				
3708			95% UPL	38.22			90% Percentile	31.52				
3709			90% Chebyshev UPL	51.47			95% Percentile	37.57				
3710			95% Chebyshev UPL	65.03			99% Percentile	69.37				
3711			95% USL	78.2								
3712												
3713	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
3714	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3715	and consists of observations collected from clean unimpacted locations.											
3716	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3717	represents a background data set and when many onsite observations need to be compared with the BTV.											
3718												
3719	TN_Pb <46											
3720												
3721	General Statistics											
3722	Total Number of Observations			192	Number of Distinct Observations			132				
3723	Minimum			3.3	First Quartile			15.68				
3724	Second Largest			44.1	Median			19.55				
3725	Maximum			45.6	Third Quartile			24.13				
3726	Mean			20.73	SD			7.66				
3727	Coefficient of Variation			0.37	Skewness			0.872				
3728	Mean of logged Data			2.963	SD of logged Data			0.382				
3729												
3730	Critical Values for Background Threshold Values (BTVs)											
3731	Tolerance Factor K (For UTL)			1.84	d2max (for USL)			3.42				
3732												
3733	Normal GOF Test											
3734	Shapiro Wilk Test Statistic				0.943	Normal GOF Test						
3735	1% Shapiro Wilk P Value				3.3539E-8	Data Not Normal at 1% Significance Level						
3736	Lilliefors Test Statistic				0.116	Lilliefors GOF Test						
3737	1% Lilliefors Critical Value				0.0744	Data Not Normal at 1% Significance Level						
3738	Data Not Normal at 1% Significance Level											
3739												
3740	Background Statistics Assuming Normal Distribution											

	A	B	C	D	E	F	G	H	I	J	K	L
3741	95% UTL with 95% Coverage					34.82	90% Percentile (z)					30.55
3742	95% UPL (t)					33.42	95% Percentile (z)					33.33
3743	95% USL					46.93	99% Percentile (z)					38.55
3744												
3745	Gamma GOF Test											
3746	A-D Test Statistic					0.695	Anderson-Darling Gamma GOF Test					
3747	5% A-D Critical Value					0.754	Detected data appear Gamma Distributed at 5% Significance Level					
3748	K-S Test Statistic					0.0691	Kolmogorov-Smirnov Gamma GOF Test					
3749	5% K-S Critical Value					0.0657	Data Not Gamma Distributed at 5% Significance Level					
3750	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
3751												
3752	Gamma Statistics											
3753	k hat (MLE)					7.464	k star (bias corrected MLE)					7.351
3754	Theta hat (MLE)					2.777	Theta star (bias corrected MLE)					2.82
3755	nu hat (MLE)					2866	nu star (bias corrected)					2823
3756	MLE Mean (bias corrected)					20.73	MLE Sd (bias corrected)					7.646
3757												
3758	Background Statistics Assuming Gamma Distribution											
3759	95% Wilson Hilferty (WH) Approx. Gamma UPL					34.72	90% Percentile					30.93
3760	95% Hawkins Wixley (HW) Approx. Gamma UPL					35.04	95% Percentile					34.7
3761	95% WH Approx. Gamma UTL with 95% Coverage					36.71	99% Percentile					42.51
3762	95% HW Approx. Gamma UTL with 95% Coverage					37.16						
3763	95% WH USL					57.22	95% HW USL					59.72
3764												
3765	Lognormal GOF Test											
3766	Shapiro Wilk Test Statistic					0.976	Shapiro Wilk Lognormal GOF Test					
3767	10% Shapiro Wilk P Value					0.125	Data appear Lognormal at 10% Significance Level					
3768	Lilliefors Test Statistic					0.0497	Lilliefors Lognormal GOF Test					
3769	10% Lilliefors Critical Value					0.0589	Data appear Lognormal at 10% Significance Level					
3770	Data appear Lognormal at 10% Significance Level											
3771												
3772	Background Statistics assuming Lognormal Distribution											
3773	95% UTL with 95% Coverage					39.07	90% Percentile (z)					31.57
3774	95% UPL (t)					36.43	95% Percentile (z)					36.26
3775	95% USL					71.39	99% Percentile (z)					47.03
3776												
3777	Nonparametric Distribution Free Background Statistics											
3778	Data appear Approximate Gamma Distribution at 5% Significance Level											
3779												
3780	Nonparametric Upper Limits for Background Threshold Values											
3781	Order of Statistic, order					188	95% UTL with 95% Coverage					40.1
3782	Approx, f used to compute achieved CC					1.64	Approximate Actual Confidence Coefficient achieved by UTL					0.922
3783							Approximate Sample Size needed to achieve specified CC					181
3784	95% Percentile Bootstrap UTL with 95% Coverage					38.3	95% BCA Bootstrap UTL with 95% Coverage					38.2
3785	95% UPL					36.52	90% Percentile					31.33
3786	90% Chebyshev UPL					43.77	95% Percentile					35.88
3787	95% Chebyshev UPL					54.21	99% Percentile					43.65
3788	95% USL					45.6						
3789												
3790	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
3791	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3792	and consists of observations collected from clean unimpacted locations.											
3793	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3794	represents a background data set and when many onsite observations need to be compared with the BTV.											
3795												
3796	TN_Pb <38											
3797												
3798	General Statistics											
3799	Total Number of Observations					185	Number of Distinct Observations					125
3800	Minimum					3.3	First Quartile					15.5
3801	Second Largest					37.3	Median					19.3
3802	Maximum					37.3	Third Quartile					23.7
3803	Mean					19.93	SD					6.569
3804	Coefficient of Variation					0.33	Skewness					0.478
3805	Mean of logged Data					2.934	SD of logged Data					0.357
3806												
3807	Critical Values for Background Threshold Values (BTVs)											
3808	Tolerance Factor K (For UTL)					1.844	d2max (for USL)					3.409

	A	B	C	D	E	F	G	H	I	J	K	L
3809												
3810	Normal GOF Test											
3811	Shapiro Wilk Test Statistic					0.966	Normal GOF Test					
3812	1% Shapiro Wilk P Value					0.00617	Data Not Normal at 1% Significance Level					
3813	Lilliefors Test Statistic					0.0869	Lilliefors GOF Test					
3814	1% Lilliefors Critical Value					0.0758	Data Not Normal at 1% Significance Level					
3815	Data Not Normal at 1% Significance Level											
3816												
3817	Background Statistics Assuming Normal Distribution											
3818	95% UTL with		95% Coverage		32.05						90% Percentile (z)	28.35
3819			95% UPL (t)		30.82						95% Percentile (z)	30.74
3820			95% USL		42.32						99% Percentile (z)	35.22
3821												
3822	Gamma GOF Test											
3823	A-D Test Statistic					0.413	Anderson-Darling Gamma GOF Test					
3824	5% A-D Critical Value					0.752	Detected data appear Gamma Distributed at 5% Significance Level					
3825	K-S Test Statistic					0.049	Kolmogorov-Smirnov Gamma GOF Test					
3826	5% K-S Critical Value					0.0675	Detected data appear Gamma Distributed at 5% Significance Level					
3827	Detected data appear Gamma Distributed at 5% Significance Level											
3828												
3829	Gamma Statistics											
3830	k hat (MLE)					8.734	k star (bias corrected MLE)					8.596
3831	Theta hat (MLE)					2.282	Theta star (bias corrected MLE)					2.319
3832	nu hat (MLE)					3231	nu star (bias corrected)					3180
3833	MLE Mean (bias corrected)					19.93	MLE Sd (bias corrected)					6.799
3834												
3835	Background Statistics Assuming Gamma Distribution											
3836	95% Wilson Hilferty (WH) Approx. Gamma UPL					32.3	90% Percentile					28.99
3837	95% Hawkins Wixley (HW) Approx. Gamma UPL					32.64	95% Percentile					32.27
3838	95% WH Approx. Gamma UTL with		95% Coverage		34.07	99% Percentile					39.05	
3839	95% HW Approx. Gamma UTL with		95% Coverage		34.52							
3840			95% WH USL		51.51	95% HW USL					53.67	
3841												
3842	Lognormal GOF Test											
3843	Shapiro Wilk Test Statistic					0.962	Shapiro Wilk Lognormal GOF Test					
3844	10% Shapiro Wilk P Value					0.00131	Data Not Lognormal at 10% Significance Level					
3845	Lilliefors Test Statistic					0.0598	Lilliefors Lognormal GOF Test					
3846	10% Lilliefors Critical Value					0.06	Data appear Lognormal at 10% Significance Level					
3847	Data appear Approximate Lognormal at 10% Significance Level											
3848												
3849	Background Statistics assuming Lognormal Distribution											
3850	95% UTL with		95% Coverage		36.35	90% Percentile (z)					29.73	
3851			95% UPL (t)		34.01	95% Percentile (z)					33.85	
3852			95% USL		63.59	99% Percentile (z)					43.19	
3853												
3854	Nonparametric Distribution Free Background Statistics											
3855	Data appear Gamma Distributed at 5% Significance Level											
3856												
3857	Nonparametric Upper Limits for Background Threshold Values											
3858	Order of Statistic, order					181	95% UTL with 95% Coverage					35.3
3859	Approx, f used to compute achieved CC					1.579	Approximate Actual Confidence Coefficient achieved by UTL					0.904
3860							Approximate Sample Size needed to achieve specified CC					181
3861	95% Percentile Bootstrap UTL with		95% Coverage		34.9	95% BCA Bootstrap UTL with 95% Coverage					34.68	
3862			95% UPL		33.07	90% Percentile					29.3	
3863			90% Chebyshev UPL		39.69	95% Percentile					31.56	
3864			95% Chebyshev UPL		48.64	99% Percentile					36.29	
3865			95% USL		37.3							
3866												
3867	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
3868	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3869	and consists of observations collected from clean unimpacted locations.											
3870	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3871	represents a background data set and when many onsite observations need to be compared with the BTV.											
3872												
3873	TX_As											
3874												
3875	General Statistics											
3876	Total Number of Observations					1237	Number of Distinct Observations					159

	A	B	C	D	E	F	G	H	I	J	K	L
3877					Minimum	0.8					First Quartile	3.4
3878					Second Largest	84.2					Median	5.1
3879					Maximum	90.3					Third Quartile	7
3880					Mean	6.092					SD	6.658
3881					Coefficient of Variation	1.093					Skewness	7.818
3882					Mean of logged Data	1.588					SD of logged Data	0.607
3883												
3884					Critical Values for Background Threshold Values (BTVs)							
3885					Tolerance Factor K (For UTL)	1.718					d2max (for USL)	3.93
3886												
3887					Normal GOF Test							
3888					Shapiro Wilk Test Statistic	0.437					Normal GOF Test	
3889					1% Shapiro Wilk P Value	0					Data Not Normal at 1% Significance Level	
3890					Lilliefors Test Statistic	0.232					Lilliefors GOF Test	
3891					1% Lilliefors Critical Value	0.0294					Data Not Normal at 1% Significance Level	
3892					Data Not Normal at 1% Significance Level							
3893												
3894					Background Statistics Assuming Normal Distribution							
3895					95% UTL with 95% Coverage	17.53					90% Percentile (z)	14.63
3896					95% UPL (t)	17.06					95% Percentile (z)	17.04
3897					95% USL	32.26					99% Percentile (z)	21.58
3898												
3899					Gamma GOF Test							
3900					A-D Test Statistic	19.38					Anderson-Darling Gamma GOF Test	
3901					5% A-D Critical Value	0.764					Data Not Gamma Distributed at 5% Significance Level	
3902					K-S Test Statistic	0.0979					Kolmogorov-Smirnov Gamma GOF Test	
3903					5% K-S Critical Value	0.0273					Data Not Gamma Distributed at 5% Significance Level	
3904					Data Not Gamma Distributed at 5% Significance Level							
3905												
3906					Gamma Statistics							
3907					k hat (MLE)	2.438					k star (bias corrected MLE)	2.433
3908					Theta hat (MLE)	2.499					Theta star (bias corrected MLE)	2.504
3909					nu hat (MLE)	6032					nu star (bias corrected)	6019
3910					MLE Mean (bias corrected)	6.092					MLE Sd (bias corrected)	3.906
3911												
3912					Background Statistics Assuming Gamma Distribution							
3913					95% Wilson Hilferty (WH) Approx. Gamma UPL	13.2					90% Percentile	11.32
3914					95% Hawkins Wixley (HW) Approx. Gamma UPL	13.1					95% Percentile	13.6
3915					95% WH Approx. Gamma UTL with 95% Coverage	13.67					99% Percentile	18.59
3916					95% HW Approx. Gamma UTL with 95% Coverage	13.58						
3917					95% WH USL	33.88					95% HW USL	36.23
3918												
3919					Lognormal GOF Test							
3920					Shapiro Wilk Test Statistic	0.962					Shapiro Wilk Lognormal GOF Test	
3921					10% Shapiro Wilk P Value	0					Data Not Lognormal at 10% Significance Level	
3922					Lilliefors Test Statistic	0.0541					Lilliefors Lognormal GOF Test	
3923					10% Lilliefors Critical Value	0.0233					Data Not Lognormal at 10% Significance Level	
3924					Data Not Lognormal at 10% Significance Level							
3925												
3926					Background Statistics assuming Lognormal Distribution							
3927					95% UTL with 95% Coverage	13.9					90% Percentile (z)	10.66
3928					95% UPL (t)	13.31					95% Percentile (z)	13.29
3929					95% USL	53.28					99% Percentile (z)	20.11
3930												
3931					Nonparametric Distribution Free Background Statistics							
3932					Data do not follow a Discernible Distribution							
3933												
3934					Nonparametric Upper Limits for Background Threshold Values							
3935					Order of Statistic, order	1188					95% UTL with 95% Coverage	12.9
3936					Approx, f used to compute achieved CC	1.225					Approximate Actual Confidence Coefficient achieved by UTL	0.934
3937											Approximate Sample Size needed to achieve specified CC	1237
3938					95% Percentile Bootstrap UTL with 95% Coverage	12.8					95% BCA Bootstrap UTL with 95% Coverage	12.62
3939					95% UPL	11.72					90% Percentile	9.3
3940					90% Chebyshev UPL	26.08					95% Percentile	11.7
3941					95% Chebyshev UPL	35.13					99% Percentile	27.88
3942					95% USL	90.3						
3943												
3944					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							

	A	B	C	D	E	F	G	H	I	J	K	L
3945	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
3946	and consists of observations collected from clean unimpacted locations.											
3947	The use of USL tends to provide a balance between false positives and false negatives provided the data											
3948	represents a background data set and when many onsite observations need to be compared with the BTV.											
3949												
3950	TX_As <75											
3951												
3952	General Statistics											
3953	Total Number of Observations				1233		Number of Distinct Observations				155	
3954	Minimum				0.8		First Quartile				3.3	
3955	Second Largest				61.8		Median				5.1	
3956	Maximum				74.8		Third Quartile				7	
3957	Mean				5.846		SD				5.059	
3958	Coefficient of Variation				0.865		Skewness				6.848	
3959	Mean of logged Data				1.579		SD of logged Data				0.587	
3960												
3961	Critical Values for Background Threshold Values (BTVs)											
3962	Tolerance Factor K (For UTL)				1.719		d2max (for USL)				3.93	
3963												
3964	Normal GOF Test											
3965	Shapiro Wilk Test Statistic				0.559		Normal GOF Test					
3966	1% Shapiro Wilk P Value				0		Data Not Normal at 1% Significance Level					
3967	Lilliefors Test Statistic				0.178		Lilliefors GOF Test					
3968	1% Lilliefors Critical Value				0.0295		Data Not Normal at 1% Significance Level					
3969	Data Not Normal at 1% Significance Level											
3970												
3971	Background Statistics Assuming Normal Distribution											
3972	95% UTL with		95% Coverage		14.54		90% Percentile (z)		12.33			
3973			95% UPL (t)		14.18		95% Percentile (z)		14.17			
3974			95% USL		25.73		99% Percentile (z)		17.62			
3975												
3976	Gamma GOF Test											
3977	A-D Test Statistic				9.075		Anderson-Darling Gamma GOF Test					
3978	5% A-D Critical Value				0.762		Data Not Gamma Distributed at 5% Significance Level					
3979	K-S Test Statistic				0.0707		Kolmogorov-Smirnov Gamma GOF Test					
3980	5% K-S Critical Value				0.0273		Data Not Gamma Distributed at 5% Significance Level					
3981	Data Not Gamma Distributed at 5% Significance Level											
3982												
3983	Gamma Statistics											
3984	k hat (MLE)				2.833		k star (bias corrected MLE)				2.827	
3985	Theta hat (MLE)				2.063		Theta star (bias corrected MLE)				2.068	
3986	nu hat (MLE)				6987		nu star (bias corrected)				6971	
3987	MLE Mean (bias corrected)				5.846		MLE Sd (bias corrected)				3.477	
3988												
3989	Background Statistics Assuming Gamma Distribution											
3990	95% Wilson Hilferty (WH) Approx. Gamma UPL		12.27		90% Percentile		10.51					
3991	95% Hawkins Wixley (HW) Approx. Gamma UPL		12.29		95% Percentile		12.48					
3992	95% WH Approx. Gamma UTL with		95% Coverage		12.68		99% Percentile		16.77			
3993	95% HW Approx. Gamma UTL with		95% Coverage		12.72							
3994			95% WH USL		30.1		95% HW USL		32.51			
3995												
3996	Lognormal GOF Test											
3997	Shapiro Wilk Test Statistic				0.975		Shapiro Wilk Lognormal GOF Test					
3998	10% Shapiro Wilk P Value				1.538E-12		Data Not Lognormal at 10% Significance Level					
3999	Lilliefors Test Statistic				0.0455		Lilliefors Lognormal GOF Test					
4000	10% Lilliefors Critical Value				0.0233		Data Not Lognormal at 10% Significance Level					
4001	Data Not Lognormal at 10% Significance Level											
4002												
4003	Background Statistics assuming Lognormal Distribution											
4004	95% UTL with		95% Coverage		13.3		90% Percentile (z)		10.29			
4005			95% UPL (t)		12.75		95% Percentile (z)		12.73			
4006			95% USL		48.65		99% Percentile (z)		18.99			
4007												
4008	Nonparametric Distribution Free Background Statistics											
4009	Data do not follow a Discernible Distribution											
4010												
4011	Nonparametric Upper Limits for Background Threshold Values											
4012	Order of Statistic, order				1185		95% UTL with 95% Coverage		12.6			

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	A	B	C	D	E	F	G	H	I	J	K	L
4013	Approx. f used to compute achieved CC					1.246	Approximate Actual Confidence Coefficient achieved by UTL					0.948
4014							Approximate Sample Size needed to achieve specified CC					1215
4015	95% Percentile Bootstrap UTL with			95% Coverage		12.6	95% BCA Bootstrap UTL with			95% Coverage		12.54
4016				95% UPL		11.53				90% Percentile		9.3
4017				90% Chebyshev UPL		21.03				95% Percentile		11.44
4018				95% Chebyshev UPL		27.91				99% Percentile		19.78
4019				95% USL		74.8						
4020												
4021	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4022	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4023	and consists of observations collected from clean unimpacted locations.											
4024	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4025	represents a background data set and when many onsite observations need to be compared with the BTV.											
4026												
4027	TX_As <39											
4028												
4029	General Statistics											
4030	Total Number of Observations					1226	Number of Distinct Observations					148
4031	Minimum					0.8	First Quartile					3.3
4032	Second Largest					29.9	Median					5
4033	Maximum					38.2	Third Quartile					6.9
4034	Mean					5.556	SD					3.237
4035	Coefficient of Variation					0.583	Skewness					2.357
4036	Mean of logged Data					1.565	SD of logged Data					0.558
4037												
4038	Critical Values for Background Threshold Values (BTVs)											
4039	Tolerance Factor K (For UTL)					1.719	d2max (for USL)					3.928
4040												
4041	Normal GOF Test											
4042	Shapiro Wilk Test Statistic					0.863	Normal GOF Test					
4043	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
4044	Lilliefors Test Statistic					0.0911	Lilliefors GOF Test					
4045	1% Lilliefors Critical Value					0.0295	Data Not Normal at 1% Significance Level					
4046	Data Not Normal at 1% Significance Level											
4047												
4048	Background Statistics Assuming Normal Distribution											
4049	95% UTL with			95% Coverage		11.12	90% Percentile (z)			9.705		
4050				95% UPL (t)		10.89	95% Percentile (z)			10.88		
4051				95% USL		18.27	99% Percentile (z)			13.09		
4052												
4053	Gamma GOF Test											
4054	A-D Test Statistic					1.525	Anderson-Darling Gamma GOF Test					
4055	5% A-D Critical Value					0.76	Data Not Gamma Distributed at 5% Significance Level					
4056	K-S Test Statistic					0.0337	Kolmogorov-Smirnov Gamma GOF Test					
4057	5% K-S Critical Value					0.0273	Data Not Gamma Distributed at 5% Significance Level					
4058	Data Not Gamma Distributed at 5% Significance Level											
4059												
4060	Gamma Statistics											
4061	k hat (MLE)					3.495	k star (bias corrected MLE)					3.487
4062	Theta hat (MLE)					1.59	Theta star (bias corrected MLE)					1.593
4063	nu hat (MLE)					8569	nu star (bias corrected)					8550
4064	MLE Mean (bias corrected)					5.556	MLE Sd (bias corrected)					2.976
4065												
4066	Background Statistics Assuming Gamma Distribution											
4067	95% Wilson Hilferty (WH) Approx. Gamma UPL					11.13	90% Percentile					9.546
4068	95% Hawkins Wixley (HW) Approx. Gamma UPL					11.28	95% Percentile					11.18
4069	95% WH Approx. Gamma UTL with			95% Coverage		11.47	99% Percentile					14.69
4070	95% HW Approx. Gamma UTL with			95% Coverage		11.65						
4071				95% WH USL		25.71	95% HW USL					28.11
4072												
4073	Lognormal GOF Test											
4074	Shapiro Wilk Test Statistic					0.982	Shapiro Wilk Lognormal GOF Test					
4075	10% Shapiro Wilk P Value					0.0035	Data Not Lognormal at 10% Significance Level					
4076	Lilliefors Test Statistic					0.0513	Lilliefors Lognormal GOF Test					
4077	10% Lilliefors Critical Value					0.0234	Data Not Lognormal at 10% Significance Level					
4078	Data Not Lognormal at 10% Significance Level											
4079												
4080	Background Statistics assuming Lognormal Distribution											

	A	B	C	D	E	F	G	H	I	J	K	L
4081	95% UTL with 95% Coverage					12.49	90% Percentile (z)					9.783
4082	95% UPL (t)					12	95% Percentile (z)					11.98
4083	95% USL					42.88	99% Percentile (z)					17.53
4084												
4085	Nonparametric Distribution Free Background Statistics											
4086	Data do not follow a Discernible Distribution											
4087												
4088	Nonparametric Upper Limits for Background Threshold Values											
4089	Order of Statistic, order					1178	95% UTL with 95% Coverage					12.2
4090	Approx, f used to compute achieved CC					1.239	Approximate Actual Confidence Coefficient achieved by UTL					0.943
4091							Approximate Sample Size needed to achieve specified CC					1215
4092	95% Percentile Bootstrap UTL with 95% Coverage					11.85	95% BCA Bootstrap UTL with 95% Coverage					11.68
4093	95% UPL					11.17	90% Percentile					9.15
4094	90% Chebyshev UPL					15.27	95% Percentile					11.1
4095	95% Chebyshev UPL					19.67	99% Percentile					16.33
4096	95% USL					38.2						
4097												
4098	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4099	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4100	and consists of observations collected from clean unimpacted locations.											
4101	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4102	represents a background data set and when many onsite observations need to be compared with the BTV.											
4103												
4104	TX_As <24											
4105												
4106	General Statistics											
4107	Total Number of Observations					1223	Number of Distinct Observations					145
4108	Minimum					0.8	First Quartile					3.3
4109	Second Largest					20.6	Median					5
4110	Maximum					20.8	Third Quartile					6.9
4111	Mean					5.494	SD					2.976
4112	Coefficient of Variation					0.542	Skewness					1.368
4113	Mean of logged Data					1.561	SD of logged Data					0.551
4114												
4115	Critical Values for Background Threshold Values (BTVs)											
4116	Tolerance Factor K (For UTL)					1.719	d2max (for USL)					3.927
4117												
4118	Normal GOF Test											
4119	Shapiro Wilk Test Statistic					0.904	Normal GOF Test					
4120	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
4121	Lilliefors Test Statistic					0.0746	Lilliefors GOF Test					
4122	1% Lilliefors Critical Value					0.0296	Data Not Normal at 1% Significance Level					
4123	Data Not Normal at 1% Significance Level											
4124												
4125	Background Statistics Assuming Normal Distribution											
4126	95% UTL with 95% Coverage					10.61	90% Percentile (z)					9.308
4127	95% UPL (t)					10.39	95% Percentile (z)					10.39
4128	95% USL					17.18	99% Percentile (z)					12.42
4129												
4130	Gamma GOF Test											
4131	A-D Test Statistic					1.047	Anderson-Darling Gamma GOF Test					
4132	5% A-D Critical Value					0.76	Data Not Gamma Distributed at 5% Significance Level					
4133	K-S Test Statistic					0.0265	Kolmogorov-Smirnov Gamma GOF Test					
4134	5% K-S Critical Value					0.0273	Detected data appear Gamma Distributed at 5% Significance Level					
4135	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
4136												
4137	Gamma Statistics											
4138	k hat (MLE)					3.651	k star (bias corrected MLE)					3.643
4139	Theta hat (MLE)					1.505	Theta star (bias corrected MLE)					1.508
4140	nu hat (MLE)					8930	nu star (bias corrected)					8910
4141	MLE Mean (bias corrected)					5.494	MLE Sd (bias corrected)					2.879
4142												
4143	Background Statistics Assuming Gamma Distribution											
4144	95% Wilson Hilferty (WH) Approx. Gamma UPL					10.89	90% Percentile					9.354
4145	95% Hawkins Wixley (HW) Approx. Gamma UPL					11.06	95% Percentile					10.92
4146	95% WH Approx. Gamma UTL with 95% Coverage					11.22	99% Percentile					14.28
4147	95% HW Approx. Gamma UTL with 95% Coverage					11.41						
4148	95% WH USL					24.85	95% HW USL					27.21

	A	B	C	D	E	F	G	H	I	J	K	L
4149												
4150	Lognormal GOF Test											
4151	Shapiro Wilk Test Statistic					0.977	Shapiro Wilk Lognormal GOF Test					
4152	10% Shapiro Wilk P Value					2.2281E-9	Data Not Lognormal at 10% Significance Level					
4153	Lilliefors Test Statistic					0.0531	Lilliefors Lognormal GOF Test					
4154	10% Lilliefors Critical Value					0.0234	Data Not Lognormal at 10% Significance Level					
4155	Data Not Lognormal at 10% Significance Level											
4156												
4157	Background Statistics assuming Lognormal Distribution											
4158	95% UTL with 95% Coverage					12.29	90% Percentile (z)					9.653
4159	95% UPL (t)					11.81	95% Percentile (z)					11.79
4160	95% USL					41.52	99% Percentile (z)					17.17
4161												
4162	Nonparametric Distribution Free Background Statistics											
4163	Data appear Approximate Gamma Distribution at 5% Significance Level											
4164												
4165	Nonparametric Upper Limits for Background Threshold Values											
4166	Order of Statistic, order					1175	95% UTL with 95% Coverage					11.7
4167	Approx, f used to compute achieved CC					1.236	Approximate Actual Confidence Coefficient achieved by UTL					0.94
4168							Approximate Sample Size needed to achieve specified CC					1215
4169	95% Percentile Bootstrap UTL with 95% Coverage					11.59	95% BCA Bootstrap UTL with 95% Coverage					11.59
4170	95% UPL					11.08	90% Percentile					9.1
4171	90% Chebyshev UPL					14.43	95% Percentile					11
4172	95% Chebyshev UPL					18.47	99% Percentile					15.73
4173	95% USL					20.8						
4174												
4175	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4176	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4177	and consists of observations collected from clean unimpacted locations.											
4178	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4179	represents a background data set and when many onsite observations need to be compared with the BTV.											
4180												
4181	TX_As <20											
4182												
4183	General Statistics											
4184	Total Number of Observations					1220	Number of Distinct Observations					142
4185	Minimum					0.8	First Quartile					3.3
4186	Second Largest					18.1	Median					5
4187	Maximum					19.1	Third Quartile					6.9
4188	Mean					5.457	SD					2.885
4189	Coefficient of Variation					0.529	Skewness					1.197
4190	Mean of logged Data					1.557	SD of logged Data					0.547
4191												
4192	Critical Values for Background Threshold Values (BTVs)											
4193	Tolerance Factor K (For UTL)					1.719	d2max (for USL)					3.927
4194												
4195	Normal GOF Test											
4196	Shapiro Wilk Test Statistic					0.916	Normal GOF Test					
4197	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
4198	Lilliefors Test Statistic					0.0694	Lilliefors GOF Test					
4199	1% Lilliefors Critical Value					0.0296	Data Not Normal at 1% Significance Level					
4200	Data Not Normal at 1% Significance Level											
4201												
4202	Background Statistics Assuming Normal Distribution											
4203	95% UTL with 95% Coverage					10.42	90% Percentile (z)					9.154
4204	95% UPL (t)					10.21	95% Percentile (z)					10.2
4205	95% USL					16.79	99% Percentile (z)					12.17
4206												
4207	Gamma GOF Test											
4208	A-D Test Statistic					0.925	Anderson-Darling Gamma GOF Test					
4209	5% A-D Critical Value					0.76	Data Not Gamma Distributed at 5% Significance Level					
4210	K-S Test Statistic					0.0236	Kolmogorov-Smirnov Gamma GOF Test					
4211	5% K-S Critical Value					0.0273	Detected data appear Gamma Distributed at 5% Significance Level					
4212	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
4213												
4214	Gamma Statistics											
4215	k hat (MLE)					3.73	k star (bias corrected MLE)					3.721
4216	Theta hat (MLE)					1.463	Theta star (bias corrected MLE)					1.467

	A	B	C	D	E	F	G	H	I	J	K	L
4217	nu hat (MLE)					9101	nu star (bias corrected)					9080
4218	MLE Mean (bias corrected)					5.457	MLE Sd (bias corrected)					2.829
4219												
4220	Background Statistics Assuming Gamma Distribution											
4221	95% Wilson Hilferty (WH) Approx. Gamma UPL					10.76	90% Percentile					9.25
4222	95% Hawkins Wixley (HW) Approx. Gamma UPL					10.93	95% Percentile					10.79
4223	95% WH Approx. Gamma UTL with		95% Coverage		11.09	99% Percentile					14.08	
4224	95% HW Approx. Gamma UTL with		95% Coverage		11.28							
4225			95% WH USL		24.39	95% HW USL					26.71	
4226												
4227	Lognormal GOF Test											
4228	Shapiro Wilk Test Statistic					0.975	Shapiro Wilk Lognormal GOF Test					
4229	10% Shapiro Wilk P Value					1.985E-12	Data Not Lognormal at 10% Significance Level					
4230	Lilliefors Test Statistic					0.0545	Lilliefors Lognormal GOF Test					
4231	10% Lilliefors Critical Value					0.0234	Data Not Lognormal at 10% Significance Level					
4232	Data Not Lognormal at 10% Significance Level											
4233												
4234	Background Statistics assuming Lognormal Distribution											
4235	95% UTL with		95% Coverage		12.16	90% Percentile (z)					9.567	
4236			95% UPL (t)		11.68	95% Percentile (z)					11.67	
4237			95% USL		40.7	99% Percentile (z)					16.95	
4238												
4239	Nonparametric Distribution Free Background Statistics											
4240	Data appear Approximate Gamma Distribution at 5% Significance Level											
4241												
4242	Nonparametric Upper Limits for Background Threshold Values											
4243	Order of Statistic, order					1172	95% UTL with 95% Coverage					11.5
4244	Approx, f used to compute achieved CC					1.233	Approximate Actual Confidence Coefficient achieved by UTL					0.938
4245							Approximate Sample Size needed to achieve specified CC					1215
4246	95% Percentile Bootstrap UTL with		95% Coverage		11.41	95% BCA Bootstrap UTL with 95% Coverage					11.41	
4247			95% UPL		10.9	90% Percentile					9.01	
4248			90% Chebyshev UPL		14.12	95% Percentile					10.81	
4249			95% Chebyshev UPL		18.04	99% Percentile					15.06	
4250			95% USL		19.1							
4251												
4252	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4253	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4254	and consists of observations collected from clean unimpacted locations.											
4255	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4256	represents a background data set and when many onsite observations need to be compared with the BTV.											
4257												
4258	TX_Pb											
4259												
4260	General Statistics											
4261	Total Number of Observations					1237	Number of Distinct Observations					266
4262	Minimum					1.6	First Quartile					10.4
4263	Second Largest					142	Median					13.5
4264	Maximum					275	Third Quartile					17.6
4265	Mean					15.23	SD					11.75
4266	Coefficient of Variation					0.771	Skewness					11.58
4267	Mean of logged Data					2.606	SD of logged Data					0.45
4268												
4269	Critical Values for Background Threshold Values (BTVs)											
4270	Tolerance Factor K (For UTL)					1.718	d2max (for USL)					3.93
4271												
4272	Normal GOF Test											
4273	Shapiro Wilk Test Statistic					0.482	Normal GOF Test					
4274	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
4275	Lilliefors Test Statistic					0.193	Lilliefors GOF Test					
4276	1% Lilliefors Critical Value					0.0294	Data Not Normal at 1% Significance Level					
4277	Data Not Normal at 1% Significance Level											
4278												
4279	Background Statistics Assuming Normal Distribution											
4280	95% UTL with		95% Coverage		35.42	90% Percentile (z)					30.28	
4281			95% UPL (t)		34.57	95% Percentile (z)					34.55	
4282			95% USL		61.4	99% Percentile (z)					42.56	
4283												
4284	Gamma GOF Test											

	A	B	C	D	E	F	G	H	I	J	K	L	
4285	A-D Test Statistic					8.084E+27	Anderson-Darling Gamma GOF Test						
4286	5% A-D Critical Value					0.759	Data Not Gamma Distributed at 5% Significance Level						
4287	K-S Test Statistic					0.084	Kolmogorov-Smirnov Gamma GOF Test						
4288	5% K-S Critical Value					0.0272	Data Not Gamma Distributed at 5% Significance Level						
4289	Data Not Gamma Distributed at 5% Significance Level												
4290													
4291	Gamma Statistics												
4292	k hat (MLE)					4.408	k star (bias corrected MLE)					4.398	
4293	Theta hat (MLE)					3.455	Theta star (bias corrected MLE)					3.463	
4294	nu hat (MLE)					10905	nu star (bias corrected)					10880	
4295	MLE Mean (bias corrected)					15.23	MLE Sd (bias corrected)					7.262	
4296													
4297	Background Statistics Assuming Gamma Distribution												
4298	95% Wilson Hilferty (WH) Approx. Gamma UPL					28.35	90% Percentile					24.96	
4299	95% Hawkins Wixley (HW) Approx. Gamma UPL					28.19	95% Percentile					28.8	
4300	95% WH Approx. Gamma UTL with 95% Coverage					29.13	99% Percentile					36.96	
4301	95% HW Approx. Gamma UTL with 95% Coverage					29							
4302	95% WH USL					60.87	95% HW USL					63.46	
4303													
4304	Lognormal GOF Test												
4305	Shapiro Wilk Test Statistic					0.969	Shapiro Wilk Lognormal GOF Test						
4306	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level						
4307	Lilliefors Test Statistic					0.0464	Lilliefors Lognormal GOF Test						
4308	10% Lilliefors Critical Value					0.0233	Data Not Lognormal at 10% Significance Level						
4309	Data Not Lognormal at 10% Significance Level												
4310													
4311	Background Statistics assuming Lognormal Distribution												
4312	95% UTL with		95% Coverage		29.31	90% Percentile (z)					24.09		
4313			95% UPL (t)		28.38	95% Percentile (z)					28.36		
4314			95% USL		79.23	99% Percentile (z)					38.53		
4315													
4316	Nonparametric Distribution Free Background Statistics												
4317	Data do not follow a Discernible Distribution												
4318													
4319	Nonparametric Upper Limits for Background Threshold Values												
4320	Order of Statistic, order					1188	95% UTL with 95% Coverage					27.8	
4321	Approx, f used to compute achieved CC					1.225	Approximate Actual Confidence Coefficient achieved by UTL					0.934	
4322							Approximate Sample Size needed to achieve specified CC					1237	
4323	95% Percentile Bootstrap UTL with		95% Coverage		27.7	95% BCA Bootstrap UTL with 95% Coverage					27.42		
4324			95% UPL		26.6	90% Percentile					21.84		
4325			90% Chebyshev UPL		50.49	95% Percentile					26.36		
4326			95% Chebyshev UPL		66.46	99% Percentile					39.8		
4327			95% USL		275								
4328													
4329	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
4330	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
4331	and consists of observations collected from clean unimpacted locations.												
4332	The use of USL tends to provide a balance between false positives and false negatives provided the data												
4333	represents a background data set and when many onsite observations need to be compared with the BTV.												
4334													
4335	TX_Pb <100												
4336													
4337	General Statistics												
4338	Total Number of Observations					1233	Number of Distinct Observations					262	
4339	Minimum					1.6	First Quartile					10.4	
4340	Second Largest					90	Median					13.5	
4341	Maximum					99.5	Third Quartile					17.5	
4342	Mean					14.77	SD					7.531	
4343	Coefficient of Variation					0.51	Skewness					4.079	
4344	Mean of logged Data					2.598	SD of logged Data					0.429	
4345													
4346	Critical Values for Background Threshold Values (BTVs)												
4347	Tolerance Factor K (For UTL)					1.719	d2max (for USL)					3.93	
4348													
4349	Normal GOF Test												
4350	Shapiro Wilk Test Statistic					0.762	Normal GOF Test						
4351	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
4352	Lilliefors Test Statistic					0.115	Lilliefors GOF Test						

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	A	B	C	D	E	F	G	H	I	J	K	L
4353	1% Lilliefors Critical Value					0.0295	Data Not Normal at 1% Significance Level					
4354	Data Not Normal at 1% Significance Level											
4355												
4356	Background Statistics Assuming Normal Distribution											
4357	95% UTL with	95% Coverage			27.71					90% Percentile (z)		24.42
4358		95% UPL (t)			27.17					95% Percentile (z)		27.16
4359		95% USL			44.36					99% Percentile (z)		32.29
4360												
4361	Gamma GOF Test											
4362	A-D Test Statistic					5.417	Anderson-Darling Gamma GOF Test					
4363	5% A-D Critical Value					0.757	Data Not Gamma Distributed at 5% Significance Level					
4364	K-S Test Statistic					0.0514	Kolmogorov-Smirnov Gamma GOF Test					
4365	5% K-S Critical Value					0.0271	Data Not Gamma Distributed at 5% Significance Level					
4366	Data Not Gamma Distributed at 5% Significance Level											
4367												
4368	Gamma Statistics											
4369	k hat (MLE)					5.448	k star (bias corrected MLE)					5.435
4370	Theta hat (MLE)					2.711	Theta star (bias corrected MLE)					2.717
4371	nu hat (MLE)					13435	nu star (bias corrected)					13403
4372	MLE Mean (bias corrected)					14.77	MLE Sd (bias corrected)					6.334
4373												
4374	Background Statistics Assuming Gamma Distribution											
4375	95% Wilson Hilferty (WH) Approx.	Gamma UPL			26.36					90% Percentile		23.24
4376	95% Hawkins Wixley (HW) Approx.	Gamma UPL			26.48					95% Percentile		26.49
4377	95% WH Approx.	Gamma UTL with	95% Coverage		27.03					99% Percentile		33.32
4378	95% HW Approx.	Gamma UTL with	95% Coverage		27.18							
4379			95% WH USL		53.68					95% HW USL		56.66
4380												
4381	Lognormal GOF Test											
4382	Shapiro Wilk Test Statistic					0.983	Shapiro Wilk Lognormal GOF Test					
4383	10% Shapiro Wilk P Value					0.0183	Data Not Lognormal at 10% Significance Level					
4384	Lilliefors Test Statistic					0.036	Lilliefors Lognormal GOF Test					
4385	10% Lilliefors Critical Value					0.0233	Data Not Lognormal at 10% Significance Level					
4386	Data Not Lognormal at 10% Significance Level											
4387												
4388	Background Statistics assuming Lognormal Distribution											
4389	95% UTL with	95% Coverage			28.07					90% Percentile (z)		23.28
4390		95% UPL (t)			27.22					95% Percentile (z)		27.2
4391		95% USL			72.46					99% Percentile (z)		36.43
4392												
4393	Nonparametric Distribution Free Background Statistics											
4394	Data do not follow a Discernible Distribution											
4395												
4396	Nonparametric Upper Limits for Background Threshold Values											
4397	Order of Statistic, order					1185	95% UTL with 95% Coverage					27.2
4398	Approx, f used to compute achieved CC					1.246	Approximate Actual Confidence Coefficient achieved by UTL					0.948
4399							Approximate Sample Size needed to achieve specified CC					1215
4400	95% Percentile Bootstrap UTL with	95% Coverage			26.9	95% BCA Bootstrap UTL with	95% Coverage					26.96
4401		95% UPL			25.95					90% Percentile		21.7
4402		90% Chebyshev UPL			37.37					95% Percentile		25.74
4403		95% Chebyshev UPL			47.61					99% Percentile		38.88
4404		95% USL			99.5							
4405												
4406	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4407	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4408	and consists of observations collected from clean unimpacted locations.											
4409	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4410	represents a background data set and when many onsite observations need to be compared with the BTV.											
4411												
4412	TX_Pb <63											
4413												
4414	General Statistics											
4415	Total Number of Observations					1228	Number of Distinct Observations					257
4416	Minimum					1.6	First Quartile					10.4
4417	Second Largest					40.4	Median					13.4
4418	Maximum					62.1	Third Quartile					17.5
4419	Mean					14.49	SD					6.087
4420	Coefficient of Variation					0.42	Skewness					1.483

	A	B	C	D	E	F	G	H	I	J	K	L
4421	Mean of logged Data					2.59	SD of logged Data					0.414
4422												
4423	Critical Values for Background Threshold Values (BTVs)											
4424	Tolerance Factor K (For UTL)					1.719	d2max (for USL)					3.928
4425												
4426	Normal GOF Test											
4427	Shapiro Wilk Test Statistic					0.92	Normal GOF Test					
4428	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
4429	Lilliefors Test Statistic					0.0756	Lilliefors GOF Test					
4430	1% Lilliefors Critical Value					0.0295	Data Not Normal at 1% Significance Level					
4431	Data Not Normal at 1% Significance Level											
4432												
4433	Background Statistics Assuming Normal Distribution											
4434	95% UTL with	95% Coverage		24.95		90% Percentile (z)					22.29	
4435		95% UPL (t)		24.51		95% Percentile (z)					24.5	
4436		95% USL		38.4		99% Percentile (z)					28.65	
4437												
4438	Gamma GOF Test											
4439	A-D Test Statistic					1.581	Anderson-Darling Gamma GOF Test					
4440	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level					
4441	K-S Test Statistic					0.0305	Kolmogorov-Smirnov Gamma GOF Test					
4442	5% K-S Critical Value					0.0271	Data Not Gamma Distributed at 5% Significance Level					
4443	Data Not Gamma Distributed at 5% Significance Level											
4444												
4445	Gamma Statistics											
4446	k hat (MLE)					6.197	k star (bias corrected MLE)					6.182
4447	Theta hat (MLE)					2.338	Theta star (bias corrected MLE)					2.344
4448	nu hat (MLE)					15219	nu star (bias corrected)					15183
4449	MLE Mean (bias corrected)					14.49	MLE Sd (bias corrected)					5.827
4450												
4451	Background Statistics Assuming Gamma Distribution											
4452	95% Wilson Hilferty (WH) Approx. Gamma UPL					25.17	90% Percentile					22.28
4453	95% Hawkins Wixley (HW) Approx. Gamma UPL					25.39	95% Percentile					25.21
4454	95% WH Approx. Gamma UTL with	95% Coverage		25.78		99% Percentile					31.35	
4455	95% HW Approx. Gamma UTL with	95% Coverage		26.03								
4456		95% WH USL		49.61		95% HW USL					52.59	
4457												
4458	Lognormal GOF Test											
4459	Shapiro Wilk Test Statistic					0.987	Shapiro Wilk Lognormal GOF Test					
4460	10% Shapiro Wilk P Value					0.524	Data appear Lognormal at 10% Significance Level					
4461	Lilliefors Test Statistic					0.0365	Lilliefors Lognormal GOF Test					
4462	10% Lilliefors Critical Value					0.0234	Data Not Lognormal at 10% Significance Level					
4463	Data appear Approximate Lognormal at 10% Significance Level											
4464												
4465	Background Statistics assuming Lognormal Distribution											
4466	95% UTL with	95% Coverage		27.15		90% Percentile (z)					22.66	
4467		95% UPL (t)		26.35		95% Percentile (z)					26.33	
4468		95% USL		67.72		99% Percentile (z)					34.91	
4469												
4470	Nonparametric Distribution Free Background Statistics											
4471	Data appear Approximate Lognormal at 10% Significance Level											
4472												
4473	Nonparametric Upper Limits for Background Threshold Values											
4474	Order of Statistic, order					1180	95% UTL with 95% Coverage					26.7
4475	Approx, f used to compute achieved CC					1.241	Approximate Actual Confidence Coefficient achieved by UTL					0.944
4476							Approximate Sample Size needed to achieve specified CC					1215
4477	95% Percentile Bootstrap UTL with	95% Coverage		26.6		95% BCA Bootstrap UTL with 95% Coverage					26.6	
4478		95% UPL		25.16		90% Percentile					21.7	
4479		90% Chebyshev UPL		32.76		95% Percentile					25.07	
4480		95% Chebyshev UPL		41.03		99% Percentile					37.08	
4481		95% USL		62.1								
4482												
4483	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4484	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4485	and consists of observations collected from clean unimpacted locations.											
4486	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4487	represents a background data set and when many onsite observations need to be compared with the BTV.											
4488												

	A	B	C	D	E	F	G	H	I	J	K	L
4489	TX_Pb <41											
4490												
4491	General Statistics											
4492	Total Number of Observations					1227	Number of Distinct Observations					256
4493	Minimum					1.6	First Quartile					10.4
4494	Second Largest					40.3	Median					13.4
4495	Maximum					40.4	Third Quartile					17.5
4496	Mean					14.45	SD					5.936
4497	Coefficient of Variation					0.411	Skewness					1.198
4498	Mean of logged Data					2.589	SD of logged Data					0.411
4499												
4500	Critical Values for Background Threshold Values (BTVs)											
4501	Tolerance Factor K (For UTL)					1.719	d2max (for USL)					3.928
4502												
4503	Normal GOF Test											
4504	Shapiro Wilk Test Statistic					0.923	Normal GOF Test					
4505	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
4506	Lilliefors Test Statistic					0.0728	Lilliefors GOF Test					
4507	1% Lilliefors Critical Value					0.0295	Data Not Normal at 1% Significance Level					
4508	Data Not Normal at 1% Significance Level											
4509												
4510	Background Statistics Assuming Normal Distribution											
4511	95% UTL with	95% Coverage	24.65	90% Percentile (z)					22.06			
4512		95% UPL (t)	24.22	95% Percentile (z)					24.21			
4513		95% USL	37.77	99% Percentile (z)					28.26			
4514												
4515	Gamma GOF Test											
4516	A-D Test Statistic					1.277	Anderson-Darling Gamma GOF Test					
4517	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level					
4518	K-S Test Statistic					0.0277	Kolmogorov-Smirnov Gamma GOF Test					
4519	5% K-S Critical Value					0.0272	Data Not Gamma Distributed at 5% Significance Level					
4520	Data Not Gamma Distributed at 5% Significance Level											
4521												
4522	Gamma Statistics											
4523	k hat (MLE)					6.302	k star (bias corrected MLE)					6.288
4524	Theta hat (MLE)					2.293	Theta star (bias corrected MLE)					2.298
4525	nu hat (MLE)					15466	nu star (bias corrected)					15430
4526	MLE Mean (bias corrected)					14.45	MLE Sd (bias corrected)					5.762
4527												
4528	Background Statistics Assuming Gamma Distribution											
4529	95% Wilson Hilferty (WH) Approx. Gamma UPL	25.01	90% Percentile					22.15				
4530	95% Hawkins Wixley (HW) Approx. Gamma UPL	25.24	95% Percentile					25.04				
4531	95% WH Approx. Gamma UTL with	95% Coverage	25.61	99% Percentile					31.1			
4532	95% HW Approx. Gamma UTL with	95% Coverage	25.88									
4533		95% WH USL	49.09	95% HW USL					52.06			
4534												
4535	Lognormal GOF Test											
4536	Shapiro Wilk Test Statistic					0.983	Shapiro Wilk Lognormal GOF Test					
4537	10% Shapiro Wilk P Value					0.00824	Data Not Lognormal at 10% Significance Level					
4538	Lilliefors Test Statistic					0.0369	Lilliefors Lognormal GOF Test					
4539	10% Lilliefors Critical Value					0.0234	Data Not Lognormal at 10% Significance Level					
4540	Data Not Lognormal at 10% Significance Level											
4541												
4542	Background Statistics assuming Lognormal Distribution											
4543	95% UTL with	95% Coverage	27.02	90% Percentile (z)					22.57			
4544		95% UPL (t)	26.23	95% Percentile (z)					26.21			
4545		95% USL	67.06	99% Percentile (z)					34.69			
4546												
4547	Nonparametric Distribution Free Background Statistics											
4548	Data do not follow a Discernible Distribution											
4549												
4550	Nonparametric Upper Limits for Background Threshold Values											
4551	Order of Statistic, order					1179	95% UTL with 95% Coverage					26.6
4552	Approx, f used to compute achieved CC					1.24	Approximate Actual Confidence Coefficient achieved by UTL					0.943
4553							Approximate Sample Size needed to achieve specified CC					1215
4554	95% Percentile Bootstrap UTL with	95% Coverage	26.6	95% BCA Bootstrap UTL with 95% Coverage					26.6			
4555		95% UPL	25.06	90% Percentile					21.7			
4556		90% Chebyshev UPL	32.26	95% Percentile					24.97			

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	A	B	C	D	E	F	G	H	I	J	K	L
4557	95% Chebyshev UPL				40.33	99% Percentile				36.14		
4558	95% USL				40.4							
4559												
4560	Note: The use of USL tends to yield a conservative estimate of BTv, especially when the sample size starts exceeding 20.											
4561	Therefore, one may use USL to estimate a BTv only when the data set represents a background data set free of outliers											
4562	and consists of observations collected from clean unimpacted locations.											
4563	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4564	represents a background data set and when many onsite observations need to be compared with the BTv.											
4565												
4566	TX_Pb <35											
4567												
4568	General Statistics											
4569	Total Number of Observations				1213	Number of Distinct Observations				243		
4570	Minimum				1.6	First Quartile				10.4		
4571	Second Largest				34.5	Median				13.4		
4572	Maximum				34.8	Third Quartile				17.3		
4573	Mean				14.17	SD				5.372		
4574	Coefficient of Variation				0.379	Skewness				0.741		
4575	Mean of logged Data				2.577	SD of logged Data				0.398		
4576												
4577	Critical Values for Background Threshold Values (BTVs)											
4578	Tolerance Factor K (For UTL)				1.719	d2max (for USL)				3.925		
4579												
4580	Normal GOF Test											
4581	Shapiro Wilk Test Statistic				0.956	Normal GOF Test						
4582	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level						
4583	Lilliefors Test Statistic				0.0649	Lilliefors GOF Test						
4584	1% Lilliefors Critical Value				0.0297	Data Not Normal at 1% Significance Level						
4585	Data Not Normal at 1% Significance Level											
4586												
4587	Background Statistics Assuming Normal Distribution											
4588	95% UTL with	95% Coverage	23.41	90% Percentile (z)				21.06				
4589		95% UPL (t)	23.02	95% Percentile (z)				23.01				
4590		95% USL	35.26	99% Percentile (z)				26.67				
4591												
4592	Gamma GOF Test											
4593	A-D Test Statistic				0.242	Anderson-Darling Gamma GOF Test						
4594	5% A-D Critical Value				0.756	Detected data appear Gamma Distributed at 5% Significance Level						
4595	K-S Test Statistic				0.0175	Kolmogorov-Smirnov Gamma GOF Test						
4596	5% K-S Critical Value				0.0272	Detected data appear Gamma Distributed at 5% Significance Level						
4597	Detected data appear Gamma Distributed at 5% Significance Level											
4598												
4599	Gamma Statistics											
4600	k hat (MLE)				6.894	k star (bias corrected MLE)				6.878		
4601	Theta hat (MLE)				2.056	Theta star (bias corrected MLE)				2.061		
4602	nu hat (MLE)				16725	nu star (bias corrected)				16685		
4603	MLE Mean (bias corrected)				14.17	MLE Sd (bias corrected)				5.404		
4604												
4605	Background Statistics Assuming Gamma Distribution											
4606	95% Wilson Hlferty (WH) Approx.	Gamma UPL	24.05	90% Percentile				21.39				
4607	95% Hawkins Wixley (HW) Approx.	Gamma UPL	24.3	95% Percentile				24.07				
4608	95% WH Approx.	Gamma UTL with 95% Coverage	24.61	99% Percentile				29.66				
4609	95% HW Approx.	Gamma UTL with 95% Coverage	24.9									
4610		95% WH USL	46.12	95% HW USL				48.89				
4611												
4612	Lognormal GOF Test											
4613	Shapiro Wilk Test Statistic				0.978	Shapiro Wilk Lognormal GOF Test						
4614	10% Shapiro Wilk P Value				1.8491E-7	Data Not Lognormal at 10% Significance Level						
4615	Lilliefors Test Statistic				0.0415	Lilliefors Lognormal GOF Test						
4616	10% Lilliefors Critical Value				0.0235	Data Not Lognormal at 10% Significance Level						
4617	Data Not Lognormal at 10% Significance Level											
4618												
4619	Background Statistics assuming Lognormal Distribution											
4620	95% UTL with	95% Coverage	26.06	90% Percentile (z)				21.9				
4621		95% UPL (t)	25.32	95% Percentile (z)				25.3				
4622		95% USL	62.66	99% Percentile (z)				33.18				
4623												
4624	Nonparametric Distribution Free Background Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L		
4625	Data appear Gamma Distributed at 5% Significance Level													
4626														
4627	Nonparametric Upper Limits for Background Threshold Values													
4628	Order of Statistic, order					1166	95% UTL with 95% Coverage					25		
4629	Approx, f used to compute achieved CC					1.251	Approximate Actual Confidence Coefficient achieved by UTL					0.949		
4630							Approximate Sample Size needed to achieve specified CC					1192		
4631	95% Percentile Bootstrap UTL with 95% Coverage					24.9	95% BCA Bootstrap UTL with 95% Coverage					24.78		
4632						95% UPL	24.13						90% Percentile	21.18
4633						90% Chebyshev UPL	30.29						95% Percentile	23.98
4634						95% Chebyshev UPL	37.6						99% Percentile	30.08
4635						95% USL	34.8							
4636														
4637	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.													
4638	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers													
4639	and consists of observations collected from clean unimpacted locations.													
4640	The use of USL tends to provide a balance between false positives and false negatives provided the data													
4641	represents a background data set and when many onsite observations need to be compared with the BTV.													
4642														
4643	UT_As													
4644														
4645	General Statistics													
4646	Total Number of Observations					397	Number of Distinct Observations					119		
4647	Minimum					1	First Quartile					3.6		
4648	Second Largest					29.1	Median					5		
4649	Maximum					59.6	Third Quartile					6.8		
4650	Mean					5.983	SD					4.695		
4651	Coefficient of Variation					0.785	Skewness					5.104		
4652	Mean of logged Data					1.605	SD of logged Data					0.586		
4653														
4654	Critical Values for Background Threshold Values (BTVs)													
4655	Tolerance Factor K (For UTL)					1.778	d2max (for USL)					3.632		
4656														
4657	Normal GOF Test													
4658	Shapiro Wilk Test Statistic					0.679	Normal GOF Test							
4659	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level							
4660	Lilliefors Test Statistic					0.184	Lilliefors GOF Test							
4661	1% Lilliefors Critical Value					0.0519	Data Not Normal at 1% Significance Level							
4662	Data Not Normal at 1% Significance Level													
4663														
4664	Background Statistics Assuming Normal Distribution													
4665	95% UTL with 95% Coverage					14.33	90% Percentile (z)					12		
4666						95% UPL (t)	13.73	95% Percentile (z)					13.71	
4667						95% USL	23.03	99% Percentile (z)					16.9	
4668														
4669	Gamma GOF Test													
4670	A-D Test Statistic					3.985	Anderson-Darling Gamma GOF Test							
4671	5% A-D Critical Value					0.761	Data Not Gamma Distributed at 5% Significance Level							
4672	K-S Test Statistic					0.0887	Kolmogorov-Smirnov Gamma GOF Test							
4673	5% K-S Critical Value					0.0457	Data Not Gamma Distributed at 5% Significance Level							
4674	Data Not Gamma Distributed at 5% Significance Level													
4675														
4676	Gamma Statistics													
4677	k hat (MLE)					2.879	k star (bias corrected MLE)					2.859		
4678	Theta hat (MLE)					2.078	Theta star (bias corrected MLE)					2.093		
4679	nu hat (MLE)					2286	nu star (bias corrected)					2270		
4680	MLE Mean (bias corrected)					5.983	MLE Sd (bias corrected)					3.538		
4681														
4682	Background Statistics Assuming Gamma Distribution													
4683	95% Wilson Hiferty (WH) Approx. Gamma UPL					12.58	90% Percentile					10.73		
4684	95% Hawkins Wixley (HW) Approx. Gamma UPL					12.62	95% Percentile					12.73		
4685	95% WH Approx. Gamma UTL with 95% Coverage					13.32	99% Percentile					17.09		
4686	95% HW Approx. Gamma UTL with 95% Coverage					13.41								
4687						95% WH USL	27.74	95% HW USL					29.7	
4688														
4689	Lognormal GOF Test													
4690	Shapiro Wilk Test Statistic					0.985	Shapiro Wilk Lognormal GOF Test							
4691	10% Shapiro Wilk P Value					0.517	Data appear Lognormal at 10% Significance Level							
4692	Lilliefors Test Statistic					0.0503	Lilliefors Lognormal GOF Test							

	A	B	C	D	E	F	G	H	I	J	K	L
4693	10% Lilliefors Critical Value					0.041	Data Not Lognormal at 10% Significance Level					
4694	Data appear Approximate Lognormal at 10% Significance Level											
4695												
4696	Background Statistics assuming Lognormal Distribution											
4697	95% UTL with		95% Coverage		14.1		90% Percentile (z)				10.55	
4698			95% UPL (t)		13.09		95% Percentile (z)				13.05	
4699			95% USL		41.77		99% Percentile (z)				19.45	
4700												
4701	Nonparametric Distribution Free Background Statistics											
4702	Data appear Approximate Lognormal at 10% Significance Level											
4703												
4704	Nonparametric Upper Limits for Background Threshold Values											
4705	Order of Statistic, order				385		95% UTL with 95% Coverage				16.2	
4706	Approx, f used to compute achieved CC				1.444		Approximate Actual Confidence Coefficient achieved by UTL				0.935	
4707							Approximate Sample Size needed to achieve specified CC				385	
4708	95% Percentile Bootstrap UTL with		95% Coverage		13.98		95% BCA Bootstrap UTL with		95% Coverage		13.8	
4709			95% UPL		12.7				90% Percentile		10.24	
4710			90% Chebyshev UPL		20.09				95% Percentile		12.22	
4711			95% Chebyshev UPL		26.47				99% Percentile		22.69	
4712			95% USL		59.6							
4713												
4714	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4715	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4716	and consists of observations collected from clean unimpacted locations.											
4717	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4718	represents a background data set and when many onsite observations need to be compared with the BTV.											
4719												
4720	UT_As <30											
4721												
4722	General Statistics											
4723	Total Number of Observations				396		Number of Distinct Observations				118	
4724	Minimum				1		First Quartile				3.575	
4725	Second Largest				28.6		Median				4.95	
4726	Maximum				29.1		Third Quartile				6.8	
4727	Mean				5.847		SD				3.847	
4728	Coefficient of Variation				0.658		Skewness				2.517	
4729	Mean of logged Data				1.599		SD of logged Data				0.573	
4730												
4731	Critical Values for Background Threshold Values (BTVs)											
4732	Tolerance Factor K (For UTL)				1.778		d2max (for USL)				3.631	
4733												
4734	Normal GOF Test											
4735	Shapiro Wilk Test Statistic				0.792		Normal GOF Test					
4736	1% Shapiro Wilk P Value				0		Data Not Normal at 1% Significance Level					
4737	Lilliefors Test Statistic				0.155		Lilliefors GOF Test					
4738	1% Lilliefors Critical Value				0.0519		Data Not Normal at 1% Significance Level					
4739	Data Not Normal at 1% Significance Level											
4740												
4741	Background Statistics Assuming Normal Distribution											
4742	95% UTL with		95% Coverage		12.69		90% Percentile (z)				10.78	
4743			95% UPL (t)		12.2		95% Percentile (z)				12.18	
4744			95% USL		19.82		99% Percentile (z)				14.8	
4745												
4746	Gamma GOF Test											
4747	A-D Test Statistic				2.671		Anderson-Darling Gamma GOF Test					
4748	5% A-D Critical Value				0.76		Data Not Gamma Distributed at 5% Significance Level					
4749	K-S Test Statistic				0.0747		Kolmogorov-Smirnov Gamma GOF Test					
4750	5% K-S Critical Value				0.0458		Data Not Gamma Distributed at 5% Significance Level					
4751	Data Not Gamma Distributed at 5% Significance Level											
4752												
4753	Gamma Statistics											
4754	k hat (MLE)				3.151		k star (bias corrected MLE)				3.129	
4755	Theta hat (MLE)				1.856		Theta star (bias corrected MLE)				1.869	
4756	nu hat (MLE)				2496		nu star (bias corrected)				2478	
4757	MLE Mean (bias corrected)				5.847		MLE Sd (bias corrected)				3.306	
4758												
4759	Background Statistics Assuming Gamma Distribution											
4760	95% Wilson Hilferty (WH) Approx. Gamma UPL				12.05		90% Percentile				10.28	

	A	B	C	D	E	F	G	H	I	J	K	L	
4761	95% Hawkins Wixley (HW) Approx. Gamma UPL					12.15						95% Percentile	12.12
4762	95% WH Approx. Gamma UTL with				95% Coverage	12.73						99% Percentile	16.11
4763	95% HW Approx. Gamma UTL with				95% Coverage	12.89							
4764					95% WH USL	25.95						95% HW USL	27.93
4765													
4766	Lognormal GOF Test												
4767	Shapiro Wilk Test Statistic					0.981	Shapiro Wilk Lognormal GOF Test						
4768	10% Shapiro Wilk P Value					0.197	Data appear Lognormal at 10% Significance Level						
4769	Lilliefors Test Statistic					0.0459	Lilliefors Lognormal GOF Test						
4770	10% Lilliefors Critical Value					0.0411	Data Not Lognormal at 10% Significance Level						
4771	Data appear Approximate Lognormal at 10% Significance Level												
4772													
4773	Background Statistics assuming Lognormal Distribution												
4774	95% UTL with			95% Coverage	13.7						90% Percentile (z)	10.31	
4775				95% UPL (t)	12.74						95% Percentile (z)	12.7	
4776				95% USL	39.62						99% Percentile (z)	18.76	
4777													
4778	Nonparametric Distribution Free Background Statistics												
4779	Data appear Approximate Lognormal at 10% Significance Level												
4780													
4781	Nonparametric Upper Limits for Background Threshold Values												
4782	Order of Statistic, order					384	95% UTL with					95% Coverage	14.7
4783	Approx, f used to compute achieved CC					1.44	Approximate Actual Confidence Coefficient achieved by UTL					0.933	
4784							Approximate Sample Size needed to achieve specified CC					385	
4785	95% Percentile Bootstrap UTL with			95% Coverage	13.65	95% BCA Bootstrap UTL with					95% Coverage	13.43	
4786				95% UPL	12.19						90% Percentile	10.2	
4787				90% Chebyshev UPL	17.4						95% Percentile	12.03	
4788				95% Chebyshev UPL	22.64						99% Percentile	22.22	
4789				95% USL	29.1								
4790													
4791	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
4792	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
4793	and consists of observations collected from clean unimpacted locations.												
4794	The use of USL tends to provide a balance between false positives and false negatives provided the data												
4795	represents a background data set and when many onsite observations need to be compared with the BTV.												
4796													
4797	UT_As <20												
4798													
4799	General Statistics												
4800	Total Number of Observations					390	Number of Distinct Observations					112	
4801	Minimum					1	First Quartile					3.5	
4802	Second Largest					18.6	Median					4.9	
4803	Maximum					19.6	Third Quartile					6.775	
4804	Mean					5.559	SD					3.061	
4805	Coefficient of Variation					0.551	Skewness					1.47	
4806	Mean of logged Data					1.574	SD of logged Data					0.542	
4807													
4808	Critical Values for Background Threshold Values (BTVs)												
4809	Tolerance Factor K (For UTL)					1.779	d2max (for USL)					3.627	
4810													
4811	Normal GOF Test												
4812	Shapiro Wilk Test Statistic					0.888	Normal GOF Test						
4813	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
4814	Lilliefors Test Statistic					0.113	Lilliefors GOF Test						
4815	1% Lilliefors Critical Value					0.0523	Data Not Normal at 1% Significance Level						
4816	Data Not Normal at 1% Significance Level												
4817													
4818	Background Statistics Assuming Normal Distribution												
4819	95% UTL with			95% Coverage	11						90% Percentile (z)	9.482	
4820				95% UPL (t)	10.61						95% Percentile (z)	10.59	
4821				95% USL	16.66						99% Percentile (z)	12.68	
4822													
4823	Gamma GOF Test												
4824	A-D Test Statistic					0.892	Anderson-Darling Gamma GOF Test						
4825	5% A-D Critical Value					0.759	Data Not Gamma Distributed at 5% Significance Level						
4826	K-S Test Statistic					0.0486	Kolmogorov-Smirnov Gamma GOF Test						
4827	5% K-S Critical Value					0.0461	Data Not Gamma Distributed at 5% Significance Level						
4828	Data Not Gamma Distributed at 5% Significance Level												

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	A	B	C	D	E	F	G	H	I	J	K	L
4829												
4830	Gamma Statistics											
4831	k hat (MLE)					3.705	k star (bias corrected MLE)					3.678
4832	Theta hat (MLE)					1.501	Theta star (bias corrected MLE)					1.512
4833	nu hat (MLE)					2890	nu star (bias corrected)					2869
4834	MLE Mean (bias corrected)					5.559	MLE Sd (bias corrected)					2.899
4835												
4836	Background Statistics Assuming Gamma Distribution											
4837	95% Wilson Hilferty (WH) Approx. Gamma UPL					11	90% Percentile					9.446
4838	95% Hawkins Wixley (HW) Approx. Gamma UPL					11.14	95% Percentile					11.02
4839	95% WH Approx. Gamma UTL with 95% Coverage					11.59	99% Percentile					14.4
4840	95% HW Approx. Gamma UTL with 95% Coverage					11.78						
4841	95% WH USL					22.66	95% HW USL					24.42
4842												
4843	Lognormal GOF Test											
4844	Shapiro Wilk Test Statistic					0.979	Shapiro Wilk Lognormal GOF Test					
4845	10% Shapiro Wilk P Value					0.0819	Data Not Lognormal at 10% Significance Level					
4846	Lilliefors Test Statistic					0.0474	Lilliefors Lognormal GOF Test					
4847	10% Lilliefors Critical Value					0.0414	Data Not Lognormal at 10% Significance Level					
4848	Data Not Lognormal at 10% Significance Level											
4849												
4850	Background Statistics assuming Lognormal Distribution											
4851	95% UTL with 95% Coverage					12.65	90% Percentile (z)					9.664
4852	95% UPL (t)					11.8	95% Percentile (z)					11.77
4853	95% USL					34.41	99% Percentile (z)					17.02
4854												
4855	Nonparametric Distribution Free Background Statistics											
4856	Data do not follow a Discernible Distribution											
4857												
4858	Nonparametric Upper Limits for Background Threshold Values											
4859	Order of Statistic, order					378	95% UTL with 95% Coverage					12.7
4860	Approx, f used to compute achieved CC					1.417	Approximate Actual Confidence Coefficient achieved by UTL					0.924
4861							Approximate Sample Size needed to achieve specified CC					385
4862	95% Percentile Bootstrap UTL with 95% Coverage					12.1	95% BCA Bootstrap UTL with 95% Coverage					12.1
4863	95% UPL					11.85	90% Percentile					9.41
4864	90% Chebyshev UPL					14.75	95% Percentile					11.67
4865	95% Chebyshev UPL					18.92	99% Percentile					16.78
4866	95% USL					19.6						
4867												
4868	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
4869	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
4870	and consists of observations collected from clean unimpacted locations.											
4871	The use of USL tends to provide a balance between false positives and false negatives provided the data											
4872	represents a background data set and when many onsite observations need to be compared with the BTV.											
4873												
4874	UT_As <15											
4875												
4876	General Statistics											
4877	Total Number of Observations					384	Number of Distinct Observations					106
4878	Minimum					1	First Quartile					3.4
4879	Second Largest					13.8	Median					4.8
4880	Maximum					14.7	Third Quartile					6.6
4881	Mean					5.369	SD					2.67
4882	Coefficient of Variation					0.497	Skewness					0.926
4883	Mean of logged Data					1.554	SD of logged Data					0.52
4884												
4885	Critical Values for Background Threshold Values (BTVs)											
4886	Tolerance Factor K (For UTL)					1.78	d2max (for USL)					3.622
4887												
4888	Normal GOF Test											
4889	Shapiro Wilk Test Statistic					0.926	Normal GOF Test					
4890	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
4891	Lilliefors Test Statistic					0.094	Lilliefors GOF Test					
4892	1% Lilliefors Critical Value					0.0527	Data Not Normal at 1% Significance Level					
4893	Data Not Normal at 1% Significance Level											
4894												
4895	Background Statistics Assuming Normal Distribution											
4896	95% UTL with 95% Coverage					10.12	90% Percentile (z)					8.791

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	A	B	C	D	E	F	G	H	I	J	K	L
4897					95% UPL (t)	9.777					95% Percentile (z)	9.761
4898					95% USL	15.04					99% Percentile (z)	11.58
4899												
4900					Gamma GOF Test							
4901					A-D Test Statistic	0.433		Anderson-Darling Gamma GOF Test				
4902					5% A-D Critical Value	0.758		Detected data appear Gamma Distributed at 5% Significance Level				
4903					K-S Test Statistic	0.0315		Kolmogorov-Smirnov Gamma GOF Test				
4904					5% K-S Critical Value	0.0465		Detected data appear Gamma Distributed at 5% Significance Level				
4905					Detected data appear Gamma Distributed at 5% Significance Level							
4906												
4907					Gamma Statistics							
4908					k hat (MLE)	4.114		k star (bias corrected MLE)				4.083
4909					Theta hat (MLE)	1.305		Theta star (bias corrected MLE)				1.315
4910					nu hat (MLE)	3159		nu star (bias corrected)				3136
4911					MLE Mean (bias corrected)	5.369		MLE Sd (bias corrected)				2.657
4912												
4913					Background Statistics Assuming Gamma Distribution							
4914					95% Wilson Hilferty (WH) Approx. Gamma UPL	10.34		90% Percentile				8.93
4915					95% Hawkins Wixley (HW) Approx. Gamma UPL	10.5		95% Percentile				10.35
4916					95% WH Approx. Gamma UTL with 95% Coverage	10.88		99% Percentile				13.38
4917					95% HW Approx. Gamma UTL with 95% Coverage	11.08						
4918					95% WH USL	20.72		95% HW USL				22.32
4919												
4920					Lognormal GOF Test							
4921					Shapiro Wilk Test Statistic	0.971		Shapiro Wilk Lognormal GOF Test				
4922					10% Shapiro Wilk P Value	3.6963E-4		Data Not Lognormal at 10% Significance Level				
4923					Lilliefors Test Statistic	0.0501		Lilliefors Lognormal GOF Test				
4924					10% Lilliefors Critical Value	0.0417		Data Not Lognormal at 10% Significance Level				
4925					Data Not Lognormal at 10% Significance Level							
4926												
4927					Background Statistics assuming Lognormal Distribution							
4928					95% UTL with 95% Coverage	11.95		90% Percentile (z)				9.218
4929					95% UPL (t)	11.17		95% Percentile (z)				11.14
4930					95% USL	31.17		99% Percentile (z)				15.88
4931												
4932					Nonparametric Distribution Free Background Statistics							
4933					Data appear Gamma Distributed at 5% Significance Level							
4934												
4935					Nonparametric Upper Limits for Background Threshold Values							
4936					Order of Statistic, order	373		95% UTL with 95% Coverage				11.9
4937					Approx, f used to compute achieved CC	1.506		Approximate Actual Confidence Coefficient achieved by UTL				0.949
4938								Approximate Sample Size needed to achieve specified CC				361
4939					95% Percentile Bootstrap UTL with 95% Coverage	11.8		95% BCA Bootstrap UTL with 95% Coverage				11.76
4940					95% UPL	11.05		90% Percentile				9.17
4941					90% Chebyshev UPL	13.39		95% Percentile				10.89
4942					95% Chebyshev UPL	17.02		99% Percentile				12.82
4943					95% USL	14.7						
4944												
4945					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
4946					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
4947					and consists of observations collected from clean unimpacted locations.							
4948					The use of USL tends to provide a balance between false positives and false negatives provided the data							
4949					represents a background data set and when many onsite observations need to be compared with the BTV.							
4950												
4951					UT_Pb							
4952												
4953					General Statistics							
4954					Total Number of Observations	397		Number of Distinct Observations				200
4955					Minimum	0.9		First Quartile				11.3
4956					Second Largest	108		Median				14.8
4957					Maximum	133		Third Quartile				20.5
4958					Mean	17.17		SD				11.15
4959					Coefficient of Variation	0.649		Skewness				4.969
4960					Mean of logged Data	2.713		SD of logged Data				0.498
4961												
4962					Critical Values for Background Threshold Values (BTVs)							
4963					Tolerance Factor K (For UTL)	1.778		d2max (for USL)				3.632
4964												

	A	B	C	D	E	F	G	H	I	J	K	L	
4965	Normal GOF Test												
4966	Shapiro Wilk Test Statistic					0.684	Normal GOF Test						
4967	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
4968	Lilliefors Test Statistic					0.147	Lilliefors GOF Test						
4969	1% Lilliefors Critical Value					0.0519	Data Not Normal at 1% Significance Level						
4970	Data Not Normal at 1% Significance Level												
4971													
4972	Background Statistics Assuming Normal Distribution												
4973	95% UTL with	95% Coverage				36.99				90% Percentile (z)		31.46	
4974					95% UPL (t)		35.57			95% Percentile (z)		35.51	
4975					95% USL		57.66			99% Percentile (z)		43.11	
4976													
4977	Gamma GOF Test												
4978	A-D Test Statistic					4.067	Anderson-Darling Gamma GOF Test						
4979	5% A-D Critical Value					0.759	Data Not Gamma Distributed at 5% Significance Level						
4980	K-S Test Statistic					0.0854	Kolmogorov-Smirnov Gamma GOF Test						
4981	5% K-S Critical Value					0.0456	Data Not Gamma Distributed at 5% Significance Level						
4982	Data Not Gamma Distributed at 5% Significance Level												
4983													
4984	Gamma Statistics												
4985	k hat (MLE)					4.008	k star (bias corrected MLE)					3.98	
4986	Theta hat (MLE)					4.283	Theta star (bias corrected MLE)					4.313	
4987	nu hat (MLE)					3183	nu star (bias corrected)					3160	
4988	MLE Mean (bias corrected)					17.17	MLE Sd (bias corrected)					8.605	
4989													
4990	Background Statistics Assuming Gamma Distribution												
4991	95% Wilson Hilferty (WH) Approx. Gamma UPL					33.02	90% Percentile					28.7	
4992	95% Hawkins Wixley (HW) Approx. Gamma UPL					33.12	95% Percentile					33.32	
4993	95% WH Approx. Gamma UTL with 95% Coverage					34.71	99% Percentile					43.19	
4994	95% HW Approx. Gamma UTL with 95% Coverage					34.9							
4995	95% WH USL					66.54	95% HW USL					70.21	
4996													
4997	Lognormal GOF Test												
4998	Shapiro Wilk Test Statistic					0.976	Shapiro Wilk Lognormal GOF Test						
4999	10% Shapiro Wilk P Value					0.0208	Data Not Lognormal at 10% Significance Level						
5000	Lilliefors Test Statistic					0.0494	Lilliefors Lognormal GOF Test						
5001	10% Lilliefors Critical Value					0.041	Data Not Lognormal at 10% Significance Level						
5002	Data Not Lognormal at 10% Significance Level												
5003													
5004	Background Statistics assuming Lognormal Distribution												
5005	95% UTL with	95% Coverage				36.52				90% Percentile (z)		28.53	
5006					95% UPL (t)		34.29			95% Percentile (z)		34.19	
5007					95% USL		91.92			99% Percentile (z)		47.99	
5008													
5009	Nonparametric Distribution Free Background Statistics												
5010	Data do not follow a Discernible Distribution												
5011													
5012	Nonparametric Upper Limits for Background Threshold Values												
5013	Order of Statistic, order					385	95% UTL with 95% Coverage					35.7	
5014	Approx, f used to compute achieved CC					1.444	Approximate Actual Confidence Coefficient achieved by UTL					0.935	
5015							Approximate Sample Size needed to achieve specified CC					385	
5016	95% Percentile Bootstrap UTL with	95% Coverage				35	95% BCA Bootstrap UTL with 95% Coverage					35	
5017					95% UPL		31.55	90% Percentile					26.9
5018					90% Chebyshev UPL		50.66	95% Percentile					30.98
5019					95% Chebyshev UPL		65.83	99% Percentile					54.96
5020					95% USL		133						
5021													
5022	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
5023	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
5024	and consists of observations collected from clean unimpacted locations.												
5025	The use of USL tends to provide a balance between false positives and false negatives provided the data												
5026	represents a background data set and when many onsite observations need to be compared with the BTV.												
5027													
5028	UT_Pb <67												
5029													
5030	General Statistics												
5031	Total Number of Observations					395	Number of Distinct Observations					198	
5032	Minimum					0.9	First Quartile					11.25	

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	A	B	C	D	E	F	G	H	I	J	K	L
5033				Second Largest	66.1						Median	14.7
5034				Maximum	66.8						Third Quartile	20.4
5035				Mean	16.64						SD	8.347
5036				Coefficient of Variation	0.502						Skewness	1.988
5037				Mean of logged Data	2.703						SD of logged Data	0.477
5038												
5039				Critical Values for Background Threshold Values (BTVs)								
5040				Tolerance Factor K (For UTL)	1.778						d2max (for USL)	3.63
5041												
5042				Normal GOF Test								
5043				Shapiro Wilk Test Statistic	0.866						Normal GOF Test	
5044				1% Shapiro Wilk P Value	0						Data Not Normal at 1% Significance Level	
5045				Lilliefors Test Statistic	0.131						Lilliefors GOF Test	
5046				1% Lilliefors Critical Value	0.052						Data Not Normal at 1% Significance Level	
5047				Data Not Normal at 1% Significance Level								
5048												
5049				Background Statistics Assuming Normal Distribution								
5050				95% UTL with 95% Coverage	31.48						90% Percentile (z)	27.34
5051				95% UPL (t)	30.42						95% Percentile (z)	30.37
5052				95% USL	46.95						99% Percentile (z)	36.06
5053												
5054				Gamma GOF Test								
5055				A-D Test Statistic	1.855						Anderson-Darling Gamma GOF Test	
5056				5% A-D Critical Value	0.758						Data Not Gamma Distributed at 5% Significance Level	
5057				K-S Test Statistic	0.0724						Kolmogorov-Smirnov Gamma GOF Test	
5058				5% K-S Critical Value	0.0457						Data Not Gamma Distributed at 5% Significance Level	
5059				Data Not Gamma Distributed at 5% Significance Level								
5060												
5061				Gamma Statistics								
5062				k hat (MLE)	4.729						k star (bias corrected MLE)	4.695
5063				Theta hat (MLE)	3.519						Theta star (bias corrected MLE)	3.545
5064				nu hat (MLE)	3736						nu star (bias corrected)	3709
5065				MLE Mean (bias corrected)	16.64						MLE Sd (bias corrected)	7.681
5066												
5067				Background Statistics Assuming Gamma Distribution								
5068				95% Wilson Hilferty (WH) Approx. Gamma UPL	30.85						90% Percentile	26.93
5069				95% Hawkins Wixley (HW) Approx. Gamma UPL	31.15						95% Percentile	30.95
5070				95% WH Approx. Gamma UTL with 95% Coverage	32.34						99% Percentile	39.48
5071				95% HW Approx. Gamma UTL with 95% Coverage	32.74							
5072				95% WH USL	59.73						95% HW USL	63.46
5073												
5074				Lognormal GOF Test								
5075				Shapiro Wilk Test Statistic	0.978						Shapiro Wilk Lognormal GOF Test	
5076				10% Shapiro Wilk P Value	0.0468						Data Not Lognormal at 10% Significance Level	
5077				Lilliefors Test Statistic	0.0416						Lilliefors Lognormal GOF Test	
5078				10% Lilliefors Critical Value	0.0411						Data Not Lognormal at 10% Significance Level	
5079				Data Not Lognormal at 10% Significance Level								
5080												
5081				Background Statistics assuming Lognormal Distribution								
5082				95% UTL with 95% Coverage	34.81						90% Percentile (z)	27.47
5083				95% UPL (t)	32.76						95% Percentile (z)	32.67
5084				95% USL	84.14						99% Percentile (z)	45.2
5085												
5086				Nonparametric Distribution Free Background Statistics								
5087				Data do not follow a Discernible Distribution								
5088												
5089				Nonparametric Upper Limits for Background Threshold Values								
5090				Order of Statistic, order	383						95% UTL with 95% Coverage	34.9
5091				Approx, f used to compute achieved CC	1.436						Approximate Actual Confidence Coefficient achieved by UTL	0.932
5092											Approximate Sample Size needed to achieve specified CC	385
5093				95% Percentile Bootstrap UTL with 95% Coverage	34.27						95% BCA Bootstrap UTL with 95% Coverage	34.15
5094				95% UPL	30.9						90% Percentile	26.32
5095				90% Chebyshev UPL	41.72						95% Percentile	30.41
5096				95% Chebyshev UPL	53.07						99% Percentile	45.54
5097				95% USL	66.8							
5098												
5099				Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.								
5100				Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers								

	A	B	C	D	E	F	G	H	I	J	K	L
5101	and consists of observations collected from clean unimpacted locations.											
5102	The use of USL tends to provide a balance between false positives and false negatives provided the data											
5103	represents a background data set and when many onsite observations need to be compared with the BTV.											
5104												
5105	UT_Pb <47											
5106												
5107	General Statistics											
5108	Total Number of Observations				392		Number of Distinct Observations				195	
5109	Minimum				0.9		First Quartile				11.18	
5110	Second Largest				45.5		Median				14.65	
5111	Maximum				46.1		Third Quartile				20.13	
5112	Mean				16.29		SD				7.33	
5113	Coefficient of Variation				0.45		Skewness				1.135	
5114	Mean of logged Data				2.692		SD of logged Data				0.461	
5115												
5116	Critical Values for Background Threshold Values (BTVs)											
5117	Tolerance Factor K (For UTL)				1.778		d2max (for USL)				3.628	
5118												
5119	Normal GOF Test											
5120	Shapiro Wilk Test Statistic				0.921		Normal GOF Test					
5121	1% Shapiro Wilk P Value				0		Data Not Normal at 1% Significance Level					
5122	Lilliefors Test Statistic				0.121		Lilliefors GOF Test					
5123	1% Lilliefors Critical Value				0.0522		Data Not Normal at 1% Significance Level					
5124	Data Not Normal at 1% Significance Level											
5125												
5126	Background Statistics Assuming Normal Distribution											
5127	95% UTL with		95% Coverage		29.33		90% Percentile (z)		25.69			
5128			95% UPL (t)		28.39		95% Percentile (z)		28.35			
5129			95% USL		42.89		99% Percentile (z)		33.35			
5130												
5131	Gamma GOF Test											
5132	A-D Test Statistic				1.099		Anderson-Darling Gamma GOF Test					
5133	5% A-D Critical Value				0.757		Data Not Gamma Distributed at 5% Significance Level					
5134	K-S Test Statistic				0.0625		Kolmogorov-Smirnov Gamma GOF Test					
5135	5% K-S Critical Value				0.0459		Data Not Gamma Distributed at 5% Significance Level					
5136	Data Not Gamma Distributed at 5% Significance Level											
5137												
5138	Gamma Statistics											
5139	k hat (MLE)				5.208		k star (bias corrected MLE)				5.17	
5140	Theta hat (MLE)				3.128		Theta star (bias corrected MLE)				3.152	
5141	nu hat (MLE)				4083		nu star (bias corrected)				4053	
5142	MLE Mean (bias corrected)				16.29		MLE Sd (bias corrected)				7.166	
5143												
5144	Background Statistics Assuming Gamma Distribution											
5145	95% Wilson Hilferty (WH) Approx.		Gamma UPL		29.54		90% Percentile		25.88			
5146	95% Hawkins Wixley (HW) Approx.		Gamma UPL		29.89		95% Percentile		29.58			
5147	95% WH Approx.		Gamma UTL with		95% Coverage		99% Percentile		37.39			
5148	95% HW Approx.		Gamma UTL with		95% Coverage							
5149			95% WH USL		55.82		95% HW USL		59.39			
5150												
5151	Lognormal GOF Test											
5152	Shapiro Wilk Test Statistic				0.971		Shapiro Wilk Lognormal GOF Test					
5153	10% Shapiro Wilk P Value				5.7198E-4		Data Not Lognormal at 10% Significance Level					
5154	Lilliefors Test Statistic				0.035		Lilliefors Lognormal GOF Test					
5155	10% Lilliefors Critical Value				0.0413		Data appear Lognormal at 10% Significance Level					
5156	Data appear Approximate Lognormal at 10% Significance Level											
5157												
5158	Background Statistics assuming Lognormal Distribution											
5159	95% UTL with		95% Coverage		33.53		90% Percentile (z)		26.66			
5160			95% UPL (t)		31.61		95% Percentile (z)		31.52			
5161			95% USL		78.73		99% Percentile (z)		43.17			
5162												
5163	Nonparametric Distribution Free Background Statistics											
5164	Data appear Approximate Lognormal at 10% Significance Level											
5165												
5166	Nonparametric Upper Limits for Background Threshold Values											
5167	Order of Statistic, order				380		95% UTL with		95% Coverage		33.8	
5168	Approx. f used to compute achieved CC				1.425		Approximate Actual Confidence Coefficient achieved by UTL				0.927	

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	A	B	C	D	E	F	G	H	I	J	K	L
5169							Approximate Sample Size needed to achieve specified CC					385
5170	95% Percentile Bootstrap UTL with 95% Coverage					32.43	95% BCA Bootstrap UTL with 95% Coverage					33.8
5171	95% UPL					30.04	90% Percentile					26.06
5172	90% Chebyshev UPL					38.31	95% Percentile					29.78
5173	95% Chebyshev UPL					48.29	99% Percentile					38.88
5174	95% USL					46.1						
5175												
5176	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
5177	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
5178	and consists of observations collected from clean unimpacted locations.											
5179	The use of USL tends to provide a balance between false positives and false negatives provided the data											
5180	represents a background data set and when many onsite observations need to be compared with the BTV.											
5181												
5182	UT_Pb <36											
5183												
5184	General Statistics											
5185	Total Number of Observations					385	Number of Distinct Observations					188
5186	Minimum					0.9	First Quartile					11
5187	Second Largest					35.4	Median					14.5
5188	Maximum					35.7	Third Quartile					19.8
5189	Mean					15.84	SD					6.542
5190	Coefficient of Variation					0.413	Skewness					0.739
5191	Mean of logged Data					2.673	SD of logged Data					0.444
5192												
5193	Critical Values for Background Threshold Values (BTVs)											
5194	Tolerance Factor K (For UTL)					1.78	d2max (for USL)					3.623
5195												
5196	Normal GOF Test											
5197	Shapiro Wilk Test Statistic					0.943	Normal GOF Test					
5198	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
5199	Lilliefors Test Statistic					0.106	Lilliefors GOF Test					
5200	1% Lilliefors Critical Value					0.0527	Data Not Normal at 1% Significance Level					
5201	Data Not Normal at 1% Significance Level											
5202												
5203	Background Statistics Assuming Normal Distribution											
5204	95% UTL with 95% Coverage					27.48	90% Percentile (z)					24.22
5205	95% UPL (t)					26.64	95% Percentile (z)					26.6
5206	95% USL					39.54	99% Percentile (z)					31.06
5207												
5208	Gamma GOF Test											
5209	A-D Test Statistic					0.708	Anderson-Darling Gamma GOF Test					
5210	5% A-D Critical Value					0.757	Detected data appear Gamma Distributed at 5% Significance Level					
5211	K-S Test Statistic					0.0505	Kolmogorov-Smirnov Gamma GOF Test					
5212	5% K-S Critical Value					0.0463	Data Not Gamma Distributed at 5% Significance Level					
5213	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
5214												
5215	Gamma Statistics											
5216	k hat (MLE)					5.758	k star (bias corrected MLE)					5.714
5217	Theta hat (MLE)					2.751	Theta star (bias corrected MLE)					2.771
5218	nu hat (MLE)					4433	nu star (bias corrected)					4400
5219	MLE Mean (bias corrected)					15.84	MLE Sd (bias corrected)					6.625
5220												
5221	Background Statistics Assuming Gamma Distribution											
5222	95% Wilson Hilferty (WH) Approx. Gamma UPL					28.04	90% Percentile					24.7
5223	95% Hawkins Wixley (HW) Approx. Gamma UPL					28.41	95% Percentile					28.07
5224	95% WH Approx. Gamma UTL with 95% Coverage					29.3	99% Percentile					35.15
5225	95% HW Approx. Gamma UTL with 95% Coverage					29.77						
5226	95% WH USL					51.68	95% HW USL					54.94
5227												
5228	Lognormal GOF Test											
5229	Shapiro Wilk Test Statistic					0.96	Shapiro Wilk Lognormal GOF Test					
5230	10% Shapiro Wilk P Value					7.0128E-9	Data Not Lognormal at 10% Significance Level					
5231	Lilliefors Test Statistic					0.0392	Lilliefors Lognormal GOF Test					
5232	10% Lilliefors Critical Value					0.0417	Data appear Lognormal at 10% Significance Level					
5233	Data appear Approximate Lognormal at 10% Significance Level											
5234												
5235	Background Statistics assuming Lognormal Distribution											
5236	95% UTL with 95% Coverage					31.92	90% Percentile (z)					25.58

	A	B	C	D	E	F	G	H	I	J	K	L	
5237					95% UPL (t)	30.14				95% Percentile (z)		30.06	
5238					95% USL	72.36				99% Percentile (z)		40.68	
5239													
5240	Nonparametric Distribution Free Background Statistics												
5241	Data appear Approximate Gamma Distribution at 5% Significance Level												
5242													
5243	Nonparametric Upper Limits for Background Threshold Values												
5244	Order of Statistic, order					374	95% UTL with 95% Coverage					30.1	
5245	Approx, f used to compute achieved CC					1.51	Approximate Actual Confidence Coefficient achieved by UTL					0.95	
5246							Approximate Sample Size needed to achieve specified CC					361	
5247	95% Percentile Bootstrap UTL with 95% Coverage					29.56	95% BCA Bootstrap UTL with 95% Coverage					29.56	
5248	95% UPL					29.04	90% Percentile					24.92	
5249	90% Chebyshev UPL					35.49	95% Percentile					28.88	
5250	95% Chebyshev UPL					44.39	99% Percentile					34.08	
5251	95% USL					35.7							
5252													
5253	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
5254	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
5255	and consists of observations collected from clean unimpacted locations.												
5256	The use of USL tends to provide a balance between false positives and false negatives provided the data												
5257	represents a background data set and when many onsite observations need to be compared with the BTV.												
5258													
5259	VA_As												
5260													
5261	General Statistics												
5262	Total Number of Observations					198	Number of Distinct Observations					87	
5263	Minimum					0.8	First Quartile					2.2	
5264	Second Largest					38.1	Median					3.3	
5265	Maximum					51.6	Third Quartile					6.15	
5266	Mean					5.057	SD					5.602	
5267	Coefficient of Variation					1.108	Skewness					4.631	
5268	Mean of logged Data					1.305	SD of logged Data					0.743	
5269													
5270	Critical Values for Background Threshold Values (BTVs)												
5271	Tolerance Factor K (For UTL)					1.837	d2max (for USL)					3.429	
5272													
5273	Normal GOF Test												
5274	Shapiro Wilk Test Statistic					0.607	Normal GOF Test						
5275	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
5276	Lilliefors Test Statistic					0.224	Lilliefors GOF Test						
5277	1% Lilliefors Critical Value					0.0733	Data Not Normal at 1% Significance Level						
5278	Data Not Normal at 1% Significance Level												
5279													
5280	Background Statistics Assuming Normal Distribution												
5281	95% UTL with 95% Coverage					15.35	90% Percentile (z)					12.24	
5282	95% UPL (t)					14.34	95% Percentile (z)					14.27	
5283	95% USL					24.27	99% Percentile (z)					18.09	
5284													
5285	Gamma GOF Test												
5286	A-D Test Statistic					4.363	Anderson-Darling Gamma GOF Test						
5287	5% A-D Critical Value					0.769	Data Not Gamma Distributed at 5% Significance Level						
5288	K-S Test Statistic					0.111	Kolmogorov-Smirnov Gamma GOF Test						
5289	5% K-S Critical Value					0.0652	Data Not Gamma Distributed at 5% Significance Level						
5290	Data Not Gamma Distributed at 5% Significance Level												
5291													
5292	Gamma Statistics												
5293	k hat (MLE)					1.732	k star (bias corrected MLE)					1.709	
5294	Theta hat (MLE)					2.921	Theta star (bias corrected MLE)					2.96	
5295	nu hat (MLE)					685.7	nu star (bias corrected)					676.6	
5296	MLE Mean (bias corrected)					5.057	MLE Sd (bias corrected)					3.869	
5297													
5298	Background Statistics Assuming Gamma Distribution												
5299	95% Wilson Hiferty (WH) Approx. Gamma UPL					12.3	90% Percentile					10.21	
5300	95% Hawkins Wixley (HW) Approx. Gamma UPL					12.27	95% Percentile					12.62	
5301	95% WH Approx. Gamma UTL with 95% Coverage					13.58	99% Percentile					18.01	
5302	95% HW Approx. Gamma UTL with 95% Coverage					13.63							
5303	95% WH USL					28.96	95% HW USL					31.26	
5304													

	A	B	C	D	E	F	G	H	I	J	K	L
5305	Lognormal GOF Test											
5306	Shapiro Wilk Test Statistic					0.971	Shapiro Wilk Lognormal GOF Test					
5307	10% Shapiro Wilk P Value					0.0277	Data Not Lognormal at 10% Significance Level					
5308	Lilliefors Test Statistic					0.0741	Lilliefors Lognormal GOF Test					
5309	10% Lilliefors Critical Value					0.058	Data Not Lognormal at 10% Significance Level					
5310	Data Not Lognormal at 10% Significance Level											
5311												
5312	Background Statistics assuming Lognormal Distribution											
5313	95% UTL with		95% Coverage		14.43						90% Percentile (z)	9.552
5314			95% UPL (t)		12.62						95% Percentile (z)	12.51
5315			95% USL		47.07						99% Percentile (z)	20.75
5316												
5317	Nonparametric Distribution Free Background Statistics											
5318	Data do not follow a Discernible Distribution											
5319												
5320	Nonparametric Upper Limits for Background Threshold Values											
5321	Order of Statistic, order					194	95% UTL with 95% Coverage					19.1
5322	Approx, f used to compute achieved CC					1.693	Approximate Actual Confidence Coefficient achieved by UTL					0.934
5323							Approximate Sample Size needed to achieve specified CC					181
5324	95% Percentile Bootstrap UTL with		95% Coverage		17.52	95% BCA Bootstrap UTL with 95% Coverage					17.52	
5325			95% UPL		12.97	90% Percentile					9.43	
5326			90% Chebyshev UPL		21.91	95% Percentile					12.48	
5327			95% Chebyshev UPL		29.54	99% Percentile					24.71	
5328			95% USL		51.6							
5329												
5330	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
5331	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
5332	and consists of observations collected from clean unimpacted locations.											
5333	The use of USL tends to provide a balance between false positives and false negatives provided the data											
5334	represents a background data set and when many onsite observations need to be compared with the BTV.											
5335												
5336	VA_As <39											
5337												
5338	General Statistics											
5339	Total Number of Observations					197	Number of Distinct Observations					86
5340	Minimum					0.8	First Quartile					2.2
5341	Second Largest					24.3	Median					3.3
5342	Maximum					38.1	Third Quartile					6
5343	Mean					4.821	SD					4.521
5344	Coefficient of Variation					0.938	Skewness					3.392
5345	Mean of logged Data					1.292	SD of logged Data					0.72
5346												
5347	Critical Values for Background Threshold Values (BTVs)											
5348	Tolerance Factor K (For UTL)					1.837	d2max (for USL)					3.428
5349												
5350	Normal GOF Test											
5351	Shapiro Wilk Test Statistic					0.706	Normal GOF Test					
5352	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
5353	Lilliefors Test Statistic					0.191	Lilliefors GOF Test					
5354	1% Lilliefors Critical Value					0.0735	Data Not Normal at 1% Significance Level					
5355	Data Not Normal at 1% Significance Level											
5356												
5357	Background Statistics Assuming Normal Distribution											
5358	95% UTL with		95% Coverage		13.13						90% Percentile (z)	10.61
5359			95% UPL (t)		12.31						95% Percentile (z)	12.26
5360			95% USL		20.32						99% Percentile (z)	15.34
5361												
5362	Gamma GOF Test											
5363	A-D Test Statistic					3.395	Anderson-Darling Gamma GOF Test					
5364	5% A-D Critical Value					0.767	Data Not Gamma Distributed at 5% Significance Level					
5365	K-S Test Statistic					0.109	Kolmogorov-Smirnov Gamma GOF Test					
5366	5% K-S Critical Value					0.0653	Data Not Gamma Distributed at 5% Significance Level					
5367	Data Not Gamma Distributed at 5% Significance Level											
5368												
5369	Gamma Statistics											
5370	k hat (MLE)					1.928	k star (bias corrected MLE)					1.902
5371	Theta hat (MLE)					2.501	Theta star (bias corrected MLE)					2.535
5372	nu hat (MLE)					759.5	nu star (bias corrected)					749.2

	A	B	C	D	E	F	G	H	I	J	K	L
5373	MLE Mean (bias corrected)					4.821	MLE Sd (bias corrected)					3.496
5374												
5375	Background Statistics Assuming Gamma Distribution											
5376	95% Wilson Hilferty (WH) Approx. Gamma UPL					11.44	90% Percentile					9.488
5377	95% Hawkins Wixley (HW) Approx. Gamma UPL					11.49	95% Percentile					11.62
5378	95% WH Approx. Gamma UTL with 95% Coverage					12.58	99% Percentile					16.36
5379	95% HW Approx. Gamma UTL with 95% Coverage					12.72						
5380	95% WH USL					26.14	95% HW USL					28.37
5381												
5382	Lognormal GOF Test											
5383	Shapiro Wilk Test Statistic					0.975	Shapiro Wilk Lognormal GOF Test					
5384	10% Shapiro Wilk P Value					0.0911	Data Not Lognormal at 10% Significance Level					
5385	Lilliefors Test Statistic					0.0727	Lilliefors Lognormal GOF Test					
5386	10% Lilliefors Critical Value					0.0581	Data Not Lognormal at 10% Significance Level					
5387	Data Not Lognormal at 10% Significance Level											
5388												
5389	Background Statistics assuming Lognormal Distribution											
5390	95% UTL with 95% Coverage					13.66	90% Percentile (z)					9.157
5391	95% UPL (t)					12	95% Percentile (z)					11.9
5392	95% USL					42.95	99% Percentile (z)					19.43
5393												
5394	Nonparametric Distribution Free Background Statistics											
5395	Data do not follow a Discernible Distribution											
5396												
5397	Nonparametric Upper Limits for Background Threshold Values											
5398	Order of Statistic, order					193	95% UTL with 95% Coverage					18.2
5399	Approx, f used to compute achieved CC					1.684	Approximate Actual Confidence Coefficient achieved by UTL					0.932
5400							Approximate Sample Size needed to achieve specified CC					181
5401	95% Percentile Bootstrap UTL with 95% Coverage					17	95% BCA Bootstrap UTL with 95% Coverage					17
5402	95% UPL					12.45	90% Percentile					9.4
5403	90% Chebyshev UPL					18.42	95% Percentile					11.92
5404	95% Chebyshev UPL					24.58	99% Percentile					22.38
5405	95% USL					38.1						
5406												
5407	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
5408	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
5409	and consists of observations collected from clean unimpacted locations.											
5410	The use of USL tends to provide a balance between false positives and false negatives provided the data											
5411	represents a background data set and when many onsite observations need to be compared with the BTV.											
5412												
5413	VA_As <25											
5414												
5415	General Statistics											
5416	Total Number of Observations					196	Number of Distinct Observations					85
5417	Minimum					0.8	First Quartile					2.175
5418	Second Largest					22.3	Median					3.25
5419	Maximum					24.3	Third Quartile					5.85
5420	Mean					4.651	SD					3.851
5421	Coefficient of Variation					0.828	Skewness					2.305
5422	Mean of logged Data					1.28	SD of logged Data					0.702
5423												
5424	Critical Values for Background Threshold Values (BTVs)											
5425	Tolerance Factor K (For UTL)					1.838	d2max (for USL)					3.426
5426												
5427	Normal GOF Test											
5428	Shapiro Wilk Test Statistic					0.77	Normal GOF Test					
5429	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
5430	Lilliefors Test Statistic					0.174	Lilliefors GOF Test					
5431	1% Lilliefors Critical Value					0.0737	Data Not Normal at 1% Significance Level					
5432	Data Not Normal at 1% Significance Level											
5433												
5434	Background Statistics Assuming Normal Distribution											
5435	95% UTL with 95% Coverage					11.73	90% Percentile (z)					9.587
5436	95% UPL (t)					11.03	95% Percentile (z)					10.99
5437	95% USL					17.85	99% Percentile (z)					13.61
5438												
5439	Gamma GOF Test											
5440	A-D Test Statistic					2.848	Anderson-Darling Gamma GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L
5441	5% A-D Critical Value					0.766	Data Not Gamma Distributed at 5% Significance Level					
5442	K-S Test Statistic					0.107	Kolmogorov-Smirnov Gamma GOF Test					
5443	5% K-S Critical Value					0.0655	Data Not Gamma Distributed at 5% Significance Level					
5444	Data Not Gamma Distributed at 5% Significance Level											
5445												
5446	Gamma Statistics											
5447	k hat (MLE)					2.094	k star (bias corrected MLE)					2.065
5448	Theta hat (MLE)					2.221	Theta star (bias corrected MLE)					2.252
5449	nu hat (MLE)					820.8	nu star (bias corrected)					809.5
5450	MLE Mean (bias corrected)					4.651	MLE Sd (bias corrected)					3.236
5451												
5452	Background Statistics Assuming Gamma Distribution											
5453	95% Wilson Hilferty (WH) Approx. Gamma UPL					10.81	90% Percentile					8.978
5454	95% Hawkins Wixley (HW) Approx. Gamma UPL					10.91	95% Percentile					10.92
5455	95% WH Approx. Gamma UTL with 95% Coverage					11.87	99% Percentile					15.22
5456	95% HW Approx. Gamma UTL with 95% Coverage					12.05						
5457	95% WH USL					24.16	95% HW USL					26.29
5458												
5459	Lognormal GOF Test											
5460	Shapiro Wilk Test Statistic					0.972	Shapiro Wilk Lognormal GOF Test					
5461	10% Shapiro Wilk P Value					0.0414	Data Not Lognormal at 10% Significance Level					
5462	Lilliefors Test Statistic					0.0712	Lilliefors Lognormal GOF Test					
5463	10% Lilliefors Critical Value					0.0583	Data Not Lognormal at 10% Significance Level					
5464	Data Not Lognormal at 10% Significance Level											
5465												
5466	Background Statistics assuming Lognormal Distribution											
5467	95% UTL with 95% Coverage					13.06	90% Percentile (z)					8.84
5468	95% UPL (t)					11.51	95% Percentile (z)					11.41
5469	95% USL					39.84	99% Percentile (z)					18.41
5470												
5471	Nonparametric Distribution Free Background Statistics											
5472	Data do not follow a Discernible Distribution											
5473												
5474	Nonparametric Upper Limits for Background Threshold Values											
5475	Order of Statistic, order					192	95% UTL with 95% Coverage					17.4
5476	Approx, f used to compute achieved CC					1.675	Approximate Actual Confidence Coefficient achieved by UTL					0.93
5477							Approximate Sample Size needed to achieve specified CC					181
5478	95% Percentile Bootstrap UTL with 95% Coverage					14.88	95% BCA Bootstrap UTL with 95% Coverage					14.88
5479	95% UPL					11.89	90% Percentile					9.3
5480	90% Chebyshev UPL					16.23	95% Percentile					11.65
5481	95% Chebyshev UPL					21.48	99% Percentile					19.26
5482	95% USL					24.3						
5483												
5484	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
5485	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
5486	and consists of observations collected from clean unimpacted locations.											
5487	The use of USL tends to provide a balance between false positives and false negatives provided the data											
5488	represents a background data set and when many onsite observations need to be compared with the BTV.											
5489												
5490	VA_As <12											
5491												
5492	General Statistics											
5493	Total Number of Observations					187	Number of Distinct Observations					76
5494	Minimum					0.8	First Quartile					2.1
5495	Second Largest					11.6	Median					3.1
5496	Maximum					11.8	Third Quartile					5.1
5497	Mean					4.032	SD					2.539
5498	Coefficient of Variation					0.63	Skewness					1.095
5499	Mean of logged Data					1.205	SD of logged Data					0.625
5500												
5501	Critical Values for Background Threshold Values (BTVs)											
5502	Tolerance Factor K (For UTL)					1.843	d2max (for USL)					3.412
5503												
5504	Normal GOF Test											
5505	Shapiro Wilk Test Statistic					0.874	Normal GOF Test					
5506	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
5507	Lilliefors Test Statistic					0.152	Lilliefors GOF Test					
5508	1% Lilliefors Critical Value					0.0754	Data Not Normal at 1% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L
5509	Data Not Normal at 1% Significance Level											
5510												
5511	Background Statistics Assuming Normal Distribution											
5512	95% UTL with 95% Coverage		8.71		90% Percentile (z)		7.285					
5513	95% UPL (t)		8.24		95% Percentile (z)		8.208					
5514	95% USL		12.69		99% Percentile (z)		9.938					
5515												
5516	Gamma GOF Test											
5517	A-D Test Statistic		1.692		Anderson-Darling Gamma GOF Test							
5518	5% A-D Critical Value		0.761		Data Not Gamma Distributed at 5% Significance Level							
5519	K-S Test Statistic		0.0967		Kolmogorov-Smirnov Gamma GOF Test							
5520	5% K-S Critical Value		0.0675		Data Not Gamma Distributed at 5% Significance Level							
5521	Data Not Gamma Distributed at 5% Significance Level											
5522												
5523	Gamma Statistics											
5524	k hat (MLE)		2.793		k star (bias corrected MLE)		2.752					
5525	Theta hat (MLE)		1.443		Theta star (bias corrected MLE)		1.465					
5526	nu hat (MLE)		1045		nu star (bias corrected)		1029					
5527	MLE Mean (bias corrected)		4.032		MLE Sd (bias corrected)		2.43					
5528												
5529	Background Statistics Assuming Gamma Distribution											
5530	95% Wilson Hilferty (WH) Approx. Gamma UPL		8.667		90% Percentile		7.289					
5531	95% Hawkins Wixley (HW) Approx. Gamma UPL		8.797		95% Percentile		8.675					
5532	95% WH Approx. Gamma UTL with 95% Coverage		9.435		99% Percentile		11.69					
5533	95% HW Approx. Gamma UTL with 95% Coverage		9.634									
5534	95% WH USL		17.83		95% HW USL		19.34					
5535												
5536	Lognormal GOF Test											
5537	Shapiro Wilk Test Statistic		0.964		Shapiro Wilk Lognormal GOF Test							
5538	10% Shapiro Wilk P Value		0.00269		Data Not Lognormal at 10% Significance Level							
5539	Lilliefors Test Statistic		0.0593		Lilliefors Lognormal GOF Test							
5540	10% Lilliefors Critical Value		0.0597		Data appear Lognormal at 10% Significance Level							
5541	Data appear Approximate Lognormal at 10% Significance Level											
5542												
5543	Background Statistics assuming Lognormal Distribution											
5544	95% UTL with 95% Coverage		10.56		90% Percentile (z)		7.432					
5545	95% UPL (t)		9.402		95% Percentile (z)		9.328					
5546	95% USL		28.16		99% Percentile (z)		14.28					
5547												
5548	Nonparametric Distribution Free Background Statistics											
5549	Data appear Approximate Lognormal at 10% Significance Level											
5550												
5551	Nonparametric Upper Limits for Background Threshold Values											
5552	Order of Statistic, order		183		95% UTL with 95% Coverage		10.4					
5553	Approx, f used to compute achieved CC		1.596		Approximate Actual Confidence Coefficient achieved by UTL		0.91					
5554					Approximate Sample Size needed to achieve specified CC		181					
5555	95% Percentile Bootstrap UTL with 95% Coverage		9.97		95% BCA Bootstrap UTL with 95% Coverage		9.94					
5556	95% UPL		9.46		90% Percentile		7.78					
5557	90% Chebyshev UPL		11.67		95% Percentile		9.4					
5558	95% Chebyshev UPL		15.13		99% Percentile		11					
5559	95% USL		11.8									
5560												
5561	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
5562	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
5563	and consists of observations collected from clean unimpacted locations.											
5564	The use of USL tends to provide a balance between false positives and false negatives provided the data											
5565	represents a background data set and when many onsite observations need to be compared with the BTV.											
5566												
5567	VA_Pb											
5568												
5569	General Statistics											
5570	Total Number of Observations		198		Number of Distinct Observations		160					
5571	Minimum		4.8		First Quartile		14.23					
5572	Second Largest		87.3		Median		21.8					
5573	Maximum		153		Third Quartile		30.63					
5574	Mean		25.59		SD		17.55					
5575	Coefficient of Variation		0.686		Skewness		2.968					
5576	Mean of logged Data		3.073		SD of logged Data		0.567					

	A	B	C	D	E	F	G	H	I	J	K	L	
5577													
5578	Critical Values for Background Threshold Values (BTVs)												
5579	Tolerance Factor K (For UTL)					1.837						d2max (for USL)	3.429
5580													
5581	Normal GOF Test												
5582	Shapiro Wilk Test Statistic					0.782	Normal GOF Test						
5583	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
5584	Lilliefors Test Statistic					0.145	Lilliefors GOF Test						
5585	1% Lilliefors Critical Value					0.0733	Data Not Normal at 1% Significance Level						
5586	Data Not Normal at 1% Significance Level												
5587													
5588	Background Statistics Assuming Normal Distribution												
5589	95% UTL with	95% Coverage		57.81						90% Percentile (z)	48.07		
5590		95% UPL (t)		54.66						95% Percentile (z)	54.45		
5591		95% USL		85.76						99% Percentile (z)	66.4		
5592													
5593	Gamma GOF Test												
5594	A-D Test Statistic					1.698	Anderson-Darling Gamma GOF Test						
5595	5% A-D Critical Value					0.76	Data Not Gamma Distributed at 5% Significance Level						
5596	K-S Test Statistic					0.061	Kolmogorov-Smirnov Gamma GOF Test						
5597	5% K-S Critical Value					0.0646	Detected data appear Gamma Distributed at 5% Significance Level						
5598	Detected data follow Appr. Gamma Distribution at 5% Significance Level												
5599													
5600	Gamma Statistics												
5601	k hat (MLE)					3.111	k star (bias corrected MLE)					3.067	
5602	Theta hat (MLE)					8.225	Theta star (bias corrected MLE)					8.342	
5603	nu hat (MLE)					1232	nu star (bias corrected)					1215	
5604	MLE Mean (bias corrected)					25.59	MLE Sd (bias corrected)					14.61	
5605													
5606	Background Statistics Assuming Gamma Distribution												
5607	95% Wilson Hilferty (WH) Approx.	Gamma UPL		53.04						90% Percentile	45.18		
5608	95% Hawkins Wixley (HW) Approx.	Gamma UPL		53.34						95% Percentile	53.36		
5609	95% WH Approx.	Gamma UTL with	95% Coverage	57.39						99% Percentile	71.07		
5610	95% HW Approx.	Gamma UTL with	95% Coverage	57.98									
5611		95% WH USL		106.7						95% HW USL	113.5		
5612													
5613	Lognormal GOF Test												
5614	Shapiro Wilk Test Statistic					0.988	Shapiro Wilk Lognormal GOF Test						
5615	10% Shapiro Wilk P Value					0.87	Data appear Lognormal at 10% Significance Level						
5616	Lilliefors Test Statistic					0.0289	Lilliefors Lognormal GOF Test						
5617	10% Lilliefors Critical Value					0.058	Data appear Lognormal at 10% Significance Level						
5618	Data appear Lognormal at 10% Significance Level												
5619													
5620	Background Statistics assuming Lognormal Distribution												
5621	95% UTL with	95% Coverage		61.2						90% Percentile (z)	44.67		
5622		95% UPL (t)		55.26						95% Percentile (z)	54.89		
5623		95% USL		151						99% Percentile (z)	80.78		
5624													
5625	Nonparametric Distribution Free Background Statistics												
5626	Data appear Approximate Gamma Distribution at 5% Significance Level												
5627													
5628	Nonparametric Upper Limits for Background Threshold Values												
5629	Order of Statistic, order					194	95% UTL with					95% Coverage	75.3
5630	Approx, f used to compute achieved CC					1.693	Approximate Actual Confidence Coefficient achieved by UTL					0.934	
5631							Approximate Sample Size needed to achieve specified CC					181	
5632	95% Percentile Bootstrap UTL with	95% Coverage		71.76	95% BCA Bootstrap UTL with					95% Coverage	71.76		
5633		95% UPL		56.14						90% Percentile	44.53		
5634		90% Chebyshev UPL		78.36						95% Percentile	53.8		
5635		95% Chebyshev UPL		102.3						99% Percentile	84.88		
5636		95% USL		153									
5637													
5638	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
5639	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
5640	and consists of observations collected from clean unimpacted locations.												
5641	The use of USL tends to provide a balance between false positives and false negatives provided the data												
5642	represents a background data set and when many onsite observations need to be compared with the BTV.												
5643													
5644	VA Pb <88												

	A	B	C	D	E	F	G	H	I	J	K	L	
5645													
5646	General Statistics												
5647	Total Number of Observations					197	Number of Distinct Observations					159	
5648	Minimum					4.8	First Quartile					14.2	
5649	Second Largest					84.8	Median					21.5	
5650	Maximum					87.3	Third Quartile					30.4	
5651	Mean					24.94	SD					15.04	
5652	Coefficient of Variation					0.603	Skewness					1.733	
5653	Mean of logged Data					3.063	SD of logged Data					0.551	
5654													
5655	Critical Values for Background Threshold Values (BTVs)												
5656	Tolerance Factor K (For UTL)					1.837	d2max (for USL)					3.428	
5657													
5658	Normal GOF Test												
5659	Shapiro Wilk Test Statistic					0.845	Normal GOF Test						
5660	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
5661	Lilliefors Test Statistic					0.121	Lilliefors GOF Test						
5662	1% Lilliefors Critical Value					0.0735	Data Not Normal at 1% Significance Level						
5663	Data Not Normal at 1% Significance Level												
5664													
5665	Background Statistics Assuming Normal Distribution												
5666	95% UTL with	95% Coverage	52.57	90% Percentile (z)					44.21				
5667		95% UPL (t)	49.86	95% Percentile (z)					49.68				
5668		95% USL	76.49	99% Percentile (z)					59.93				
5669													
5670	Gamma GOF Test												
5671	A-D Test Statistic					1.214	Anderson-Darling Gamma GOF Test						
5672	5% A-D Critical Value					0.759	Data Not Gamma Distributed at 5% Significance Level						
5673	K-S Test Statistic					0.0578	Kolmogorov-Smirnov Gamma GOF Test						
5674	5% K-S Critical Value					0.0648	Detected data appear Gamma Distributed at 5% Significance Level						
5675	Detected data follow Appr. Gamma Distribution at 5% Significance Level												
5676													
5677	Gamma Statistics												
5678	k hat (MLE)					3.413	k star (bias corrected MLE)					3.364	
5679	Theta hat (MLE)					7.307	Theta star (bias corrected MLE)					7.412	
5680	nu hat (MLE)					1345	nu star (bias corrected)					1326	
5681	MLE Mean (bias corrected)					24.94	MLE Sd (bias corrected)					13.6	
5682													
5683	Background Statistics Assuming Gamma Distribution												
5684	95% Wilson Hilferty (WH) Approx.	Gamma UPL	50.55	90% Percentile					43.17				
5685	95% Hawkins Wixley (HW) Approx.	Gamma UPL	51.01	95% Percentile					50.67				
5686	95% WH Approx.	Gamma UTL with	95% Coverage	99% Percentile					66.82				
5687	95% HW Approx.	Gamma UTL with	95% Coverage										
5688		95% WH USL	99.39	95% HW USL					106				
5689													
5690	Lognormal GOF Test												
5691	Shapiro Wilk Test Statistic					0.982	Shapiro Wilk Lognormal GOF Test						
5692	10% Shapiro Wilk P Value					0.482	Data appear Lognormal at 10% Significance Level						
5693	Lilliefors Test Statistic					0.0279	Lilliefors Lognormal GOF Test						
5694	10% Lilliefors Critical Value					0.0581	Data appear Lognormal at 10% Significance Level						
5695	Data appear Lognormal at 10% Significance Level												
5696													
5697	Background Statistics assuming Lognormal Distribution												
5698	95% UTL with	95% Coverage	58.84	90% Percentile (z)					43.33				
5699		95% UPL (t)	53.28	95% Percentile (z)					52.93				
5700		95% USL	141.3	99% Percentile (z)					77.04				
5701													
5702	Nonparametric Distribution Free Background Statistics												
5703	Data appear Approximate Gamma Distribution at 5% Significance Level												
5704													
5705	Nonparametric Upper Limits for Background Threshold Values												
5706	Order of Statistic, order					193	95% UTL with					95% Coverage	74.4
5707	Approx, f used to compute achieved CC					1.684	Approximate Actual Confidence Coefficient achieved by UTL					0.932	
5708							Approximate Sample Size needed to achieve specified CC					181	
5709	95% Percentile Bootstrap UTL with	95% Coverage	61.86	95% BCA Bootstrap UTL with					95% Coverage	61.86			
5710		95% UPL	53.67						90% Percentile	43.84			
5711		90% Chebyshev UPL	70.17						95% Percentile	53.32			
5712		95% Chebyshev UPL	90.66						99% Percentile	81.82			

	A	B	C	D	E	F	G	H	I	J	K	L	
5713	95% USL					87.3							
5714													
5715	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
5716	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
5717	and consists of observations collected from clean unimpacted locations.												
5718	The use of USL tends to provide a balance between false positives and false negatives provided the data												
5719	represents a background data set and when many onsite observations need to be compared with the BTV.												
5720													
5721	VA_Pb <60												
5722													
5723	General Statistics												
5724	Total Number of Observations					191	Number of Distinct Observations					153	
5725	Minimum					4.8	First Quartile					13.95	
5726	Second Largest					56.8	Median					20.7	
5727	Maximum					59.5	Third Quartile					29.45	
5728	Mean					23.24	SD					11.69	
5729	Coefficient of Variation					0.503	Skewness					0.963	
5730	Mean of logged Data					3.022	SD of logged Data					0.507	
5731													
5732	Critical Values for Background Threshold Values (BTVs)												
5733	Tolerance Factor K (For UTL)					1.841	d2max (for USL)					3.418	
5734													
5735	Normal GOF Test												
5736	Shapiro Wilk Test Statistic					0.914	Normal GOF Test						
5737	1% Shapiro Wilk P Value					1.110E-16	Data Not Normal at 1% Significance Level						
5738	Lilliefors Test Statistic					0.0973	Lilliefors GOF Test						
5739	1% Lilliefors Critical Value					0.0746	Data Not Normal at 1% Significance Level						
5740	Data Not Normal at 1% Significance Level												
5741													
5742	Background Statistics Assuming Normal Distribution												
5743	95% UTL with		95% Coverage		44.75	90% Percentile (z)					38.21		
5744			95% UPL (t)		42.6	95% Percentile (z)					42.46		
5745			95% USL		63.19	99% Percentile (z)					50.42		
5746													
5747	Gamma GOF Test												
5748	A-D Test Statistic					0.52	Anderson-Darling Gamma GOF Test						
5749	5% A-D Critical Value					0.756	Detected data appear Gamma Distributed at 5% Significance Level						
5750	K-S Test Statistic					0.0475	Kolmogorov-Smirnov Gamma GOF Test						
5751	5% K-S Critical Value					0.0662	Detected data appear Gamma Distributed at 5% Significance Level						
5752	Detected data appear Gamma Distributed at 5% Significance Level												
5753													
5754	Gamma Statistics												
5755	k hat (MLE)					4.195	k star (bias corrected MLE)					4.133	
5756	Theta hat (MLE)					5.539	Theta star (bias corrected MLE)					5.623	
5757	nu hat (MLE)					1603	nu star (bias corrected)					1579	
5758	MLE Mean (bias corrected)					23.24	MLE Sd (bias corrected)					11.43	
5759													
5760	Background Statistics Assuming Gamma Distribution												
5761	95% Wilson Hilferty (WH) Approx. Gamma UPL					44.69	90% Percentile					38.56	
5762	95% Hawkins Wixley (HW) Approx. Gamma UPL					45.23	95% Percentile					44.66	
5763	95% WH Approx. Gamma UTL with 95% Coverage					47.99	99% Percentile					57.67	
5764	95% HW Approx. Gamma UTL with 95% Coverage					48.79							
5765	95% WH USL					83.37	95% HW USL					88.74	
5766													
5767	Lognormal GOF Test												
5768	Shapiro Wilk Test Statistic					0.977	Shapiro Wilk Lognormal GOF Test						
5769	10% Shapiro Wilk P Value					0.167	Data appear Lognormal at 10% Significance Level						
5770	Lilliefors Test Statistic					0.0395	Lilliefors Lognormal GOF Test						
5771	10% Lilliefors Critical Value					0.059	Data appear Lognormal at 10% Significance Level						
5772	Data appear Lognormal at 10% Significance Level												
5773													
5774	Background Statistics assuming Lognormal Distribution												
5775	95% UTL with		95% Coverage		52.22	90% Percentile (z)					39.33		
5776			95% UPL (t)		47.58	95% Percentile (z)					47.29		
5777			95% USL		116.3	99% Percentile (z)					66.81		
5778													
5779	Nonparametric Distribution Free Background Statistics												
5780	Data appear Gamma Distributed at 5% Significance Level												

	A	B	C	D	E	F	G	H	I	J	K	L		
5781														
5782	Nonparametric Upper Limits for Background Threshold Values													
5783	Order of Statistic, order					187	95% UTL with 95% Coverage					53.3		
5784	Approx, f used to compute achieved CC					1.632	Approximate Actual Confidence Coefficient achieved by UTL					0.919		
5785							Approximate Sample Size needed to achieve specified CC					181		
5786	95% Percentile Bootstrap UTL with 95% Coverage					52.1	95% BCA Bootstrap UTL with 95% Coverage					52		
5787						95% UPL	48.58						90% Percentile	39.6
5788						90% Chebyshev UPL	58.39						95% Percentile	47.6
5789						95% Chebyshev UPL	74.31						99% Percentile	56.17
5790						95% USL	59.5							
5791														
5792	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.													
5793	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers													
5794	and consists of observations collected from clean unimpacted locations.													
5795	The use of USL tends to provide a balance between false positives and false negatives provided the data													
5796	represents a background data set and when many onsite observations need to be compared with the BTV.													
5797														
5798	VA_Pb <42													
5799														
5800	General Statistics													
5801	Total Number of Observations					175	Number of Distinct Observations					138		
5802	Minimum					4.8	First Quartile					13.5		
5803	Second Largest					40.9	Median					19.3		
5804	Maximum					41.2	Third Quartile					26.8		
5805	Mean					20.78	SD					8.629		
5806	Coefficient of Variation					0.415	Skewness					0.41		
5807	Mean of logged Data					2.941	SD of logged Data					0.448		
5808														
5809	Critical Values for Background Threshold Values (BTVs)													
5810	Tolerance Factor K (For UTL)					1.85	d2max (for USL)					3.391		
5811														
5812	Normal GOF Test													
5813	Shapiro Wilk Test Statistic					0.948	Normal GOF Test							
5814	1% Shapiro Wilk P Value					4.1677E-6	Data Not Normal at 1% Significance Level							
5815	Lilliefors Test Statistic					0.0788	Lilliefors GOF Test							
5816	1% Lilliefors Critical Value					0.0779	Data Not Normal at 1% Significance Level							
5817	Data Not Normal at 1% Significance Level													
5818														
5819	Background Statistics Assuming Normal Distribution													
5820	95% UTL with 95% Coverage					36.74	90% Percentile (z)					31.84		
5821						95% UPL (t)	35.09	95% Percentile (z)					34.97	
5822						95% USL	50.04	99% Percentile (z)					40.85	
5823														
5824	Gamma GOF Test													
5825	A-D Test Statistic					0.639	Anderson-Darling Gamma GOF Test							
5826	5% A-D Critical Value					0.755	Detected data appear Gamma Distributed at 5% Significance Level							
5827	K-S Test Statistic					0.0484	Kolmogorov-Smirnov Gamma GOF Test							
5828	5% K-S Critical Value					0.0702	Detected data appear Gamma Distributed at 5% Significance Level							
5829	Detected data appear Gamma Distributed at 5% Significance Level													
5830														
5831	Gamma Statistics													
5832	k hat (MLE)					5.521	k star (bias corrected MLE)					5.43		
5833	Theta hat (MLE)					3.764	Theta star (bias corrected MLE)					3.827		
5834	nu hat (MLE)					1932	nu star (bias corrected)					1901		
5835	MLE Mean (bias corrected)					20.78	MLE Sd (bias corrected)					8.917		
5836														
5837	Background Statistics Assuming Gamma Distribution													
5838	95% Wilson Hilferty (WH) Approx. Gamma UPL					37.36	90% Percentile					32.71		
5839	95% Hawkins Wixley (HW) Approx. Gamma UPL					37.85	95% Percentile					37.28		
5840	95% WH Approx. Gamma UTL with 95% Coverage					39.93	99% Percentile					46.91		
5841	95% HW Approx. Gamma UTL with 95% Coverage					40.61								
5842						95% WH USL	65.01	95% HW USL					68.71	
5843														
5844	Lognormal GOF Test													
5845	Shapiro Wilk Test Statistic					0.961	Shapiro Wilk Lognormal GOF Test							
5846	10% Shapiro Wilk P Value					0.00119	Data Not Lognormal at 10% Significance Level							
5847	Lilliefors Test Statistic					0.0694	Lilliefors Lognormal GOF Test							
5848	10% Lilliefors Critical Value					0.0617	Data Not Lognormal at 10% Significance Level							

	A	B	C	D	E	F	G	H	I	J	K	L	
5849	Data Not Lognormal at 10% Significance Level												
5850													
5851	Background Statistics assuming Lognormal Distribution												
5852	95% UTL with		95% Coverage		43.38				90% Percentile (z)		33.62		
5853			95% UPL (t)		39.81				95% Percentile (z)		39.57		
5854			95% USL		86.59				99% Percentile (z)		53.72		
5855													
5856	Nonparametric Distribution Free Background Statistics												
5857	Data appear Gamma Distributed at 5% Significance Level												
5858													
5859	Nonparametric Upper Limits for Background Threshold Values												
5860	Order of Statistic, order				172		95% UTL with				95% Coverage		39.6
5861	Approx, f used to compute achieved CC				1.8		Approximate Actual Confidence Coefficient achieved by UTL				0.941		
5862							Approximate Sample Size needed to achieve specified CC				153		
5863	95% Percentile Bootstrap UTL with		95% Coverage		38.1		95% BCA Bootstrap UTL with		95% Coverage		38.16		
5864			95% UPL		36.38				90% Percentile		33.22		
5865			90% Chebyshev UPL		46.74				95% Percentile		36.09		
5866			95% Chebyshev UPL		58.5				99% Percentile		40.68		
5867			95% USL		41.2								
5868													
5869	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
5870	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
5871	and consists of observations collected from clean unimpacted locations.												
5872	The use of USL tends to provide a balance between false positives and false negatives provided the data												
5873	represents a background data set and when many onsite observations need to be compared with the BTV.												
5874													
5875	VT_As												
5876													
5877	General Statistics												
5878	Total Number of Observations				45		Number of Distinct Observations				36		
5879	Minimum				0.6		First Quartile				2.1		
5880	Second Largest				26.2		Median				3.7		
5881	Maximum				29		Third Quartile				7.7		
5882	Mean				5.636		SD				6.106		
5883	Coefficient of Variation				1.083		Skewness				2.381		
5884	Mean of logged Data				1.29		SD of logged Data				0.946		
5885													
5886	Critical Values for Background Threshold Values (BTVs)												
5887	Tolerance Factor K (For UTL)				2.085		d2max (for USL)				2.915		
5888													
5889	Normal GOF Test												
5890	Shapiro Wilk Test Statistic				0.721		Shapiro Wilk GOF Test						
5891	1% Shapiro Wilk Critical Value				0.926		Data Not Normal at 1% Significance Level						
5892	Lilliefors Test Statistic				0.228		Lilliefors GOF Test						
5893	1% Lilliefors Critical Value				0.153		Data Not Normal at 1% Significance Level						
5894	Data Not Normal at 1% Significance Level												
5895													
5896	Background Statistics Assuming Normal Distribution												
5897	95% UTL with		95% Coverage		18.37				90% Percentile (z)		13.46		
5898			95% UPL (t)		16.01				95% Percentile (z)		15.68		
5899			95% USL		23.44				99% Percentile (z)		19.84		
5900													
5901	Gamma GOF Test												
5902	A-D Test Statistic				0.753		Anderson-Darling Gamma GOF Test						
5903	5% A-D Critical Value				0.772		Detected data appear Gamma Distributed at 5% Significance Level						
5904	K-S Test Statistic				0.126		Kolmogorov-Smirnov Gamma GOF Test						
5905	5% K-S Critical Value				0.135		Detected data appear Gamma Distributed at 5% Significance Level						
5906	Detected data appear Gamma Distributed at 5% Significance Level												
5907													
5908	Gamma Statistics												
5909	k hat (MLE)				1.281		k star (bias corrected MLE)				1.21		
5910	Theta hat (MLE)				4.4		Theta star (bias corrected MLE)				4.657		
5911	nu hat (MLE)				115.3		nu star (bias corrected)				108.9		
5912	MLE Mean (bias corrected)				5.636		MLE Sd (bias corrected)				5.123		
5913													
5914	Background Statistics Assuming Gamma Distribution												
5915	95% Wilson Hilferty (WH) Approx. Gamma UPL				15.74		90% Percentile				12.38		
5916	95% Hawkins Wixley (HW) Approx. Gamma UPL				16.04		95% Percentile				15.79		

	A	B	C	D	E	F	G	H	I	J	K	L
5917		95% WH Approx.	Gamma UTL with	95% Coverage	19.87						99% Percentile	23.61
5918		95% HW Approx.	Gamma UTL with	95% Coverage	20.72							
5919				95% WH USL	31.09						95% HW USL	34.17
5920												
5921							Lognormal GOF Test					
5922				Shapiro Wilk Test Statistic	0.978		Shapiro Wilk Lognormal GOF Test					
5923				10% Shapiro Wilk Critical Value	0.953		Data appear Lognormal at 10% Significance Level					
5924				Lilliefors Test Statistic	0.0595		Lilliefors Lognormal GOF Test					
5925				10% Lilliefors Critical Value	0.12		Data appear Lognormal at 10% Significance Level					
5926							Data appear Lognormal at 10% Significance Level					
5927												
5928							Background Statistics assuming Lognormal Distribution					
5929				95% UTL with	95% Coverage	26.11					90% Percentile (z)	12.21
5930					95% UPL (t)	18.12					95% Percentile (z)	17.22
5931					95% USL	57.26					99% Percentile (z)	32.8
5932												
5933							Nonparametric Distribution Free Background Statistics					
5934							Data appear Gamma Distributed at 5% Significance Level					
5935												
5936							Nonparametric Upper Limits for Background Threshold Values					
5937				Order of Statistic, order	45					95% UTL with	95% Coverage	29
5938				Approx, f used to compute achieved CC	2.368		Approximate Actual Confidence Coefficient achieved by UTL					0.901
5939							Approximate Sample Size needed to achieve specified CC					59
5940				95% Percentile Bootstrap UTL with	95% Coverage	28.44				95% BCA Bootstrap UTL with	95% Coverage	26.46
5941					95% UPL	23.23					90% Percentile	13.14
5942					90% Chebyshev UPL	24.16					95% Percentile	15.76
5943					95% Chebyshev UPL	32.55					99% Percentile	27.77
5944					95% USL	29						
5945												
5946							Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.					
5947							Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers					
5948							and consists of observations collected from clean unimpacted locations.					
5949							The use of USL tends to provide a balance between false positives and false negatives provided the data					
5950							represents a background data set and when many onsite observations need to be compared with the BTV.					
5951												
5952							VT_As <17					
5953												
5954							General Statistics					
5955				Total Number of Observations	43					Number of Distinct Observations		34
5956				Minimum	0.6					First Quartile		2
5957				Second Largest	13.6					Median		3.6
5958				Maximum	16.3					Third Quartile		6.05
5959				Mean	4.614					SD		3.863
5960				Coefficient of Variation	0.837					Skewness		1.432
5961				Mean of logged Data	1.196					SD of logged Data		0.856
5962												
5963							Critical Values for Background Threshold Values (BTVs)					
5964				Tolerance Factor K (For UTL)	2.097					d2max (for USL)		2.897
5965												
5966							Normal GOF Test					
5967				Shapiro Wilk Test Statistic	0.838		Shapiro Wilk GOF Test					
5968				1% Shapiro Wilk Critical Value	0.923		Data Not Normal at 1% Significance Level					
5969				Lilliefors Test Statistic	0.189		Lilliefors GOF Test					
5970				1% Lilliefors Critical Value	0.156		Data Not Normal at 1% Significance Level					
5971							Data Not Normal at 1% Significance Level					
5972												
5973							Background Statistics Assuming Normal Distribution					
5974				95% UTL with	95% Coverage	12.72					90% Percentile (z)	9.565
5975					95% UPL (t)	11.19					95% Percentile (z)	10.97
5976					95% USL	15.81					99% Percentile (z)	13.6
5977												
5978							Gamma GOF Test					
5979				A-D Test Statistic	0.394		Anderson-Darling Gamma GOF Test					
5980				5% A-D Critical Value	0.765		Detected data appear Gamma Distributed at 5% Significance Level					
5981				K-S Test Statistic	0.0949		Kolmogorov-Smirnov Gamma GOF Test					
5982				5% K-S Critical Value	0.137		Detected data appear Gamma Distributed at 5% Significance Level					
5983							Detected data appear Gamma Distributed at 5% Significance Level					
5984												

	A	B	C	D	E	F	G	H	I	J	K	L
5985	Gamma Statistics											
5986	k hat (MLE)					1.649	k star (bias corrected MLE)					1.549
5987	Theta hat (MLE)					2.798	Theta star (bias corrected MLE)					2.978
5988	nu hat (MLE)					141.8	nu star (bias corrected)					133.2
5989	MLE Mean (bias corrected)					4.614	MLE Sd (bias corrected)					3.707
5990												
5991	Background Statistics Assuming Gamma Distribution											
5992	95% Wilson Hilferty (WH) Approx. Gamma UPL					12.01	90% Percentile					9.539
5993	95% Hawkins Wixley (HW) Approx. Gamma UPL					12.35	95% Percentile					11.89
5994	95% WH Approx. Gamma UTL with 95% Coverage					14.94	99% Percentile					17.19
5995	95% HW Approx. Gamma UTL with 95% Coverage					15.68						
5996	95% WH USL					22.22	95% HW USL					24.42
5997												
5998	Lognormal GOF Test											
5999	Shapiro Wilk Test Statistic					0.972	Shapiro Wilk Lognormal GOF Test					
6000	10% Shapiro Wilk Critical Value					0.951	Data appear Lognormal at 10% Significance Level					
6001	Lilliefors Test Statistic					0.0709	Lilliefors Lognormal GOF Test					
6002	10% Lilliefors Critical Value					0.123	Data appear Lognormal at 10% Significance Level					
6003	Data appear Lognormal at 10% Significance Level											
6004												
6005	Background Statistics assuming Lognormal Distribution											
6006	95% UTL with 95% Coverage					19.9	90% Percentile (z)					9.903
6007	95% UPL (t)					14.18	95% Percentile (z)					13.51
6008	95% USL					39.46	99% Percentile (z)					24.21
6009												
6010	Nonparametric Distribution Free Background Statistics											
6011	Data appear Gamma Distributed at 5% Significance Level											
6012												
6013	Nonparametric Upper Limits for Background Threshold Values											
6014	Order of Statistic, order					43	95% UTL with 95% Coverage					16.3
6015	Approx, f used to compute achieved CC					2.263	Approximate Actual Confidence Coefficient achieved by UTL					0.89
6016							Approximate Sample Size needed to achieve specified CC					59
6017	95% Percentile Bootstrap UTL with 95% Coverage					16.03	95% BCA Bootstrap UTL with 95% Coverage					16.03
6018	95% UPL					13.54	90% Percentile					9.1
6019	90% Chebyshev UPL					16.34	95% Percentile					13.26
6020	95% Chebyshev UPL					21.65	99% Percentile					15.17
6021	95% USL					16.3						
6022												
6023	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
6024	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
6025	and consists of observations collected from clean unimpacted locations.											
6026	The use of USL tends to provide a balance between false positives and false negatives provided the data											
6027	represents a background data set and when many onsite observations need to be compared with the BTV.											
6028												
6029	VT_As <14											
6030												
6031	General Statistics											
6032	Total Number of Observations					42	Number of Distinct Observations					33
6033	Minimum					0.6	First Quartile					1.95
6034	Second Largest					13.3	Median					3.4
6035	Maximum					13.6	Third Quartile					5.45
6036	Mean					4.336	SD					3.446
6037	Coefficient of Variation					0.795	Skewness					1.325
6038	Mean of logged Data					1.158	SD of logged Data					0.829
6039												
6040	Critical Values for Background Threshold Values (BTVs)											
6041	Tolerance Factor K (For UTL)					2.104	d2max (for USL)					2.887
6042												
6043	Normal GOF Test											
6044	Shapiro Wilk Test Statistic					0.813	Shapiro Wilk GOF Test					
6045	1% Shapiro Wilk Critical Value					0.922	Data Not Normal at 1% Significance Level					
6046	Lilliefors Test Statistic					0.181	Lilliefors GOF Test					
6047	1% Lilliefors Critical Value					0.157	Data Not Normal at 1% Significance Level					
6048	Data Not Normal at 1% Significance Level											
6049												
6050	Background Statistics Assuming Normal Distribution											
6051	95% UTL with 95% Coverage					11.59	90% Percentile (z)					8.753
6052	95% UPL (t)					10.2	95% Percentile (z)					10

	A	B	C	D	E	F	G	H	I	J	K	L
6053	95% USL					14.29	99% Percentile (z)					12.35
6054												
6055	Gamma GOF Test											
6056	A-D Test Statistic					0.335	Anderson-Darling Gamma GOF Test					
6057	5% A-D Critical Value					0.763	Detected data appear Gamma Distributed at 5% Significance Level					
6058	K-S Test Statistic					0.0856	Kolmogorov-Smirnov Gamma GOF Test					
6059	5% K-S Critical Value					0.138	Detected data appear Gamma Distributed at 5% Significance Level					
6060	Detected data appear Gamma Distributed at 5% Significance Level											
6061												
6062	Gamma Statistics											
6063	k hat (MLE)					1.768	k star (bias corrected MLE)					1.658
6064	Theta hat (MLE)					2.452	Theta star (bias corrected MLE)					2.616
6065	nu hat (MLE)					148.5	nu star (bias corrected)					139.2
6066	MLE Mean (bias corrected)					4.336	MLE Sd (bias corrected)					3.368
6067												
6068	Background Statistics Assuming Gamma Distribution											
6069	95% Wilson Hilferty (WH) Approx. Gamma UPL					11.06	90% Percentile					8.818
6070	95% Hawkins Wixley (HW) Approx. Gamma UPL					11.37	95% Percentile					10.93
6071	95% WH Approx. Gamma UTL with 95% Coverage					13.71	99% Percentile					15.66
6072	95% HW Approx. Gamma UTL with 95% Coverage					14.39						
6073	95% WH USL					20.05	95% HW USL					21.99
6074												
6075	Lognormal GOF Test											
6076	Shapiro Wilk Test Statistic					0.924	Shapiro Wilk Lognormal GOF Test					
6077	10% Shapiro Wilk Critical Value					0.951	Data Not Lognormal at 10% Significance Level					
6078	Lilliefors Test Statistic					0.071	Lilliefors Lognormal GOF Test					
6079	10% Lilliefors Critical Value					0.124	Data appear Lognormal at 10% Significance Level					
6080	Data appear Approximate Lognormal at 10% Significance Level											
6081												
6082	Background Statistics assuming Lognormal Distribution											
6083	95% UTL with 95% Coverage					18.2	90% Percentile (z)					9.209
6084	95% UPL (t)					13.06	95% Percentile (z)					12.44
6085	95% USL					34.84	99% Percentile (z)					21.89
6086												
6087	Nonparametric Distribution Free Background Statistics											
6088	Data appear Gamma Distributed at 5% Significance Level											
6089												
6090	Nonparametric Upper Limits for Background Threshold Values											
6091	Order of Statistic, order					42	95% UTL with 95% Coverage					13.6
6092	Approx, f used to compute achieved CC					2.211	Approximate Actual Confidence Coefficient achieved by UTL					0.884
6093							Approximate Sample Size needed to achieve specified CC					59
6094	95% Percentile Bootstrap UTL with 95% Coverage					13.57	95% BCA Bootstrap UTL with 95% Coverage					13.59
6095	95% UPL					13.24	90% Percentile					8.65
6096	90% Chebyshev UPL					14.8	95% Percentile					12.72
6097	95% Chebyshev UPL					19.54	99% Percentile					13.48
6098	95% USL					13.6						
6099												
6100	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
6101	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
6102	and consists of observations collected from clean unimpacted locations.											
6103	The use of USL tends to provide a balance between false positives and false negatives provided the data											
6104	represents a background data set and when many onsite observations need to be compared with the BTV.											
6105												
6106	VT_As <10											
6107												
6108	General Statistics											
6109	Total Number of Observations					39	Number of Distinct Observations					30
6110	Minimum					0.6	First Quartile					1.85
6111	Second Largest					8.7	Median					2.9
6112	Maximum					9.2	Third Quartile					4.7
6113	Mean					3.649	SD					2.455
6114	Coefficient of Variation					0.673	Skewness					0.862
6115	Mean of logged Data					1.048	SD of logged Data					0.753
6116												
6117	Critical Values for Background Threshold Values (BTVs)											
6118	Tolerance Factor K (For UTL)					2.124	d2max (for USL)					2.857
6119												
6120	Normal GOF Test											

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	A	B	C	D	E	F	G	H	I	J	K	L
6121	Shapiro Wilk Test Statistic					0.895	Shapiro Wilk GOF Test					
6122	1% Shapiro Wilk Critical Value					0.917	Data Not Normal at 1% Significance Level					
6123	Lilliefors Test Statistic					0.142	Lilliefors GOF Test					
6124	1% Lilliefors Critical Value					0.163	Data appear Normal at 1% Significance Level					
6125	Data appear Approximate Normal at 1% Significance Level											
6126												
6127	Background Statistics Assuming Normal Distribution											
6128	95% UTL with		95% Coverage		8.865	90% Percentile (z)					6.795	
6129			95% UPL (t)		7.841	95% Percentile (z)					7.687	
6130			95% USL		10.66	99% Percentile (z)					9.36	
6131												
6132	Gamma GOF Test											
6133	A-D Test Statistic					0.264	Anderson-Darling Gamma GOF Test					
6134	5% A-D Critical Value					0.758	Detected data appear Gamma Distributed at 5% Significance Level					
6135	K-S Test Statistic					0.0834	Kolmogorov-Smirnov Gamma GOF Test					
6136	5% K-S Critical Value					0.143	Detected data appear Gamma Distributed at 5% Significance Level					
6137	Detected data appear Gamma Distributed at 5% Significance Level											
6138												
6139	Gamma Statistics											
6140	k hat (MLE)					2.185	k star (bias corrected MLE)					2.034
6141	Theta hat (MLE)					1.67	Theta star (bias corrected MLE)					1.794
6142	nu hat (MLE)					170.4	nu star (bias corrected)					158.7
6143	MLE Mean (bias corrected)					3.649	MLE Sd (bias corrected)					2.558
6144												
6145	Background Statistics Assuming Gamma Distribution											
6146	95% Wilson Hilferty (WH) Approx. Gamma UPL					8.749	90% Percentile					7.068
6147	95% Hawkins Wixley (HW) Approx. Gamma UPL					9.014	95% Percentile					8.608
6148	95% WH Approx. Gamma UTL with		95% Coverage		10.75	99% Percentile					12.02	
6149	95% HW Approx. Gamma UTL with		95% Coverage		11.29							
6150			95% WH USL		14.96	95% HW USL					16.31	
6151												
6152	Lognormal GOF Test											
6153	Shapiro Wilk Test Statistic					0.953	Shapiro Wilk Lognormal GOF Test					
6154	10% Shapiro Wilk Critical Value					0.948	Data appear Lognormal at 10% Significance Level					
6155	Lilliefors Test Statistic					0.0827	Lilliefors Lognormal GOF Test					
6156	10% Lilliefors Critical Value					0.129	Data appear Lognormal at 10% Significance Level					
6157	Data appear Lognormal at 10% Significance Level											
6158												
6159	Background Statistics assuming Lognormal Distribution											
6160	95% UTL with		95% Coverage		14.14	90% Percentile (z)					7.494	
6161			95% UPL (t)		10.33	95% Percentile (z)					9.853	
6162			95% USL		24.56	99% Percentile (z)					16.47	
6163												
6164	Nonparametric Distribution Free Background Statistics											
6165	Data appear Approximate Normal at 1% Significance Level											
6166												
6167	Nonparametric Upper Limits for Background Threshold Values											
6168	Order of Statistic, order					39	95% UTL with 95% Coverage					9.2
6169	Approx, f used to compute achieved CC					2.053	Approximate Actual Confidence Coefficient achieved by UTL					0.865
6170							Approximate Sample Size needed to achieve specified CC					59
6171	95% Percentile Bootstrap UTL with		95% Coverage		9.2	95% BCA Bootstrap UTL with 95% Coverage					9.2	
6172			95% UPL		8.7	90% Percentile					7.78	
6173			90% Chebyshev UPL		11.11	95% Percentile					8.25	
6174			95% Chebyshev UPL		14.49	99% Percentile					9.01	
6175			95% USL		9.2							
6176												
6177	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
6178	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
6179	and consists of observations collected from clean unimpacted locations.											
6180	The use of USL tends to provide a balance between false positives and false negatives provided the data											
6181	represents a background data set and when many onsite observations need to be compared with the BTV.											
6182												
6183	VT_Pb											
6184												
6185	General Statistics											
6186	Total Number of Observations					45	Number of Distinct Observations					42
6187	Minimum					10.5	First Quartile					15.9
6188	Second Largest					64	Median					25.4

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	A	B	C	D	E	F	G	H	I	J	K	L
6189					Maximum	68.6					Third Quartile	34.5
6190					Mean	28.25					SD	14.68
6191					Coefficient of Variation	0.52					Skewness	1.063
6192					Mean of logged Data	3.216					SD of logged Data	0.507
6193												
6194					Critical Values for Background Threshold Values (BTVs)							
6195					Tolerance Factor K (For UTL)	2.085					d2max (for USL)	2.915
6196												
6197					Normal GOF Test							
6198					Shapiro Wilk Test Statistic	0.897					Shapiro Wilk GOF Test	
6199					1% Shapiro Wilk Critical Value	0.926					Data Not Normal at 1% Significance Level	
6200					Lilliefors Test Statistic	0.13					Lilliefors GOF Test	
6201					1% Lilliefors Critical Value	0.153					Data appear Normal at 1% Significance Level	
6202					Data appear Approximate Normal at 1% Significance Level							
6203												
6204					Background Statistics Assuming Normal Distribution							
6205					95% UTL with 95% Coverage	58.86					90% Percentile (z)	47.07
6206					95% UPL (t)	53.19					95% Percentile (z)	52.4
6207					95% USL	71.05					99% Percentile (z)	62.4
6208												
6209					Gamma GOF Test							
6210					A-D Test Statistic	0.435					Anderson-Darling Gamma GOF Test	
6211					5% A-D Critical Value	0.753					Detected data appear Gamma Distributed at 5% Significance Level	
6212					K-S Test Statistic	0.0944					Kolmogorov-Smirnov Gamma GOF Test	
6213					5% K-S Critical Value	0.132					Detected data appear Gamma Distributed at 5% Significance Level	
6214					Detected data appear Gamma Distributed at 5% Significance Level							
6215												
6216					Gamma Statistics							
6217					k hat (MLE)	4.148					k star (bias corrected MLE)	3.887
6218					Theta hat (MLE)	6.81					Theta star (bias corrected MLE)	7.269
6219					nu hat (MLE)	373.4					nu star (bias corrected)	349.8
6220					MLE Mean (bias corrected)	28.25					MLE Sd (bias corrected)	14.33
6221												
6222					Background Statistics Assuming Gamma Distribution							
6223					95% Wilson Hilferty (WH) Approx. Gamma UPL	55.7					90% Percentile	47.46
6224					95% Hawkins Wixley (HW) Approx. Gamma UPL	56.34					95% Percentile	55.18
6225					95% WH Approx. Gamma UTL with 95% Coverage	64.67					99% Percentile	71.7
6226					95% HW Approx. Gamma UTL with 95% Coverage	66.03						
6227					95% WH USL	87.1					95% HW USL	91.04
6228												
6229					Lognormal GOF Test							
6230					Shapiro Wilk Test Statistic	0.959					Shapiro Wilk Lognormal GOF Test	
6231					10% Shapiro Wilk Critical Value	0.953					Data appear Lognormal at 10% Significance Level	
6232					Lilliefors Test Statistic	0.0857					Lilliefors Lognormal GOF Test	
6233					10% Lilliefors Critical Value	0.12					Data appear Lognormal at 10% Significance Level	
6234					Data appear Lognormal at 10% Significance Level							
6235												
6236					Background Statistics assuming Lognormal Distribution							
6237					95% UTL with 95% Coverage	71.77					90% Percentile (z)	47.74
6238					95% UPL (t)	59					95% Percentile (z)	57.41
6239					95% USL	109.4					99% Percentile (z)	81.11
6240												
6241					Nonparametric Distribution Free Background Statistics							
6242					Data appear Approximate Normal at 1% Significance Level							
6243												
6244					Nonparametric Upper Limits for Background Threshold Values							
6245					Order of Statistic, order	45					95% UTL with 95% Coverage	68.6
6246					Approx, f used to compute achieved CC	2.368					Approximate Actual Confidence Coefficient achieved by UTL	0.901
6247											Approximate Sample Size needed to achieve specified CC	59
6248					95% Percentile Bootstrap UTL with 95% Coverage	67.68					95% BCA Bootstrap UTL with 95% Coverage	67.68
6249					95% UPL	63.55					90% Percentile	47.1
6250					90% Chebyshev UPL	72.78					95% Percentile	60.64
6251					95% Chebyshev UPL	92.95					99% Percentile	66.58
6252					95% USL	68.6						
6253												
6254					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
6255					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
6256					and consists of observations collected from clean unimpacted locations.							

	A	B	C	D	E	F	G	H	I	J	K	L
6257	The use of USL tends to provide a balance between false positives and false negatives provided the data											
6258	represents a background data set and when many onsite observations need to be compared with the BTV.											
6259												
6260	VT_Pb <63											
6261												
6262	General Statistics											
6263	Total Number of Observations					43	Number of Distinct Observations					40
6264	Minimum					10.5	First Quartile					15.6
6265	Second Largest					53.2	Median					25.3
6266	Maximum					62.5	Third Quartile					32.35
6267	Mean					26.48	SD					12.39
6268	Coefficient of Variation					0.468	Skewness					0.848
6269	Mean of logged Data					3.17	SD of logged Data					0.471
6270												
6271	Critical Values for Background Threshold Values (BTVs)											
6272	Tolerance Factor K (For UTL)					2.097	d2max (for USL)					2.897
6273												
6274	Normal GOF Test											
6275	Shapiro Wilk Test Statistic					0.931	Shapiro Wilk GOF Test					
6276	1% Shapiro Wilk Critical Value					0.923	Data appear Normal at 1% Significance Level					
6277	Lilliefors Test Statistic					0.113	Lilliefors GOF Test					
6278	1% Lilliefors Critical Value					0.156	Data appear Normal at 1% Significance Level					
6279	Data appear Normal at 1% Significance Level											
6280												
6281	Background Statistics Assuming Normal Distribution											
6282	95% UTL with		95% Coverage		52.45	90% Percentile (z)					42.35	
6283			95% UPL (t)		47.55	95% Percentile (z)					46.85	
6284			95% USL		62.36	99% Percentile (z)					55.29	
6285												
6286	Gamma GOF Test											
6287	A-D Test Statistic					0.408	Anderson-Darling Gamma GOF Test					
6288	5% A-D Critical Value					0.753	Detected data appear Gamma Distributed at 5% Significance Level					
6289	K-S Test Statistic					0.1	Kolmogorov-Smirnov Gamma GOF Test					
6290	5% K-S Critical Value					0.135	Detected data appear Gamma Distributed at 5% Significance Level					
6291	Detected data appear Gamma Distributed at 5% Significance Level											
6292												
6293	Gamma Statistics											
6294	k hat (MLE)					4.872	k star (bias corrected MLE)					4.547
6295	Theta hat (MLE)					5.436	Theta star (bias corrected MLE)					5.824
6296	nu hat (MLE)					419	nu star (bias corrected)					391.1
6297	MLE Mean (bias corrected)					26.48	MLE Sd (bias corrected)					12.42
6298												
6299	Background Statistics Assuming Gamma Distribution											
6300	95% Wilson Hilferty (WH) Approx. Gamma UPL					50.14	90% Percentile					43.12
6301	95% Hawkins Wixley (HW) Approx. Gamma UPL					50.72	95% Percentile					49.65
6302	95% WH Approx. Gamma UTL with		95% Coverage		57.86	99% Percentile					63.52	
6303	95% HW Approx. Gamma UTL with		95% Coverage		59.05							
6304			95% WH USL		75.82	95% HW USL					78.98	
6305												
6306	Lognormal GOF Test											
6307	Shapiro Wilk Test Statistic					0.961	Shapiro Wilk Lognormal GOF Test					
6308	10% Shapiro Wilk Critical Value					0.951	Data appear Lognormal at 10% Significance Level					
6309	Lilliefors Test Statistic					0.0885	Lilliefors Lognormal GOF Test					
6310	10% Lilliefors Critical Value					0.123	Data appear Lognormal at 10% Significance Level					
6311	Data appear Lognormal at 10% Significance Level											
6312												
6313	Background Statistics assuming Lognormal Distribution											
6314	95% UTL with		95% Coverage		63.95	90% Percentile (z)					43.55	
6315			95% UPL (t)		53.08	95% Percentile (z)					51.68	
6316			95% USL		93.21	99% Percentile (z)					71.24	
6317												
6318	Nonparametric Distribution Free Background Statistics											
6319	Data appear Normal at 1% Significance Level											
6320												
6321	Nonparametric Upper Limits for Background Threshold Values											
6322	Order of Statistic, order					43	95% UTL with 95% Coverage					62.5
6323	Approx, f used to compute achieved CC					2.263	Approximate Actual Confidence Coefficient achieved by UTL					0.89
6324							Approximate Sample Size needed to achieve specified CC					59

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	A	B	C	D	E	F	G	H	I	J	K	L
6325	95% Percentile Bootstrap UTL with 95% Coverage					61.57	95% BCA Bootstrap UTL with 95% Coverage					60.72
6326	95% UPL					52.3	90% Percentile					41.92
6327	90% Chebyshev UPL					64.07	95% Percentile					48.3
6328	95% Chebyshev UPL					81.09	99% Percentile					58.59
6329	95% USL					62.5						
6330												
6331	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
6332	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
6333	and consists of observations collected from clean unimpacted locations.											
6334	The use of USL tends to provide a balance between false positives and false negatives provided the data											
6335	represents a background data set and when many onsite observations need to be compared with the BTV.											
6336												
6337	VT_Pb <54											
6338												
6339	General Statistics											
6340	Total Number of Observations					42	Number of Distinct Observations					39
6341	Minimum					10.5	First Quartile					15.45
6342	Second Largest					48.7	Median					25.15
6343	Maximum					53.2	Third Quartile					32.08
6344	Mean					25.62	SD					11.17
6345	Coefficient of Variation					0.436	Skewness					0.57
6346	Mean of logged Data					3.147	SD of logged Data					0.452
6347												
6348	Critical Values for Background Threshold Values (BTVs)											
6349	Tolerance Factor K (For UTL)					2.104	d2max (for USL)					2.887
6350												
6351	Normal GOF Test											
6352	Shapiro Wilk Test Statistic					0.893	Shapiro Wilk GOF Test					
6353	1% Shapiro Wilk Critical Value					0.922	Data Not Normal at 1% Significance Level					
6354	Lilliefors Test Statistic					0.113	Lilliefors GOF Test					
6355	1% Lilliefors Critical Value					0.157	Data appear Normal at 1% Significance Level					
6356	Data appear Approximate Normal at 1% Significance Level											
6357												
6358	Background Statistics Assuming Normal Distribution											
6359	95% UTL with 95% Coverage					49.12	90% Percentile (z)					39.94
6360	95% UPL (t)					44.64	95% Percentile (z)					43.99
6361	95% USL					57.87	99% Percentile (z)					51.61
6362												
6363	Gamma GOF Test											
6364	A-D Test Statistic					0.479	Anderson-Darling Gamma GOF Test					
6365	5% A-D Critical Value					0.752	Detected data appear Gamma Distributed at 5% Significance Level					
6366	K-S Test Statistic					0.104	Kolmogorov-Smirnov Gamma GOF Test					
6367	5% K-S Critical Value					0.137	Detected data appear Gamma Distributed at 5% Significance Level					
6368	Detected data appear Gamma Distributed at 5% Significance Level											
6369												
6370	Gamma Statistics											
6371	k hat (MLE)					5.359	k star (bias corrected MLE)					4.993
6372	Theta hat (MLE)					4.781	Theta star (bias corrected MLE)					5.132
6373	nu hat (MLE)					450.2	nu star (bias corrected)					419.4
6374	MLE Mean (bias corrected)					25.62	MLE Sd (bias corrected)					11.47
6375												
6376	Background Statistics Assuming Gamma Distribution											
6377	95% Wilson Hiferty (WH) Approx. Gamma UPL					47.4	90% Percentile					40.98
6378	95% Hawkins Wixley (HW) Approx. Gamma UPL					47.97	95% Percentile					46.93
6379	95% WH Approx. Gamma UTL with 95% Coverage					54.5	99% Percentile					59.5
6380	95% HW Approx. Gamma UTL with 95% Coverage					55.63						
6381	95% WH USL					70.37	95% HW USL					73.22
6382												
6383	Lognormal GOF Test											
6384	Shapiro Wilk Test Statistic					0.902	Shapiro Wilk Lognormal GOF Test					
6385	10% Shapiro Wilk Critical Value					0.951	Data Not Lognormal at 10% Significance Level					
6386	Lilliefors Test Statistic					0.0931	Lilliefors Lognormal GOF Test					
6387	10% Lilliefors Critical Value					0.124	Data appear Lognormal at 10% Significance Level					
6388	Data appear Approximate Lognormal at 10% Significance Level											
6389												
6390	Background Statistics assuming Lognormal Distribution											
6391	95% UTL with 95% Coverage					60.19	90% Percentile (z)					41.52
6392	95% UPL (t)					50.22	95% Percentile (z)					48.93

	A	B	C	D	E	F	G	H	I	J	K	L
6393					95% USL	85.76					99% Percentile (z)	66.56
6394												
6395	Nonparametric Distribution Free Background Statistics											
6396	Data appear Approximate Normal at 1% Significance Level											
6397												
6398	Nonparametric Upper Limits for Background Threshold Values											
6399	Order of Statistic, order				42	95% UTL with				95% Coverage	53.2	
6400	Approx, f used to compute achieved CC				2.211	Approximate Actual Confidence Coefficient achieved by UTL				0.884		
6401					Approximate Sample Size needed to achieve specified CC				59			
6402	95% Percentile Bootstrap UTL with				95% Coverage	52.78	95% BCA Bootstrap UTL with				95% Coverage	52.78
6403					95% UPL	48.1					90% Percentile	40.79
6404					90% Chebyshev UPL	59.53					95% Percentile	44.58
6405					95% Chebyshev UPL	74.88					99% Percentile	51.36
6406					95% USL	53.2						
6407												
6408	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
6409	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
6410	and consists of observations collected from clean unimpacted locations.											
6411	The use of USL tends to provide a balance between false positives and false negatives provided the data											
6412	represents a background data set and when many onsite observations need to be compared with the BTV.											
6413												
6414	VT_Pb <38											
6415												
6416	General Statistics											
6417	Total Number of Observations				36	Number of Distinct Observations				33		
6418	Minimum				10.5	First Quartile				14.6		
6419	Second Largest				37.3	Median				23.15		
6420	Maximum				37.9	Third Quartile				28.55		
6421	Mean				22.39	SD				8.19		
6422	Coefficient of Variation				0.366	Skewness				0.184		
6423	Mean of logged Data				3.038	SD of logged Data				0.389		
6424												
6425	Critical Values for Background Threshold Values (BTVs)											
6426	Tolerance Factor K (For UTL)				2.148	d2max (for USL)				2.824		
6427												
6428	Normal GOF Test											
6429	Shapiro Wilk Test Statistic				0.931	Shapiro Wilk GOF Test						
6430	1% Shapiro Wilk Critical Value				0.912	Data appear Normal at 1% Significance Level						
6431	Lilliefors Test Statistic				0.134	Lilliefors GOF Test						
6432	1% Lilliefors Critical Value				0.17	Data appear Normal at 1% Significance Level						
6433	Data appear Normal at 1% Significance Level											
6434												
6435	Background Statistics Assuming Normal Distribution											
6436	95% UTL with				95% Coverage	39.98	90% Percentile (z)				32.88	
6437					95% UPL (t)	36.41	95% Percentile (z)				35.86	
6438					95% USL	45.51	99% Percentile (z)				41.44	
6439												
6440	Gamma GOF Test											
6441	A-D Test Statistic				0.782	Anderson-Darling Gamma GOF Test						
6442	5% A-D Critical Value				0.749	Data Not Gamma Distributed at 5% Significance Level						
6443	K-S Test Statistic				0.115	Kolmogorov-Smirnov Gamma GOF Test						
6444	5% K-S Critical Value				0.147	Detected data appear Gamma Distributed at 5% Significance Level						
6445	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
6446												
6447	Gamma Statistics											
6448	k hat (MLE)				7.27	k star (bias corrected MLE)				6.682		
6449	Theta hat (MLE)				3.079	Theta star (bias corrected MLE)				3.35		
6450	nu hat (MLE)				523.4	nu star (bias corrected)				481.1		
6451	MLE Mean (bias corrected)				22.39	MLE Sd (bias corrected)				8.66		
6452												
6453	Background Statistics Assuming Gamma Distribution											
6454	95% Wilson Hiferty (WH) Approx. Gamma UPL				38.66	90% Percentile				33.95		
6455	95% Hawkins Wixley (HW) Approx. Gamma UPL				39.08	95% Percentile				38.27		
6456	95% WH Approx. Gamma UTL with				95% Coverage	44.19	99% Percentile				47.27	
6457	95% HW Approx. Gamma UTL with				95% Coverage	45.01						
6458					95% WH USL	53.77	95% HW USL				55.49	
6459												
6460	Lognormal GOF Test											

	A	B	C	D	E	F	G	H	I	J	K	L
6461	Shapiro Wilk Test Statistic					0.925	Shapiro Wilk Lognormal GOF Test					
6462	10% Shapiro Wilk Critical Value					0.945	Data Not Lognormal at 10% Significance Level					
6463	Lilliefors Test Statistic					0.137	Lilliefors Lognormal GOF Test					
6464	10% Lilliefors Critical Value					0.134	Data Not Lognormal at 10% Significance Level					
6465	Data Not Lognormal at 10% Significance Level											
6466												
6467	Background Statistics assuming Lognormal Distribution											
6468	95% UTL with		95% Coverage		48.14	90% Percentile (z)					34.36	
6469			95% UPL (t)		40.63	95% Percentile (z)					39.57	
6470			95% USL		62.6	99% Percentile (z)					51.59	
6471												
6472	Nonparametric Distribution Free Background Statistics											
6473	Data appear Normal at 1% Significance Level											
6474												
6475	Nonparametric Upper Limits for Background Threshold Values											
6476	Order of Statistic, order				36	95% UTL with 95% Coverage					37.9	
6477	Approx, f used to compute achieved CC				1.895	Approximate Actual Confidence Coefficient achieved by UTL					0.842	
6478						Approximate Sample Size needed to achieve specified CC					59	
6479	95% Percentile Bootstrap UTL with		95% Coverage		37.9	95% BCA Bootstrap UTL with		95% Coverage		37.9		
6480			95% UPL		37.39			90% Percentile		32.35		
6481			90% Chebyshev UPL		47.29			95% Percentile		35.2		
6482			95% Chebyshev UPL		58.58			99% Percentile		37.69		
6483			95% USL		37.9							
6484												
6485	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
6486	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
6487	and consists of observations collected from clean unimpacted locations.											
6488	The use of USL tends to provide a balance between false positives and false negatives provided the data											
6489	represents a background data set and when many onsite observations need to be compared with the BTV.											
6490												
6491	WA_As											
6492												
6493	General Statistics											
6494	Total Number of Observations				326	Number of Distinct Observations				110		
6495	Minimum				0.8	First Quartile				3.1		
6496	Second Largest				63.8	Median				4.4		
6497	Maximum				135	Third Quartile				6.5		
6498	Mean				6.104	SD				8.977		
6499	Coefficient of Variation				1.471	Skewness				10.33		
6500	Mean of logged Data				1.521	SD of logged Data				0.668		
6501												
6502	Critical Values for Background Threshold Values (BTVs)											
6503	Tolerance Factor K (For UTL)				1.792	d2max (for USL)				3.576		
6504												
6505	Normal GOF Test											
6506	Shapiro Wilk Test Statistic				0.38	Normal GOF Test						
6507	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level						
6508	Lilliefors Test Statistic				0.282	Lilliefors GOF Test						
6509	1% Lilliefors Critical Value				0.0572	Data Not Normal at 1% Significance Level						
6510	Data Not Normal at 1% Significance Level											
6511												
6512	Background Statistics Assuming Normal Distribution											
6513	95% UTL with		95% Coverage		22.19	90% Percentile (z)				17.61		
6514			95% UPL (t)		20.94	95% Percentile (z)				20.87		
6515			95% USL		38.21	99% Percentile (z)				26.99		
6516												
6517	Gamma GOF Test											
6518	A-D Test Statistic				3.067E+28	Anderson-Darling Gamma GOF Test						
6519	5% A-D Critical Value				0.767	Data Not Gamma Distributed at 5% Significance Level						
6520	K-S Test Statistic				0.137	Kolmogorov-Smirnov Gamma GOF Test						
6521	5% K-S Critical Value				0.051	Data Not Gamma Distributed at 5% Significance Level						
6522	Data Not Gamma Distributed at 5% Significance Level											
6523												
6524	Gamma Statistics											
6525	k hat (MLE)				1.887	k star (bias corrected MLE)				1.872		
6526	Theta hat (MLE)				3.235	Theta star (bias corrected MLE)				3.262		
6527	nu hat (MLE)				1230	nu star (bias corrected)				1220		
6528	MLE Mean (bias corrected)				6.104	MLE Sd (bias corrected)				4.462		

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	A	B	C	D	E	F	G	H	I	J	K	L
6529												
6530	Background Statistics Assuming Gamma Distribution											
6531	95% Wilson Hilferty (WH) Approx. Gamma UPL					14.11	90% Percentile					12.06
6532	95% Hawkins Wixley (HW) Approx. Gamma UPL					13.87	95% Percentile					14.79
6533	95% WH Approx. Gamma UTL with 95% Coverage					15.2	99% Percentile					20.86
6534	95% HW Approx. Gamma UTL with 95% Coverage					14.99						
6535	95% WH USL					34.2	95% HW USL					35.96
6536												
6537	Lognormal GOF Test											
6538	Shapiro Wilk Test Statistic					0.97	Shapiro Wilk Lognormal GOF Test					
6539	10% Shapiro Wilk P Value					0.00129	Data Not Lognormal at 10% Significance Level					
6540	Lilliefors Test Statistic					0.0672	Lilliefors Lognormal GOF Test					
6541	10% Lilliefors Critical Value					0.0453	Data Not Lognormal at 10% Significance Level					
6542	Data Not Lognormal at 10% Significance Level											
6543												
6544	Background Statistics assuming Lognormal Distribution											
6545	95% UTL with 95% Coverage					15.16	90% Percentile (z)					10.78
6546	95% UPL (t)					13.81	95% Percentile (z)					13.74
6547	95% USL					49.97	99% Percentile (z)					21.67
6548												
6549	Nonparametric Distribution Free Background Statistics											
6550	Data do not follow a Discernible Distribution											
6551												
6552	Nonparametric Upper Limits for Background Threshold Values											
6553	Order of Statistic, order					317	95% UTL with 95% Coverage					16.6
6554	Approx, f used to compute achieved CC					1.512	Approximate Actual Confidence Coefficient achieved by UTL					0.937
6555							Approximate Sample Size needed to achieve specified CC					311
6556	95% Percentile Bootstrap UTL with 95% Coverage					16	95% BCA Bootstrap UTL with 95% Coverage					16
6557	95% UPL					14.1	90% Percentile					9.9
6558	90% Chebyshev UPL					33.08	95% Percentile					13.85
6559	95% Chebyshev UPL					45.3	99% Percentile					29.95
6560	95% USL					135						
6561												
6562	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
6563	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
6564	and consists of observations collected from clean unimpacted locations.											
6565	The use of USL tends to provide a balance between false positives and false negatives provided the data											
6566	represents a background data set and when many onsite observations need to be compared with the BTV.											
6567												
6568	WA_As <64											
6569												
6570	General Statistics											
6571	Total Number of Observations					325	Number of Distinct Observations					109
6572	Minimum					0.8	First Quartile					3.1
6573	Second Largest					41.1	Median					4.4
6574	Maximum					63.8	Third Quartile					6.5
6575	Mean					5.707	SD					5.423
6576	Coefficient of Variation					0.95	Skewness					5.549
6577	Mean of logged Data					1.511	SD of logged Data					0.642
6578												
6579	Critical Values for Background Threshold Values (BTVs)											
6580	Tolerance Factor K (For UTL)					1.792	d2max (for USL)					3.575
6581												
6582	Normal GOF Test											
6583	Shapiro Wilk Test Statistic					0.609	Normal GOF Test					
6584	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
6585	Lilliefors Test Statistic					0.213	Lilliefors GOF Test					
6586	1% Lilliefors Critical Value					0.0573	Data Not Normal at 1% Significance Level					
6587	Data Not Normal at 1% Significance Level											
6588												
6589	Background Statistics Assuming Normal Distribution											
6590	95% UTL with 95% Coverage					15.43	90% Percentile (z)					12.66
6591	95% UPL (t)					14.67	95% Percentile (z)					14.63
6592	95% USL					25.1	99% Percentile (z)					18.32
6593												
6594	Gamma GOF Test											
6595	A-D Test Statistic					5.372	Anderson-Darling Gamma GOF Test					
6596	5% A-D Critical Value					0.764	Data Not Gamma Distributed at 5% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L	
6597	K-S Test Statistic					0.104	Kolmogorov-Smirnov Gamma GOF Test						
6598	5% K-S Critical Value					0.0509	Data Not Gamma Distributed at 5% Significance Level						
6599	Data Not Gamma Distributed at 5% Significance Level												
6600													
6601	Gamma Statistics												
6602	k hat (MLE)					2.317	k star (bias corrected MLE)					2.298	
6603	Theta hat (MLE)					2.463	Theta star (bias corrected MLE)					2.484	
6604	nu hat (MLE)					1506	nu star (bias corrected)					1494	
6605	MLE Mean (bias corrected)					5.707	MLE Sd (bias corrected)					3.765	
6606													
6607	Background Statistics Assuming Gamma Distribution												
6608	95% Wilson Hilferty (WH) Approx. Gamma UPL					12.71	90% Percentile					10.75	
6609	95% Hawkins Wixley (HW) Approx. Gamma UPL					12.7	95% Percentile					12.96	
6610	95% WH Approx. Gamma UTL with 95% Coverage					13.62	99% Percentile					17.84	
6611	95% HW Approx. Gamma UTL with 95% Coverage					13.67							
6612	95% WH USL					29.19	95% HW USL					31.28	
6613													
6614	Lognormal GOF Test												
6615	Shapiro Wilk Test Statistic					0.981	Shapiro Wilk Lognormal GOF Test						
6616	10% Shapiro Wilk P Value					0.221	Data appear Lognormal at 10% Significance Level						
6617	Lilliefors Test Statistic					0.0562	Lilliefors Lognormal GOF Test						
6618	10% Lilliefors Critical Value					0.0453	Data Not Lognormal at 10% Significance Level						
6619	Data appear Approximate Lognormal at 10% Significance Level												
6620													
6621	Background Statistics assuming Lognormal Distribution												
6622	95% UTL with 95% Coverage					14.33	90% Percentile (z)					10.32	
6623	95% UPL (t)					13.09	95% Percentile (z)					13.03	
6624	95% USL					45.04	99% Percentile (z)					20.19	
6625													
6626	Nonparametric Distribution Free Background Statistics												
6627	Data appear Approximate Lognormal at 10% Significance Level												
6628													
6629	Nonparametric Upper Limits for Background Threshold Values												
6630	Order of Statistic, order					316	95% UTL with 95% Coverage					16.2	
6631	Approx, f used to compute achieved CC					1.507	Approximate Actual Confidence Coefficient achieved by UTL					0.936	
6632							Approximate Sample Size needed to achieve specified CC					311	
6633	95% Percentile Bootstrap UTL with 95% Coverage					14.8	95% BCA Bootstrap UTL with 95% Coverage					14.8	
6634	95% UPL					13.84	90% Percentile					9.58	
6635	90% Chebyshev UPL					22	95% Percentile					13.64	
6636	95% Chebyshev UPL					29.38	99% Percentile					23.45	
6637	95% USL					63.8							
6638													
6639	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
6640	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
6641	and consists of observations collected from clean unimpacted locations.												
6642	The use of USL tends to provide a balance between false positives and false negatives provided the data												
6643	represents a background data set and when many onsite observations need to be compared with the BTV.												
6644													
6645	WA_As <24												
6646													
6647	General Statistics												
6648	Total Number of Observations					322	Number of Distinct Observations					106	
6649	Minimum					0.8	First Quartile					3.025	
6650	Second Largest					23.3	Median					4.3	
6651	Maximum					23.5	Third Quartile					6.375	
6652	Mean					5.335	SD					3.599	
6653	Coefficient of Variation					0.675	Skewness					2.07	
6654	Mean of logged Data					1.49	SD of logged Data					0.606	
6655													
6656	Critical Values for Background Threshold Values (BTVs)												
6657	Tolerance Factor K (For UTL)					1.793	d2max (for USL)					3.573	
6658													
6659	Normal GOF Test												
6660	Shapiro Wilk Test Statistic					0.814	Normal GOF Test						
6661	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
6662	Lilliefors Test Statistic					0.147	Lilliefors GOF Test						
6663	1% Lilliefors Critical Value					0.0576	Data Not Normal at 1% Significance Level						
6664	Data Not Normal at 1% Significance Level												

	A	B	C	D	E	F	G	H	I	J	K	L
6665												
6666	Background Statistics Assuming Normal Distribution											
6667	95% UTL with 95% Coverage				11.79					90% Percentile (z)		9.948
6668	95% UPL (t)				11.28					95% Percentile (z)		11.26
6669	95% USL				18.19					99% Percentile (z)		13.71
6670												
6671	Gamma GOF Test											
6672	A-D Test Statistic				2.584					Anderson-Darling Gamma GOF Test		
6673	5% A-D Critical Value				0.76					Data Not Gamma Distributed at 5% Significance Level		
6674	K-S Test Statistic				0.0705					Kolmogorov-Smirnov Gamma GOF Test		
6675	5% K-S Critical Value				0.051					Data Not Gamma Distributed at 5% Significance Level		
6676	Data Not Gamma Distributed at 5% Significance Level											
6677												
6678	Gamma Statistics											
6679	k hat (MLE)				2.862					k star (bias corrected MLE)		2.838
6680	Theta hat (MLE)				1.864					Theta star (bias corrected MLE)		1.88
6681	nu hat (MLE)				1843					nu star (bias corrected)		1827
6682	MLE Mean (bias corrected)				5.335					MLE Sd (bias corrected)		3.167
6683												
6684	Background Statistics Assuming Gamma Distribution											
6685	95% Wilson Hilferty (WH) Approx. Gamma UPL				11.31					90% Percentile		9.581
6686	95% Hawkins Wixley (HW) Approx. Gamma UPL				11.43					95% Percentile		11.38
6687	95% WH Approx. Gamma UTL with 95% Coverage				12.06					99% Percentile		15.28
6688	95% HW Approx. Gamma UTL with 95% Coverage				12.23							
6689	95% WH USL				24.51					95% HW USL		26.53
6690												
6691	Lognormal GOF Test											
6692	Shapiro Wilk Test Statistic				0.98					Shapiro Wilk Lognormal GOF Test		
6693	10% Shapiro Wilk P Value				0.201					Data appear Lognormal at 10% Significance Level		
6694	Lilliefors Test Statistic				0.0522					Lilliefors Lognormal GOF Test		
6695	10% Lilliefors Critical Value				0.0455					Data Not Lognormal at 10% Significance Level		
6696	Data appear Approximate Lognormal at 10% Significance Level											
6697												
6698	Background Statistics assuming Lognormal Distribution											
6699	95% UTL with 95% Coverage				13.15					90% Percentile (z)		9.642
6700	95% UPL (t)				12.07					95% Percentile (z)		12.02
6701	95% USL				38.65					99% Percentile (z)		18.16
6702												
6703	Nonparametric Distribution Free Background Statistics											
6704	Data appear Approximate Lognormal at 10% Significance Level											
6705												
6706	Nonparametric Upper Limits for Background Threshold Values											
6707	Order of Statistic, order				313					95% UTL with 95% Coverage		14.8
6708	Approx, f used to compute achieved CC				1.493					Approximate Actual Confidence Coefficient achieved by UTL		0.931
6709										Approximate Sample Size needed to achieve specified CC		311
6710	95% Percentile Bootstrap UTL with 95% Coverage				14.47					95% BCA Bootstrap UTL with 95% Coverage		14.2
6711	95% UPL				13.21					90% Percentile		9.3
6712	90% Chebyshev UPL				16.15					95% Percentile		12.7
6713	95% Chebyshev UPL				21.05					99% Percentile		18.09
6714	95% USL				23.5							
6715												
6716	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
6717	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
6718	and consists of observations collected from clean unimpacted locations.											
6719	The use of USL tends to provide a balance between false positives and false negatives provided the data											
6720	represents a background data set and when many onsite observations need to be compared with the BTV.											
6721												
6722	WA_As <15											
6723												
6724	General Statistics											
6725	Total Number of Observations				314					Number of Distinct Observations		98
6726	Minimum				0.8					First Quartile		3
6727	Second Largest				14.8					Median		4.25
6728	Maximum				14.8					Third Quartile		6.2
6729	Mean				4.983					SD		2.837
6730	Coefficient of Variation				0.569					Skewness		1.3
6731	Mean of logged Data				1.453					SD of logged Data		0.566
6732												

	A	B	C	D	E	F	G	H	I	J	K	L	
6733	Critical Values for Background Threshold Values (BTVs)												
6734	Tolerance Factor K (For UTL)					1.795	d2max (for USL)					3.566	
6735													
6736	Normal GOF Test												
6737	Shapiro Wilk Test Statistic					0.883	Normal GOF Test						
6738	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
6739	Lilliefors Test Statistic					0.12	Lilliefors GOF Test						
6740	1% Lilliefors Critical Value					0.0583	Data Not Normal at 1% Significance Level						
6741	Data Not Normal at 1% Significance Level												
6742													
6743	Background Statistics Assuming Normal Distribution												
6744	95% UTL with		95% Coverage		10.08	90% Percentile (z)					8.619		
6745			95% UPL (t)		9.671	95% Percentile (z)					9.65		
6746			95% USL		15.1	99% Percentile (z)					11.58		
6747													
6748	Gamma GOF Test												
6749	A-D Test Statistic					1.058	Anderson-Darling Gamma GOF Test						
6750	5% A-D Critical Value					0.759	Data Not Gamma Distributed at 5% Significance Level						
6751	K-S Test Statistic					0.055	Kolmogorov-Smirnov Gamma GOF Test						
6752	5% K-S Critical Value					0.0514	Data Not Gamma Distributed at 5% Significance Level						
6753	Data Not Gamma Distributed at 5% Significance Level												
6754													
6755	Gamma Statistics												
6756	k hat (MLE)					3.416	k star (bias corrected MLE)					3.386	
6757	Theta hat (MLE)					1.459	Theta star (bias corrected MLE)					1.472	
6758	nu hat (MLE)					2145	nu star (bias corrected)					2126	
6759	MLE Mean (bias corrected)					4.983	MLE Sd (bias corrected)					2.708	
6760													
6761	Background Statistics Assuming Gamma Distribution												
6762	95% Wilson Hilferty (WH) Approx. Gamma UPL				10.09	90% Percentile					8.615		
6763	95% Hawkins Wixley (HW) Approx. Gamma UPL				10.23	95% Percentile					10.11		
6764	95% WH Approx. Gamma UTL with		95% Coverage		10.71	99% Percentile					13.32		
6765	95% HW Approx. Gamma UTL with		95% Coverage		10.91								
6766			95% WH USL		20.8	95% HW USL					22.49		
6767													
6768	Lognormal GOF Test												
6769	Shapiro Wilk Test Statistic					0.974	Shapiro Wilk Lognormal GOF Test						
6770	10% Shapiro Wilk P Value					0.0191	Data Not Lognormal at 10% Significance Level						
6771	Lilliefors Test Statistic					0.0524	Lilliefors Lognormal GOF Test						
6772	10% Lilliefors Critical Value					0.0461	Data Not Lognormal at 10% Significance Level						
6773	Data Not Lognormal at 10% Significance Level												
6774													
6775	Background Statistics assuming Lognormal Distribution												
6776	95% UTL with		95% Coverage		11.81	90% Percentile (z)					8.833		
6777			95% UPL (t)		10.9	95% Percentile (z)					10.85		
6778			95% USL		32.21	99% Percentile (z)					15.96		
6779													
6780	Nonparametric Distribution Free Background Statistics												
6781	Data do not follow a Discernible Distribution												
6782													
6783	Nonparametric Upper Limits for Background Threshold Values												
6784	Order of Statistic, order					305	95% UTL with					95% Coverage	12.6
6785	Approx, f used to compute achieved CC					1.455	Approximate Actual Confidence Coefficient achieved by UTL					0.917	
6786							Approximate Sample Size needed to achieve specified CC					311	
6787	95% Percentile Bootstrap UTL with		95% Coverage		12.5	95% BCA Bootstrap UTL with					95% Coverage	12.44	
6788			95% UPL		11.08						90% Percentile	8.9	
6789			90% Chebyshev UPL		13.51						95% Percentile	11	
6790			95% Chebyshev UPL		17.37						99% Percentile	14.16	
6791			95% USL		14.8								
6792													
6793	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
6794	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
6795	and consists of observations collected from clean unimpacted locations.												
6796	The use of USL tends to provide a balance between false positives and false negatives provided the data												
6797	represents a background data set and when many onsite observations need to be compared with the BTV.												
6798													
6799	WA_Pb												
6800													

	A	B	C	D	E	F	G	H	I	J	K	L
6801	General Statistics											
6802	Total Number of Observations					326	Number of Distinct Observations					175
6803	Minimum					4.7	First Quartile					10.33
6804	Second Largest					814	Median					13.75
6805	Maximum					2450	Third Quartile					17.78
6806	Mean					28.89	SD					145.2
6807	Coefficient of Variation					5.027	Skewness					14.95
6808	Mean of logged Data					2.717	SD of logged Data					0.654
6809												
6810	Critical Values for Background Threshold Values (BTVs)											
6811	Tolerance Factor K (For UTL)					1.792	d2max (for USL)					3.576
6812												
6813	Normal GOF Test											
6814	Shapiro Wilk Test Statistic					0.127	Normal GOF Test					
6815	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
6816	Lilliefors Test Statistic					0.434	Lilliefors GOF Test					
6817	1% Lilliefors Critical Value					0.0572	Data Not Normal at 1% Significance Level					
6818	Data Not Normal at 1% Significance Level											
6819												
6820	Background Statistics Assuming Normal Distribution											
6821	95% UTL with	95% Coverage			289.2	90% Percentile (z)					215	
6822		95% UPL (t)			268.8	95% Percentile (z)					267.8	
6823		95% USL			548.3	99% Percentile (z)					366.8	
6824												
6825	Gamma GOF Test											
6826	A-D Test Statistic					3.067E+28	Anderson-Darling Gamma GOF Test					
6827	5% A-D Critical Value					0.789	Data Not Gamma Distributed at 5% Significance Level					
6828	K-S Test Statistic					0.306	Kolmogorov-Smirnov Gamma GOF Test					
6829	5% K-S Critical Value					0.052	Data Not Gamma Distributed at 5% Significance Level					
6830	Data Not Gamma Distributed at 5% Significance Level											
6831												
6832	Gamma Statistics											
6833	k hat (MLE)					0.904	k star (bias corrected MLE)					0.897
6834	Theta hat (MLE)					31.97	Theta star (bias corrected MLE)					32.2
6835	nu hat (MLE)					589.2	nu star (bias corrected)					585.1
6836	MLE Mean (bias corrected)					28.89	MLE Sd (bias corrected)					30.5
6837												
6838	Background Statistics Assuming Gamma Distribution											
6839	95% Wilson Hilferty (WH) Approx.	Gamma UPL			67.82	90% Percentile					68.32	
6840	95% Hawkins Wixley (HW) Approx.	Gamma UPL			59.16	95% Percentile					89.95	
6841	95% WH Approx.	Gamma UTL with	95% Coverage		74.47	99% Percentile					140.6	
6842	95% HW Approx.	Gamma UTL with	95% Coverage		64.91							
6843		95% WH USL			200.7	95% HW USL					181.1	
6844												
6845	Lognormal GOF Test											
6846	Shapiro Wilk Test Statistic					0.77	Shapiro Wilk Lognormal GOF Test					
6847	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
6848	Lilliefors Test Statistic					0.164	Lilliefors Lognormal GOF Test					
6849	10% Lilliefors Critical Value					0.0453	Data Not Lognormal at 10% Significance Level					
6850	Data Not Lognormal at 10% Significance Level											
6851												
6852	Background Statistics assuming Lognormal Distribution											
6853	95% UTL with	95% Coverage			48.9	90% Percentile (z)					35.01	
6854		95% UPL (t)			44.62	95% Percentile (z)					44.41	
6855		95% USL			157.2	99% Percentile (z)					69.36	
6856												
6857	Nonparametric Distribution Free Background Statistics											
6858	Data do not follow a Discernible Distribution											
6859												
6860	Nonparametric Upper Limits for Background Threshold Values											
6861	Order of Statistic, order					317	95% UTL with 95% Coverage					63.3
6862	Approx, f used to compute achieved CC					1.512	Approximate Actual Confidence Coefficient achieved by UTL					0.937
6863							Approximate Sample Size needed to achieve specified CC					311
6864	95% Percentile Bootstrap UTL with	95% Coverage			61.9	95% BCA Bootstrap UTL with	95% Coverage				59.5	
6865		95% UPL			42		90% Percentile				26.55	
6866		90% Chebyshev UPL			465.3		95% Percentile				41.5	
6867		95% Chebyshev UPL			662.9		99% Percentile				194.5	
6868		95% USL			2450							

	A	B	C	D	E	F	G	H	I	J	K	L	
6869													
6870	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
6871	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
6872	and consists of observations collected from clean unimpacted locations.												
6873	The use of USL tends to provide a balance between false positives and false negatives provided the data												
6874	represents a background data set and when many onsite observations need to be compared with the BTV.												
6875													
6876	WA_Pb <220												
6877													
6878	General Statistics												
6879	Total Number of Observations					323	Number of Distinct Observations					172	
6880	Minimum					4.7	First Quartile					10.3	
6881	Second Largest					121	Median					13.7	
6882	Maximum					219	Third Quartile					17.55	
6883	Mean					17.47	SD					17.68	
6884	Coefficient of Variation					1.012	Skewness					6.696	
6885	Mean of logged Data					2.678	SD of logged Data					0.512	
6886													
6887	Critical Values for Background Threshold Values (BTVs)												
6888	Tolerance Factor K (For UTL)					1.793	d2max (for USL)					3.574	
6889													
6890	Normal GOF Test												
6891	Shapiro Wilk Test Statistic					0.468	Normal GOF Test						
6892	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
6893	Lilliefors Test Statistic					0.26	Lilliefors GOF Test						
6894	1% Lilliefors Critical Value					0.0575	Data Not Normal at 1% Significance Level						
6895	Data Not Normal at 1% Significance Level												
6896													
6897	Background Statistics Assuming Normal Distribution												
6898	95% UTL with	95% Coverage	49.16						90% Percentile (z)	40.12			
6899		95% UPL (t)	46.68						95% Percentile (z)	46.55			
6900		95% USL	80.65						99% Percentile (z)	58.6			
6901													
6902	Gamma GOF Test												
6903	A-D Test Statistic					17.02	Anderson-Darling Gamma GOF Test						
6904	5% A-D Critical Value					0.76	Data Not Gamma Distributed at 5% Significance Level						
6905	K-S Test Statistic					0.181	Kolmogorov-Smirnov Gamma GOF Test						
6906	5% K-S Critical Value					0.0509	Data Not Gamma Distributed at 5% Significance Level						
6907	Data Not Gamma Distributed at 5% Significance Level												
6908													
6909	Gamma Statistics												
6910	k hat (MLE)					2.898	k star (bias corrected MLE)					2.873	
6911	Theta hat (MLE)					6.027	Theta star (bias corrected MLE)					6.079	
6912	nu hat (MLE)					1872	nu star (bias corrected)					1856	
6913	MLE Mean (bias corrected)					17.47	MLE Sd (bias corrected)					10.31	
6914													
6915	Background Statistics Assuming Gamma Distribution												
6916	95% Wilson Hilferty (WH) Approx.	Gamma UPL	36.12						90% Percentile	31.28			
6917	95% Hawkins Wixley (HW) Approx.	Gamma UPL	35.39						95% Percentile	37.12			
6918	95% WH Approx.	Gamma UTL with	95% Coverage	38.46						99% Percentile	49.79		
6919	95% HW Approx.	Gamma UTL with	95% Coverage	37.76									
6920		95% WH USL	77.54						95% HW USL	79.29			
6921													
6922	Lognormal GOF Test												
6923	Shapiro Wilk Test Statistic					0.902	Shapiro Wilk Lognormal GOF Test						
6924	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level						
6925	Lilliefors Test Statistic					0.124	Lilliefors Lognormal GOF Test						
6926	10% Lilliefors Critical Value					0.0455	Data Not Lognormal at 10% Significance Level						
6927	Data Not Lognormal at 10% Significance Level												
6928													
6929	Background Statistics assuming Lognormal Distribution												
6930	95% UTL with	95% Coverage	36.47						90% Percentile (z)	28.07			
6931		95% UPL (t)	33.93						95% Percentile (z)	33.81			
6932		95% USL	90.81						99% Percentile (z)	47.93			
6933													
6934	Nonparametric Distribution Free Background Statistics												
6935	Data do not follow a Discernible Distribution												
6936													

	A	B	C	D	E	F	G	H	I	J	K	L		
6937	Nonparametric Upper Limits for Background Threshold Values													
6938	Order of Statistic, order					314	95% UTL with 95% Coverage					57.8		
6939	Approx, f used to compute achieved CC					1.498	Approximate Actual Confidence Coefficient achieved by UTL					0.933		
6940							Approximate Sample Size needed to achieve specified CC					311		
6941	95% Percentile Bootstrap UTL with 95% Coverage					44.84	95% BCA Bootstrap UTL with 95% Coverage					45.31		
6942						95% UPL	39.1						90% Percentile	25.66
6943						90% Chebyshev UPL	70.59						95% Percentile	36.24
6944						95% Chebyshev UPL	94.65						99% Percentile	94.24
6945						95% USL	219							
6946														
6947	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.													
6948	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers													
6949	and consists of observations collected from clean unimpacted locations.													
6950	The use of USL tends to provide a balance between false positives and false negatives provided the data													
6951	represents a background data set and when many onsite observations need to be compared with the BTV.													
6952														
6953	WA_Pb <98													
6954														
6955	General Statistics													
6956	Total Number of Observations					320	Number of Distinct Observations					169		
6957	Minimum					4.7	First Quartile					10.3		
6958	Second Largest					84.1	Median					13.6		
6959	Maximum					97.1	Third Quartile					17.43		
6960	Mean					16.19	SD					10.95		
6961	Coefficient of Variation					0.676	Skewness					3.873		
6962	Mean of logged Data					2.656	SD of logged Data					0.462		
6963														
6964	Critical Values for Background Threshold Values (BTVs)													
6965	Tolerance Factor K (For UTL)					1.793	d2max (for USL)					3.571		
6966														
6967	Normal GOF Test													
6968	Shapiro Wilk Test Statistic					0.645	Normal GOF Test							
6969	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level							
6970	Lilliefors Test Statistic					0.219	Lilliefors GOF Test							
6971	1% Lilliefors Critical Value					0.0577	Data Not Normal at 1% Significance Level							
6972	Data Not Normal at 1% Significance Level													
6973														
6974	Background Statistics Assuming Normal Distribution													
6975	95% UTL with 95% Coverage					35.84	90% Percentile (z)					30.23		
6976						95% UPL (t)	34.29	95% Percentile (z)					34.21	
6977						95% USL	55.31	99% Percentile (z)					41.68	
6978														
6979	Gamma GOF Test													
6980	A-D Test Statistic					9.586	Anderson-Darling Gamma GOF Test							
6981	5% A-D Critical Value					0.759	Data Not Gamma Distributed at 5% Significance Level							
6982	K-S Test Statistic					0.146	Kolmogorov-Smirnov Gamma GOF Test							
6983	5% K-S Critical Value					0.0509	Data Not Gamma Distributed at 5% Significance Level							
6984	Data Not Gamma Distributed at 5% Significance Level													
6985														
6986	Gamma Statistics													
6987	k hat (MLE)					4.056	k star (bias corrected MLE)					4.02		
6988	Theta hat (MLE)					3.992	Theta star (bias corrected MLE)					4.028		
6989	nu hat (MLE)					2596	nu star (bias corrected)					2573		
6990	MLE Mean (bias corrected)					16.19	MLE Sd (bias corrected)					8.077		
6991														
6992	Background Statistics Assuming Gamma Distribution													
6993	95% Wilson Hilferty (WH) Approx. Gamma UPL					31.03	90% Percentile					27.02		
6994	95% Hawkins Wixley (HW) Approx. Gamma UPL					30.83	95% Percentile					31.35		
6995	95% WH Approx. Gamma UTL with 95% Coverage					32.81	99% Percentile					40.59		
6996	95% HW Approx. Gamma UTL with 95% Coverage					32.66								
6997						95% WH USL	61.22	95% HW USL					63.34	
6998														
6999	Lognormal GOF Test													
7000	Shapiro Wilk Test Statistic					0.938	Shapiro Wilk Lognormal GOF Test							
7001	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level							
7002	Lilliefors Test Statistic					0.101	Lilliefors Lognormal GOF Test							
7003	10% Lilliefors Critical Value					0.0457	Data Not Lognormal at 10% Significance Level							
7004	Data Not Lognormal at 10% Significance Level													

	A	B	C	D	E	F	G	H	I	J	K	L
7005												
7006	Background Statistics assuming Lognormal Distribution											
7007	95% UTL with 95% Coverage		32.62		90% Percentile (z)		25.75					
7008	95% UPL (t)		30.56		95% Percentile (z)		30.45					
7009	95% USL		74.14		99% Percentile (z)		41.72					
7010												
7011	Nonparametric Distribution Free Background Statistics											
7012	Data do not follow a Discernible Distribution											
7013												
7014	Nonparametric Upper Limits for Background Threshold Values											
7015	Order of Statistic, order		311		95% UTL with 95% Coverage		42.1					
7016	Approx, f used to compute achieved CC		1.483		Approximate Actual Confidence Coefficient achieved by UTL		0.928					
7017					Approximate Sample Size needed to achieve specified CC		311					
7018	95% Percentile Bootstrap UTL with 95% Coverage		41.8		95% BCA Bootstrap UTL with 95% Coverage		40.68					
7019	95% UPL		31.56		90% Percentile		24.51					
7020	90% Chebyshev UPL		49.11		95% Percentile		30.84					
7021	95% Chebyshev UPL		64.01		99% Percentile		63.03					
7022	95% USL		97.1									
7023												
7024	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
7025	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
7026	and consists of observations collected from clean unimpacted locations.											
7027	The use of USL tends to provide a balance between false positives and false negatives provided the data											
7028	represents a background data set and when many onsite observations need to be compared with the BTV.											
7029												
7030	WA_Pb <32											
7031												
7032	General Statistics											
7033	Total Number of Observations		305		Number of Distinct Observations		154					
7034	Minimum		4.7		First Quartile		10.2					
7035	Second Largest		30.8		Median		13.3					
7036	Maximum		31.6		Third Quartile		16.4					
7037	Mean		14.26		SD		5.343					
7038	Coefficient of Variation		0.375		Skewness		1.019					
7039	Mean of logged Data		2.592		SD of logged Data		0.361					
7040												
7041	Critical Values for Background Threshold Values (BTVs)											
7042	Tolerance Factor K (For UTL)		1.797		d2max (for USL)		3.557					
7043												
7044	Normal GOF Test											
7045	Shapiro Wilk Test Statistic		0.916		Normal GOF Test							
7046	1% Shapiro Wilk P Value		0		Data Not Normal at 1% Significance Level							
7047	Lilliefors Test Statistic		0.0989		Lilliefors GOF Test							
7048	1% Lilliefors Critical Value		0.0591		Data Not Normal at 1% Significance Level							
7049	Data Not Normal at 1% Significance Level											
7050												
7051	Background Statistics Assuming Normal Distribution											
7052	95% UTL with 95% Coverage		23.86		90% Percentile (z)		21.11					
7053	95% UPL (t)		23.09		95% Percentile (z)		23.05					
7054	95% USL		33.27		99% Percentile (z)		26.69					
7055												
7056	Gamma GOF Test											
7057	A-D Test Statistic		1.312		Anderson-Darling Gamma GOF Test							
7058	5% A-D Critical Value		0.756		Data Not Gamma Distributed at 5% Significance Level							
7059	K-S Test Statistic		0.0563		Kolmogorov-Smirnov Gamma GOF Test							
7060	5% K-S Critical Value		0.0518		Data Not Gamma Distributed at 5% Significance Level							
7061	Data Not Gamma Distributed at 5% Significance Level											
7062												
7063	Gamma Statistics											
7064	k hat (MLE)		7.8		k star (bias corrected MLE)		7.725					
7065	Theta hat (MLE)		1.828		Theta star (bias corrected MLE)		1.846					
7066	nu hat (MLE)		4758		nu star (bias corrected)		4712					
7067	MLE Mean (bias corrected)		14.26		MLE Sd (bias corrected)		5.131					
7068												
7069	Background Statistics Assuming Gamma Distribution											
7070	95% Wilson Hilferty (WH) Approx. Gamma UPL		23.61		90% Percentile		21.1					
7071	95% Hawkins Wixley (HW) Approx. Gamma UPL		23.74		95% Percentile		23.61					
7072	95% WH Approx. Gamma UTL with 95% Coverage		24.67		99% Percentile		28.82					

	A	B	C	D	E	F	G	H	I	J	K	L	
7073	95% HW Approx. Gamma UTL with				95% Coverage	24.85							
7074					95% WH USL	40.04						95% HW USL	41.57
7075													
7076	Lognormal GOF Test												
7077					Shapiro Wilk Test Statistic	0.979	Shapiro Wilk Lognormal GOF Test						
7078					10% Shapiro Wilk P Value	0.122	Data appear Lognormal at 10% Significance Level						
7079					Lilliefors Test Statistic	0.0397	Lilliefors Lognormal GOF Test						
7080					10% Lilliefors Critical Value	0.0468	Data appear Lognormal at 10% Significance Level						
7081	Data appear Lognormal at 10% Significance Level												
7082													
7083	Background Statistics assuming Lognormal Distribution												
7084	95% UTL with		95% Coverage	25.56						90% Percentile (z)	21.21		
7085			95% UPL (t)	24.26						95% Percentile (z)	24.19		
7086			95% USL	48.24						99% Percentile (z)	30.93		
7087													
7088	Nonparametric Distribution Free Background Statistics												
7089	Data appear Lognormal at 10% Significance Level												
7090													
7091	Nonparametric Upper Limits for Background Threshold Values												
7092	Order of Statistic, order				297	95% UTL with				95% Coverage	28		
7093	Approx, f used to compute achieved CC				1.558	Approximate Actual Confidence Coefficient achieved by UTL					0.942		
7094						Approximate Sample Size needed to achieve specified CC					285		
7095	95% Percentile Bootstrap UTL with		95% Coverage	27.3	95% BCA Bootstrap UTL with				95% Coverage	27.2			
7096			95% UPL	25.54					90% Percentile	22.12			
7097			90% Chebyshev UPL	30.32					95% Percentile	24.68			
7098			95% Chebyshev UPL	37.59					99% Percentile	30.38			
7099			95% USL	31.6									
7100													
7101	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
7102	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
7103	and consists of observations collected from clean unimpacted locations.												
7104	The use of USL tends to provide a balance between false positives and false negatives provided the data												
7105	represents a background data set and when many onsite observations need to be compared with the BTV.												
7106													
7107	WV_As												
7108													
7109	General Statistics												
7110	Total Number of Observations				117	Number of Distinct Observations				77			
7111	Minimum				1.9	First Quartile				5			
7112	Second Largest				28.2	Median				7.3			
7113	Maximum				32.9	Third Quartile				10.8			
7114	Mean				8.307	SD				5.243			
7115	Coefficient of Variation				0.631	Skewness				1.976			
7116	Mean of logged Data				1.947	SD of logged Data				0.592			
7117													
7118	Critical Values for Background Threshold Values (BTVs)												
7119	Tolerance Factor K (For UTL)				1.9	d2max (for USL)				3.262			
7120													
7121	Normal GOF Test												
7122					Shapiro Wilk Test Statistic	0.84	Normal GOF Test						
7123					1% Shapiro Wilk P Value	0	Data Not Normal at 1% Significance Level						
7124					Lilliefors Test Statistic	0.118	Lilliefors GOF Test						
7125					1% Lilliefors Critical Value	0.0951	Data Not Normal at 1% Significance Level						
7126	Data Not Normal at 1% Significance Level												
7127													
7128	Background Statistics Assuming Normal Distribution												
7129	95% UTL with		95% Coverage	18.27						90% Percentile (z)	15.03		
7130			95% UPL (t)	17.04						95% Percentile (z)	16.93		
7131			95% USL	25.41						99% Percentile (z)	20.5		
7132													
7133	Gamma GOF Test												
7134					A-D Test Statistic	0.725	Anderson-Darling Gamma GOF Test						
7135					5% A-D Critical Value	0.759	Detected data appear Gamma Distributed at 5% Significance Level						
7136					K-S Test Statistic	0.0777	Kolmogorov-Smirnov Gamma GOF Test						
7137					5% K-S Critical Value	0.0856	Detected data appear Gamma Distributed at 5% Significance Level						
7138	Detected data appear Gamma Distributed at 5% Significance Level												
7139													
7140	Gamma Statistics												

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	A	B	C	D	E	F	G	H	I	J	K	L
7141					k hat (MLE)	3.09				k star (bias corrected MLE)		3.017
7142					Theta hat (MLE)	2.688				Theta star (bias corrected MLE)		2.753
7143					nu hat (MLE)	723.2				nu star (bias corrected)		705.9
7144					MLE Mean (bias corrected)	8.307				MLE Sd (bias corrected)		4.783
7145												
7146	Background Statistics Assuming Gamma Distribution											
7147					95% Wilson Hilferty (WH) Approx. Gamma UPL	17.39				90% Percentile		14.72
7148					95% Hawkins Wixley (HW) Approx. Gamma UPL	17.62				95% Percentile		17.4
7149					95% WH Approx. Gamma UTL with 95% Coverage	19.28				99% Percentile		23.22
7150					95% HW Approx. Gamma UTL with 95% Coverage	19.67						
7151					95% WH USL	32.93				95% HW USL		35.24
7152												
7153	Lognormal GOF Test											
7154					Shapiro Wilk Test Statistic	0.97				Shapiro Wilk Lognormal GOF Test		
7155					10% Shapiro Wilk P Value	0.104				Data appear Lognormal at 10% Significance Level		
7156					Lilliefors Test Statistic	0.0648				Lilliefors Lognormal GOF Test		
7157					10% Lilliefors Critical Value	0.0753				Data appear Lognormal at 10% Significance Level		
7158	Data appear Lognormal at 10% Significance Level											
7159												
7160	Background Statistics assuming Lognormal Distribution											
7161					95% UTL with 95% Coverage	21.56				90% Percentile (z)		14.95
7162					95% UPL (t)	18.76				95% Percentile (z)		18.54
7163					95% USL	48.26				99% Percentile (z)		27.74
7164												
7165	Nonparametric Distribution Free Background Statistics											
7166	Data appear Gamma Distributed at 5% Significance Level											
7167												
7168	Nonparametric Upper Limits for Background Threshold Values											
7169					Order of Statistic, order	116				95% UTL with 95% Coverage		28.2
7170					Approx, f used to compute achieved CC	2.018				Approximate Actual Confidence Coefficient achieved by UTL		0.936
7171										Approximate Sample Size needed to achieve specified CC		93
7172					95% Percentile Bootstrap UTL with 95% Coverage	23.38				95% BCA Bootstrap UTL with 95% Coverage		23.38
7173					95% UPL	17.5				90% Percentile		13.08
7174					90% Chebyshev UPL	24.1				95% Percentile		17.34
7175					95% Chebyshev UPL	31.26				99% Percentile		27.99
7176					95% USL	32.9						
7177												
7178	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
7179	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
7180	and consists of observations collected from clean unimpacted locations.											
7181	The use of USL tends to provide a balance between false positives and false negatives provided the data											
7182	represents a background data set and when many onsite observations need to be compared with the BTV.											
7183												
7184	WV_As <23											
7185												
7186	General Statistics											
7187					Total Number of Observations	114				Number of Distinct Observations		74
7188					Minimum	1.9				First Quartile		5
7189					Second Largest	17.5				Median		6.85
7190					Maximum	22.5				Third Quartile		10.3
7191					Mean	7.754				SD		3.999
7192					Coefficient of Variation	0.516				Skewness		0.89
7193					Mean of logged Data	1.909				SD of logged Data		0.551
7194												
7195	Critical Values for Background Threshold Values (BTVs)											
7196					Tolerance Factor K (For UTL)	1.904				d2max (for USL)		3.254
7197												
7198	Normal GOF Test											
7199					Shapiro Wilk Test Statistic	0.934				Normal GOF Test		
7200					1% Shapiro Wilk P Value	1.0920E-5				Data Not Normal at 1% Significance Level		
7201					Lilliefors Test Statistic	0.125				Lilliefors GOF Test		
7202					1% Lilliefors Critical Value	0.0963				Data Not Normal at 1% Significance Level		
7203	Data Not Normal at 1% Significance Level											
7204												
7205	Background Statistics Assuming Normal Distribution											
7206					95% UTL with 95% Coverage	15.37				90% Percentile (z)		12.88
7207					95% UPL (t)	14.41				95% Percentile (z)		14.33
7208					95% USL	20.76				99% Percentile (z)		17.06

	A	B	C	D	E	F	G	H	I	J	K	L	
7209													
7210	Gamma GOF Test												
7211	A-D Test Statistic					0.564	Anderson-Darling Gamma GOF Test						
7212	5% A-D Critical Value					0.757	Detected data appear Gamma Distributed at 5% Significance Level						
7213	K-S Test Statistic					0.0703	Kolmogorov-Smirnov Gamma GOF Test						
7214	5% K-S Critical Value					0.0862	Detected data appear Gamma Distributed at 5% Significance Level						
7215	Detected data appear Gamma Distributed at 5% Significance Level												
7216													
7217	Gamma Statistics												
7218	k hat (MLE)					3.753	k star (bias corrected MLE)					3.661	
7219	Theta hat (MLE)					2.066	Theta star (bias corrected MLE)					2.118	
7220	nu hat (MLE)					855.8	nu star (bias corrected)					834.6	
7221	MLE Mean (bias corrected)					7.754	MLE Sd (bias corrected)					4.053	
7222													
7223	Background Statistics Assuming Gamma Distribution												
7224	95% Wilson Hilferty (WH) Approx. Gamma UPL					15.44	90% Percentile					13.19	
7225	95% Hawkins Wixley (HW) Approx. Gamma UPL					15.71	95% Percentile					15.39	
7226	95% WH Approx. Gamma UTL with 95% Coverage					17	99% Percentile					20.12	
7227	95% HW Approx. Gamma UTL with 95% Coverage					17.42							
7228	95% WH USL					27.89	95% HW USL					29.88	
7229													
7230	Lognormal GOF Test												
7231	Shapiro Wilk Test Statistic					0.957	Shapiro Wilk Lognormal GOF Test						
7232	10% Shapiro Wilk P Value					0.00677	Data Not Lognormal at 10% Significance Level						
7233	Lilliefors Test Statistic					0.0726	Lilliefors Lognormal GOF Test						
7234	10% Lilliefors Critical Value					0.0762	Data appear Lognormal at 10% Significance Level						
7235	Data appear Approximate Lognormal at 10% Significance Level												
7236													
7237	Background Statistics assuming Lognormal Distribution												
7238	95% UTL with 95% Coverage					19.26	90% Percentile (z)					13.67	
7239	95% UPL (t)					16.89	95% Percentile (z)					16.7	
7240	95% USL					40.51	99% Percentile (z)					24.3	
7241													
7242	Nonparametric Distribution Free Background Statistics												
7243	Data appear Gamma Distributed at 5% Significance Level												
7244													
7245	Nonparametric Upper Limits for Background Threshold Values												
7246	Order of Statistic, order					113	95% UTL with 95% Coverage					17.5	
7247	Approx, f used to compute achieved CC					1.965	Approximate Actual Confidence Coefficient achieved by UTL					0.928	
7248							Approximate Sample Size needed to achieve specified CC					93	
7249	95% Percentile Bootstrap UTL with 95% Coverage					17.37	95% BCA Bootstrap UTL with 95% Coverage					17.37	
7250	95% UPL					16.15	90% Percentile					12.54	
7251	90% Chebyshev UPL					19.8	95% Percentile					14.93	
7252	95% Chebyshev UPL					25.26	99% Percentile					17.5	
7253	95% USL					22.5							
7254													
7255	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
7256	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
7257	and consists of observations collected from clean unimpacted locations.												
7258	The use of USL tends to provide a balance between false positives and false negatives provided the data												
7259	represents a background data set and when many onsite observations need to be compared with the BTV.												
7260													
7261	WV_As <17												
7262													
7263	General Statistics												
7264	Total Number of Observations					110	Number of Distinct Observations					71	
7265	Minimum					1.9	First Quartile					4.925	
7266	Second Largest					15.9	Median					6.6	
7267	Maximum					16.9	Third Quartile					10.08	
7268	Mean					7.355	SD					3.442	
7269	Coefficient of Variation					0.468	Skewness					0.444	
7270	Mean of logged Data					1.872	SD of logged Data					0.525	
7271													
7272	Critical Values for Background Threshold Values (BTVs)												
7273	Tolerance Factor K (For UTL)					1.909	d2max (for USL)					3.242	
7274													
7275	Normal GOF Test												
7276	Shapiro Wilk Test Statistic					0.947	Normal GOF Test						

	A	B	C	D	E	F	G	H	I	J	K	L	
7277	1% Shapiro Wilk P Value					5.6739E-4	Data Not Normal at 1% Significance Level						
7278	Lilliefors Test Statistic					0.122	Lilliefors GOF Test						
7279	1% Lilliefors Critical Value					0.098	Data Not Normal at 1% Significance Level						
7280	Data Not Normal at 1% Significance Level												
7281													
7282	Background Statistics Assuming Normal Distribution												
7283	95% UTL with		95% Coverage		13.93						90% Percentile (z)	11.77	
7284			95% UPL (t)		13.09						95% Percentile (z)	13.02	
7285			95% USL		18.51						99% Percentile (z)	15.36	
7286													
7287	Gamma GOF Test												
7288	A-D Test Statistic					0.817	Anderson-Darling Gamma GOF Test						
7289	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level						
7290	K-S Test Statistic					0.0793	Kolmogorov-Smirnov Gamma GOF Test						
7291	5% K-S Critical Value					0.0871	Detected data appear Gamma Distributed at 5% Significance Level						
7292	Detected data follow Appr. Gamma Distribution at 5% Significance Level												
7293													
7294	Gamma Statistics												
7295	k hat (MLE)					4.217	k star (bias corrected MLE)					4.108	
7296	Theta hat (MLE)					1.744	Theta star (bias corrected MLE)					1.79	
7297	nu hat (MLE)					927.8	nu star (bias corrected)					903.8	
7298	MLE Mean (bias corrected)					7.355	MLE Sd (bias corrected)					3.629	
7299													
7300	Background Statistics Assuming Gamma Distribution												
7301	95% Wilson Hilferty (WH) Approx.		Gamma UPL		14.21	90% Percentile					12.22		
7302	95% Hawkins Wixley (HW) Approx.		Gamma UPL		14.48	95% Percentile					14.16		
7303	95% WH Approx.		Gamma UTL with 95% Coverage		15.61	99% Percentile					18.29		
7304	95% HW Approx.		Gamma UTL with 95% Coverage		16								
7305			95% WH USL		24.94	95% HW USL					26.66		
7306													
7307	Lognormal GOF Test												
7308	Shapiro Wilk Test Statistic					0.94	Shapiro Wilk Lognormal GOF Test						
7309	10% Shapiro Wilk P Value					8.3096E-5	Data Not Lognormal at 10% Significance Level						
7310	Lilliefors Test Statistic					0.0802	Lilliefors Lognormal GOF Test						
7311	10% Lilliefors Critical Value					0.0776	Data Not Lognormal at 10% Significance Level						
7312	Data Not Lognormal at 10% Significance Level												
7313													
7314	Background Statistics assuming Lognormal Distribution												
7315	95% UTL with		95% Coverage		17.7	90% Percentile (z)					12.74		
7316			95% UPL (t)		15.59	95% Percentile (z)					15.41		
7317			95% USL		35.61	99% Percentile (z)					22.03		
7318													
7319	Nonparametric Distribution Free Background Statistics												
7320	Data appear Approximate Gamma Distribution at 5% Significance Level												
7321													
7322	Nonparametric Upper Limits for Background Threshold Values												
7323	Order of Statistic, order					109	95% UTL with 95% Coverage					15.9	
7324	Approx, f used to compute achieved CC					1.895	Approximate Actual Confidence Coefficient achieved by UTL					0.917	
7325							Approximate Sample Size needed to achieve specified CC					93	
7326	95% Percentile Bootstrap UTL with		95% Coverage		13.95	95% BCA Bootstrap UTL with 95% Coverage					13.4		
7327			95% UPL		13.09	90% Percentile					12.11		
7328			90% Chebyshev UPL		17.73	95% Percentile					12.82		
7329			95% Chebyshev UPL		22.42	99% Percentile					15.77		
7330			95% USL		16.9								
7331													
7332	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
7333	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
7334	and consists of observations collected from clean unimpacted locations.												
7335	The use of USL tends to provide a balance between false positives and false negatives provided the data												
7336	represents a background data set and when many onsite observations need to be compared with the BTV.												
7337													
7338	WV_As <14												
7339													
7340	General Statistics												
7341	Total Number of Observations					107	Number of Distinct Observations					68	
7342	Minimum					1.9	First Quartile					4.85	
7343	Second Largest					13.2	Median					6.2	
7344	Maximum					13.4	Third Quartile					9.95	

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	A	B	C	D	E	F	G	H	I	J	K	L
7345					Mean	7.121					SD	3.179
7346					Coefficient of Variation	0.446					Skewness	0.254
7347					Mean of logged Data	1.848					SD of logged Data	0.51
7348												
7349					Critical Values for Background Threshold Values (BTVs)							
7350					Tolerance Factor K (For UTL)	1.913					d2max (for USL)	3.232
7351												
7352					Normal GOF Test							
7353					Shapiro Wilk Test Statistic	0.933					Normal GOF Test	
7354					1% Shapiro Wilk P Value	1.8642E-5					Data Not Normal at 1% Significance Level	
7355					Lilliefors Test Statistic	0.119					Lilliefors GOF Test	
7356					1% Lilliefors Critical Value	0.0994					Data Not Normal at 1% Significance Level	
7357					Data Not Normal at 1% Significance Level							
7358												
7359					Background Statistics Assuming Normal Distribution							
7360					95% UTL with 95% Coverage	13.2					90% Percentile (z)	11.19
7361					95% UPL (t)	12.42					95% Percentile (z)	12.35
7362					95% USL	17.4					99% Percentile (z)	14.52
7363												
7364					Gamma GOF Test							
7365					A-D Test Statistic	1.04					Anderson-Darling Gamma GOF Test	
7366					5% A-D Critical Value	0.755					Data Not Gamma Distributed at 5% Significance Level	
7367					K-S Test Statistic	0.0849					Kolmogorov-Smirnov Gamma GOF Test	
7368					5% K-S Critical Value	0.0879					Detected data appear Gamma Distributed at 5% Significance Level	
7369					Detected data follow Appr. Gamma Distribution at 5% Significance Level							
7370												
7371					Gamma Statistics							
7372					k hat (MLE)	4.49					k star (bias corrected MLE)	4.37
7373					Theta hat (MLE)	1.586					Theta star (bias corrected MLE)	1.629
7374					nu hat (MLE)	960.8					nu star (bias corrected)	935.2
7375					MLE Mean (bias corrected)	7.121					MLE Sd (bias corrected)	3.406
7376												
7377					Background Statistics Assuming Gamma Distribution							
7378					95% Wilson Hilferty (WH) Approx. Gamma UPL	13.55					90% Percentile	11.68
7379					95% Hawkins Wixley (HW) Approx. Gamma UPL	13.8					95% Percentile	13.49
7380					95% WH Approx. Gamma UTL with 95% Coverage	14.86					99% Percentile	17.32
7381					95% HW Approx. Gamma UTL with 95% Coverage	15.24						
7382					95% WH USL	23.39					95% HW USL	24.95
7383												
7384					Lognormal GOF Test							
7385					Shapiro Wilk Test Statistic	0.923					Shapiro Wilk Lognormal GOF Test	
7386					10% Shapiro Wilk P Value	1.1433E-6					Data Not Lognormal at 10% Significance Level	
7387					Lilliefors Test Statistic	0.0814					Lilliefors Lognormal GOF Test	
7388					10% Lilliefors Critical Value	0.0786					Data Not Lognormal at 10% Significance Level	
7389					Data Not Lognormal at 10% Significance Level							
7390												
7391					Background Statistics assuming Lognormal Distribution							
7392					95% UTL with 95% Coverage	16.83					90% Percentile (z)	12.2
7393					95% UPL (t)	14.85					95% Percentile (z)	14.68
7394					95% USL	33					99% Percentile (z)	20.78
7395												
7396					Nonparametric Distribution Free Background Statistics							
7397					Data appear Approximate Gamma Distribution at 5% Significance Level							
7398												
7399					Nonparametric Upper Limits for Background Threshold Values							
7400					Order of Statistic, order	106					95% UTL with 95% Coverage	13.2
7401					Approx, f used to compute achieved CC	1.842					Approximate Actual Confidence Coefficient achieved by UTL	0.908
7402											Approximate Sample Size needed to achieve specified CC	93
7403					95% Percentile Bootstrap UTL with 95% Coverage	12.88					95% BCA Bootstrap UTL with 95% Coverage	12.88
7404					95% UPL	12.52					90% Percentile	12
7405					90% Chebyshev UPL	16.7					95% Percentile	12.37
7406					95% Chebyshev UPL	21.04					99% Percentile	13.19
7407					95% USL	13.4						
7408												
7409					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
7410					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
7411					and consists of observations collected from clean unpacted locations.							
7412					The use of USL tends to provide a balance between false positives and false negatives provided the data							

	A	B	C	D	E	F	G	H	I	J	K	L
7413	represents a background data set and when many onsite observations need to be compared with the BTV.											
7414												
7415	WV_Pb											
7416												
7417	General Statistics											
7418	Total Number of Observations					117	Number of Distinct Observations					97
7419	Minimum					5.9	First Quartile					17.1
7420	Second Largest					53.5	Median					24.1
7421	Maximum					61.2	Third Quartile					31.3
7422	Mean					24.85	SD					10.11
7423	Coefficient of Variation					0.407	Skewness					0.67
7424	Mean of logged Data					3.126	SD of logged Data					0.432
7425												
7426	Critical Values for Background Threshold Values (BTVs)											
7427	Tolerance Factor K (For UTL)					1.9	d2max (for USL)					3.262
7428												
7429	Normal GOF Test											
7430	Shapiro Wilk Test Statistic					0.964	Normal GOF Test					
7431	1% Shapiro Wilk P Value					0.0297	Data appear Normal at 1% Significance Level					
7432	Lilliefors Test Statistic					0.0772	Lilliefors GOF Test					
7433	1% Lilliefors Critical Value					0.0951	Data appear Normal at 1% Significance Level					
7434	Data appear Normal at 1% Significance Level											
7435												
7436	Background Statistics Assuming Normal Distribution											
7437	95% UTL with	95% Coverage	44.06						90% Percentile (z)	37.8		
7438		95% UPL (t)	41.68						95% Percentile (z)	41.48		
7439		95% USL	57.83						99% Percentile (z)	48.36		
7440												
7441	Gamma GOF Test											
7442	A-D Test Statistic					0.192	Anderson-Darling Gamma GOF Test					
7443	5% A-D Critical Value					0.754	Detected data appear Gamma Distributed at 5% Significance Level					
7444	K-S Test Statistic					0.0447	Kolmogorov-Smirnov Gamma GOF Test					
7445	5% K-S Critical Value					0.0852	Detected data appear Gamma Distributed at 5% Significance Level					
7446	Detected data appear Gamma Distributed at 5% Significance Level											
7447												
7448	Gamma Statistics											
7449	k hat (MLE)					5.932	k star (bias corrected MLE)					5.786
7450	Theta hat (MLE)					4.189	Theta star (bias corrected MLE)					4.295
7451	nu hat (MLE)					1388	nu star (bias corrected)					1354
7452	MLE Mean (bias corrected)					24.85	MLE Sd (bias corrected)					10.33
7453												
7454	Background Statistics Assuming Gamma Distribution											
7455	95% Wilson Hilferty (WH) Approx. Gamma UPL					44.03	90% Percentile					38.66
7456	95% Hawkins Wixley (HW) Approx. Gamma UPL					44.57	95% Percentile					43.91
7457	95% WH Approx. Gamma UTL with 95% Coverage					47.65	99% Percentile					54.93
7458	95% HW Approx. Gamma UTL with 95% Coverage					48.46						
7459	95% WH USL					72.59	95% HW USL					76.21
7460												
7461	Lognormal GOF Test											
7462	Shapiro Wilk Test Statistic					0.978	Shapiro Wilk Lognormal GOF Test					
7463	10% Shapiro Wilk P Value					0.395	Data appear Lognormal at 10% Significance Level					
7464	Lilliefors Test Statistic					0.0678	Lilliefors Lognormal GOF Test					
7465	10% Lilliefors Critical Value					0.0753	Data appear Lognormal at 10% Significance Level					
7466	Data appear Lognormal at 10% Significance Level											
7467												
7468	Background Statistics assuming Lognormal Distribution											
7469	95% UTL with	95% Coverage	51.78						90% Percentile (z)	39.63		
7470		95% UPL (t)	46.78						95% Percentile (z)	46.37		
7471		95% USL	93.25						99% Percentile (z)	62.24		
7472												
7473	Nonparametric Distribution Free Background Statistics											
7474	Data appear Normal at 1% Significance Level											
7475												
7476	Nonparametric Upper Limits for Background Threshold Values											
7477	Order of Statistic, order					116	95% UTL with 95% Coverage					53.5
7478	Approx, f used to compute achieved CC					2.018	Approximate Actual Confidence Coefficient achieved by UTL					0.936
7479							Approximate Sample Size needed to achieve specified CC					93
7480	95% Percentile Bootstrap UTL with 95% Coverage					42.92	95% BCA Bootstrap UTL with 95% Coverage					42.5

2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L
7481					95% UPL	42.22					90% Percentile	37.98
7482					90% Chebyshev UPL	55.3					95% Percentile	42.2
7483					95% Chebyshev UPL	69.1					99% Percentile	52.08
7484					95% USL	61.2						
7485												
7486					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
7487					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
7488					and consists of observations collected from clean unimpacted locations.							
7489					The use of USL tends to provide a balance between false positives and false negatives provided the data							
7490					represents a background data set and when many onsite observations need to be compared with the BTV.							
7491												
7492	WV_Pb <54											
7493												
7494	General Statistics											
7495					Total Number of Observations	116					Number of Distinct Observations	96
7496					Minimum	5.9					First Quartile	17.1
7497					Second Largest	44.6					Median	23.65
7498					Maximum	53.5					Third Quartile	31.3
7499					Mean	24.53					SD	9.565
7500					Coefficient of Variation	0.39					Skewness	0.412
7501					Mean of logged Data	3.118					SD of logged Data	0.424
7502												
7503					Critical Values for Background Threshold Values (BTVs)							
7504					Tolerance Factor K (For UTL)	1.901					d2max (for USL)	3.259
7505												
7506					Normal GOF Test							
7507					Shapiro Wilk Test Statistic	0.969					Normal GOF Test	
7508					1% Shapiro Wilk P Value	0.0909					Data appear Normal at 1% Significance Level	
7509					Lilliefors Test Statistic	0.0746					Lilliefors GOF Test	
7510					1% Lilliefors Critical Value	0.0955					Data appear Normal at 1% Significance Level	
7511					Data appear Normal at 1% Significance Level							
7512												
7513					Background Statistics Assuming Normal Distribution							
7514					95% UTL with 95% Coverage	42.72					90% Percentile (z)	36.79
7515					95% UPL (t)	40.46					95% Percentile (z)	40.27
7516					95% USL	55.71					99% Percentile (z)	46.79
7517												
7518					Gamma GOF Test							
7519					A-D Test Statistic	0.279					Anderson-Darling Gamma GOF Test	
7520					5% A-D Critical Value	0.754					Detected data appear Gamma Distributed at 5% Significance Level	
7521					K-S Test Statistic	0.0519					Kolmogorov-Smirnov Gamma GOF Test	
7522					5% K-S Critical Value	0.0854					Detected data appear Gamma Distributed at 5% Significance Level	
7523					Detected data appear Gamma Distributed at 5% Significance Level							
7524												
7525					Gamma Statistics							
7526					k hat (MLE)	6.224					k star (bias corrected MLE)	6.069
7527					Theta hat (MLE)	3.942					Theta star (bias corrected MLE)	4.043
7528					nu hat (MLE)	1444					nu star (bias corrected)	1408
7529					MLE Mean (bias corrected)	24.53					MLE Sd (bias corrected)	9.959
7530												
7531					Background Statistics Assuming Gamma Distribution							
7532					95% Wilson Hilferty (WH) Approx. Gamma UPL	43					90% Percentile	37.85
7533					95% Hawkins Wixley (HW) Approx. Gamma UPL	43.55					95% Percentile	42.87
7534					95% WH Approx. Gamma UTL with 95% Coverage	46.48					99% Percentile	53.4
7535					95% HW Approx. Gamma UTL with 95% Coverage	47.29						
7536					95% WH USL	70.18					95% HW USL	73.67
7537												
7538					Lognormal GOF Test							
7539					Shapiro Wilk Test Statistic	0.97					Shapiro Wilk Lognormal GOF Test	
7540					10% Shapiro Wilk P Value	0.0956					Data Not Lognormal at 10% Significance Level	
7541					Lilliefors Test Statistic	0.0729					Lilliefors Lognormal GOF Test	
7542					10% Lilliefors Critical Value	0.0756					Data appear Lognormal at 10% Significance Level	
7543					Data appear Approximate Lognormal at 10% Significance Level							
7544												
7545					Background Statistics assuming Lognormal Distribution							
7546					95% UTL with 95% Coverage	50.58					90% Percentile (z)	38.89
7547					95% UPL (t)	45.76					95% Percentile (z)	45.37
7548					95% USL	89.94					99% Percentile (z)	60.56

	A	B	C	D	E	F	G	H	I	J	K	L	
7549													
7550	Nonparametric Distribution Free Background Statistics												
7551	Data appear Normal at 1% Significance Level												
7552													
7553	Nonparametric Upper Limits for Background Threshold Values												
7554	Order of Statistic, order					115	95% UTL with 95% Coverage					44.6	
7555	Approx, f used to compute achieved CC					2	Approximate Actual Confidence Coefficient achieved by UTL					0.933	
7556							Approximate Sample Size needed to achieve specified CC					93	
7557	95% Percentile Bootstrap UTL with 95% Coverage					42.43	95% BCA Bootstrap UTL with 95% Coverage					42.43	
7558	95% UPL					42.2	90% Percentile					37.85	
7559	90% Chebyshev UPL					53.35	95% Percentile					41.98	
7560	95% Chebyshev UPL					66.41	99% Percentile					44.29	
7561	95% USL					53.5							
7562													
7563	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
7564	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
7565	and consists of observations collected from clean unimpacted locations.												
7566	The use of USL tends to provide a balance between false positives and false negatives provided the data												
7567	represents a background data set and when many onsite observations need to be compared with the BTV.												
7568													
7569	WV_Pb <41												
7570													
7571	General Statistics												
7572	Total Number of Observations					109	Number of Distinct Observations					90	
7573	Minimum					5.9	First Quartile					17	
7574	Second Largest					39.6	Median					22.1	
7575	Maximum					40.9	Third Quartile					29.7	
7576	Mean					23.27	SD					8.354	
7577	Coefficient of Variation					0.359	Skewness					0.151	
7578	Mean of logged Data					3.075	SD of logged Data					0.4	
7579													
7580	Critical Values for Background Threshold Values (BTVs)												
7581	Tolerance Factor K (For UTL)					1.91	d2max (for USL)					3.239	
7582													
7583	Normal GOF Test												
7584	Shapiro Wilk Test Statistic					0.963	Normal GOF Test						
7585	1% Shapiro Wilk P Value					0.0314	Data appear Normal at 1% Significance Level						
7586	Lilliefors Test Statistic					0.0644	Lilliefors GOF Test						
7587	1% Lilliefors Critical Value					0.0985	Data appear Normal at 1% Significance Level						
7588	Data appear Normal at 1% Significance Level												
7589													
7590	Background Statistics Assuming Normal Distribution												
7591	95% UTL with 95% Coverage					39.23	90% Percentile (z)					33.98	
7592	95% UPL (t)					37.2	95% Percentile (z)					37.01	
7593	95% USL					50.33	99% Percentile (z)					42.71	
7594													
7595	Gamma GOF Test												
7596	A-D Test Statistic					0.496	Anderson-Darling Gamma GOF Test						
7597	5% A-D Critical Value					0.753	Detected data appear Gamma Distributed at 5% Significance Level						
7598	K-S Test Statistic					0.0709	Kolmogorov-Smirnov Gamma GOF Test						
7599	5% K-S Critical Value					0.0872	Detected data appear Gamma Distributed at 5% Significance Level						
7600	Detected data appear Gamma Distributed at 5% Significance Level												
7601													
7602	Gamma Statistics												
7603	k hat (MLE)					7.057	k star (bias corrected MLE)					6.869	
7604	Theta hat (MLE)					3.298	Theta star (bias corrected MLE)					3.388	
7605	nu hat (MLE)					1538	nu star (bias corrected)					1497	
7606	MLE Mean (bias corrected)					23.27	MLE Sd (bias corrected)					8.88	
7607													
7608	Background Statistics Assuming Gamma Distribution												
7609	95% Wilson Hilferty (WH) Approx. Gamma UPL					39.67	90% Percentile					35.13	
7610	95% Hawkins Wixley (HW) Approx. Gamma UPL					40.17	95% Percentile					39.54	
7611	95% WH Approx. Gamma UTL with 95% Coverage					42.81	99% Percentile					48.72	
7612	95% HW Approx. Gamma UTL with 95% Coverage					43.54							
7613	95% WH USL					62.85	95% HW USL					65.78	
7614													
7615	Lognormal GOF Test												
7616	Shapiro Wilk Test Statistic					0.952	Shapiro Wilk Lognormal GOF Test						

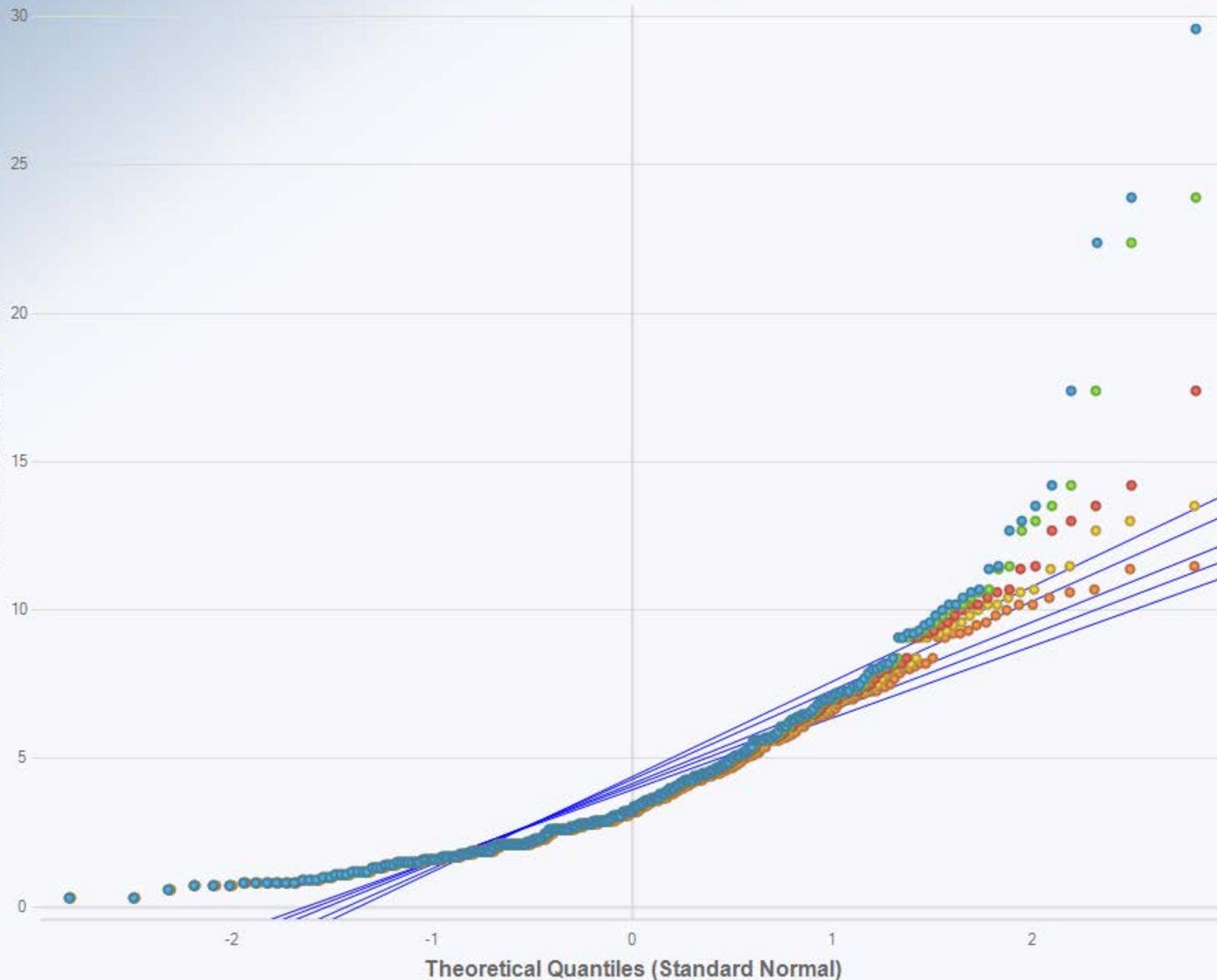
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2013 USGS BTV Evaluation

	A	B	C	D	E	F	G	H	I	J	K	L
7685	Background Statistics Assuming Gamma Distribution											
7686	95% Wilson Hilferty (WH) Approx. Gamma UPL					36.05	90% Percentile					32.14
7687	95% Hawkins Wixley (HW) Approx. Gamma UPL					36.5	95% Percentile					35.93
7688	95% WH Approx. Gamma UTL with		95% Coverage		38.88	99% Percentile					43.79	
7689	95% HW Approx. Gamma UTL with		95% Coverage		39.53							
7690	95% WH USL					55.26	95% HW USL					57.61
7691												
7692	Lognormal GOF Test											
7693	Shapiro Wilk Test Statistic					0.938	Shapiro Wilk Lognormal GOF Test					
7694	10% Shapiro Wilk P Value					1.7463E-4	Data Not Lognormal at 10% Significance Level					
7695	Lilliefors Test Statistic					0.0893	Lilliefors Lognormal GOF Test					
7696	10% Lilliefors Critical Value					0.0817	Data Not Lognormal at 10% Significance Level					
7697	Data Not Lognormal at 10% Significance Level											
7698												
7699	Background Statistics assuming Lognormal Distribution											
7700	95% UTL with		95% Coverage		42.07	90% Percentile (z)					33.06	
7701			95% UPL (t)		38.22	95% Percentile (z)					37.88	
7702			95% USL		68.01	99% Percentile (z)					48.9	
7703												
7704	Nonparametric Distribution Free Background Statistics											
7705	Data appear Normal at 1% Significance Level											
7706												
7707	Nonparametric Upper Limits for Background Threshold Values											
7708	Order of Statistic, order					98	95% UTL with 95% Coverage					34.8
7709	Approx, f used to compute achieved CC					1.702	Approximate Actual Confidence Coefficient achieved by UTL					0.878
7710							Approximate Sample Size needed to achieve specified CC					93
7711	95% Percentile Bootstrap UTL with		95% Coverage		34.4	95% BCA Bootstrap UTL with 95% Coverage					34.4	
7712			95% UPL		33.1	90% Percentile					31.52	
7713			90% Chebyshev UPL		43.53	95% Percentile					32.83	
7714			95% Chebyshev UPL		53.38	99% Percentile					34.8	
7715	95% USL					34.9						
7716												
7717	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
7718	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
7719	and consists of observations collected from clean unimpacted locations.											
7720	The use of USL tends to provide a balance between false positives and false negatives provided the data											
7721	represents a background data set and when many onsite observations need to be compared with the BTV.											

Normal Q-Q Plot

Ordered Observations



● AL_As ● AL_As <24 ● AL_As <18 ● AL_As <14 ● AL_As <12

AL_As

N = 255
Mean = 4.389
Sd = 3.685
Slope = 3.223
Intercept = 4.389
Correlation, R = 0.87

AL_As <24

N = 254
Mean = 4.289
Sd = 3.334
Slope = 3.022
Intercept = 4.289
Correlation, R = 0.902

AL_As <18

N = 252
Mean = 4.14
Sd = 2.888
Slope = 2.735
Intercept = 4.14
Correlation, R = 0.942

AL_As <14

N = 250
Mean = 4.046
Sd = 2.699
Slope = 2.586
Intercept = 4.046
Correlation, R = 0.953

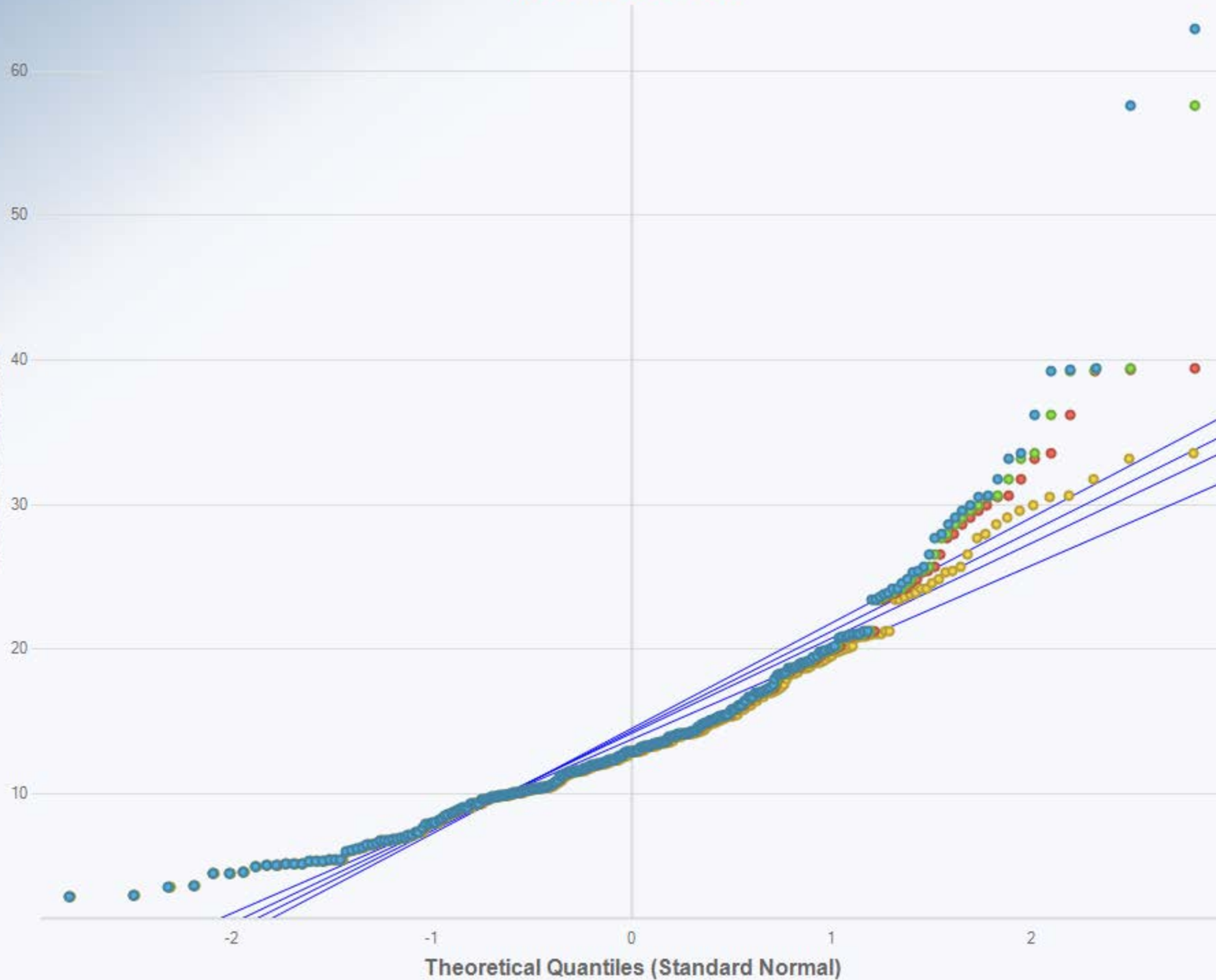
AL_As <12

N = 247
Mean = 3.937
Sd = 2.524
Slope = 2.435
Intercept = 3.937
Correlation, R = 0.96

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations



● AL_Pb ● AL_Pb <58 ● AL_Pb <40 ● AL_Pb <34

AL_Pb

N = 255
Mean = 14.5
Sd = 7.95
Slope = 7.303
Intercept = 14.5
Correlation, R = 0.914

AL_Pb <58

N = 254
Mean = 14.31
Sd = 7.359
Slope = 6.935
Intercept = 14.31
Correlation, R = 0.938

AL_Pb <40

N = 253
Mean = 14.14
Sd = 6.848
Slope = 6.596
Intercept = 14.14
Correlation, R = 0.958

AL_Pb <34

N = 249
Mean = 13.75
Sd = 6.155
Slope = 6.028
Intercept = 13.75
Correlation, R = 0.974

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations

250

200

150

100

50

0

-2

-1

0

1

2

Theoretical Quantiles (Standard Normal)

● AR_As ● AR_As <41 ● AR_As <24 ● AR_As <16

AR_As

N = 261
Mean = 7.722
Sd = 18
Slope = 7.046
Intercept = 7.722
Correlation, R = 0.39

AR_As <41

N = 260
Mean = 6.644
Sd = 4.54
Slope = 4.077
Intercept = 6.644
Correlation, R = 0.893

AR_As <24

N = 258
Mean = 6.428
Sd = 3.802
Slope = 3.638
Intercept = 6.428
Correlation, R = 0.952

AR_As <16

N = 251
Mean = 6.092
Sd = 3.244
Slope = 3.169
Intercept = 6.092
Correlation, R = 0.972

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations

100

80

60

40

20

Theoretical Quantiles (Standard Normal)

● AR_Pb ● AR_Pb <70 ● AR_Pb <48 ● AR_Pb <38

AR_Pb

N = 261
Mean = 19.32
Sd = 11.57
Slope = 9.373
Intercept = 19.32
Correlation, R = 0.806

AR_Pb <70

N = 259
Mean = 18.66
Sd = 8.766
Slope = 7.958
Intercept = 18.66
Correlation, R = 0.903

AR_Pb <48

N = 255
Mean = 17.98
Sd = 6.888
Slope = 6.72
Intercept = 17.98
Correlation, R = 0.971

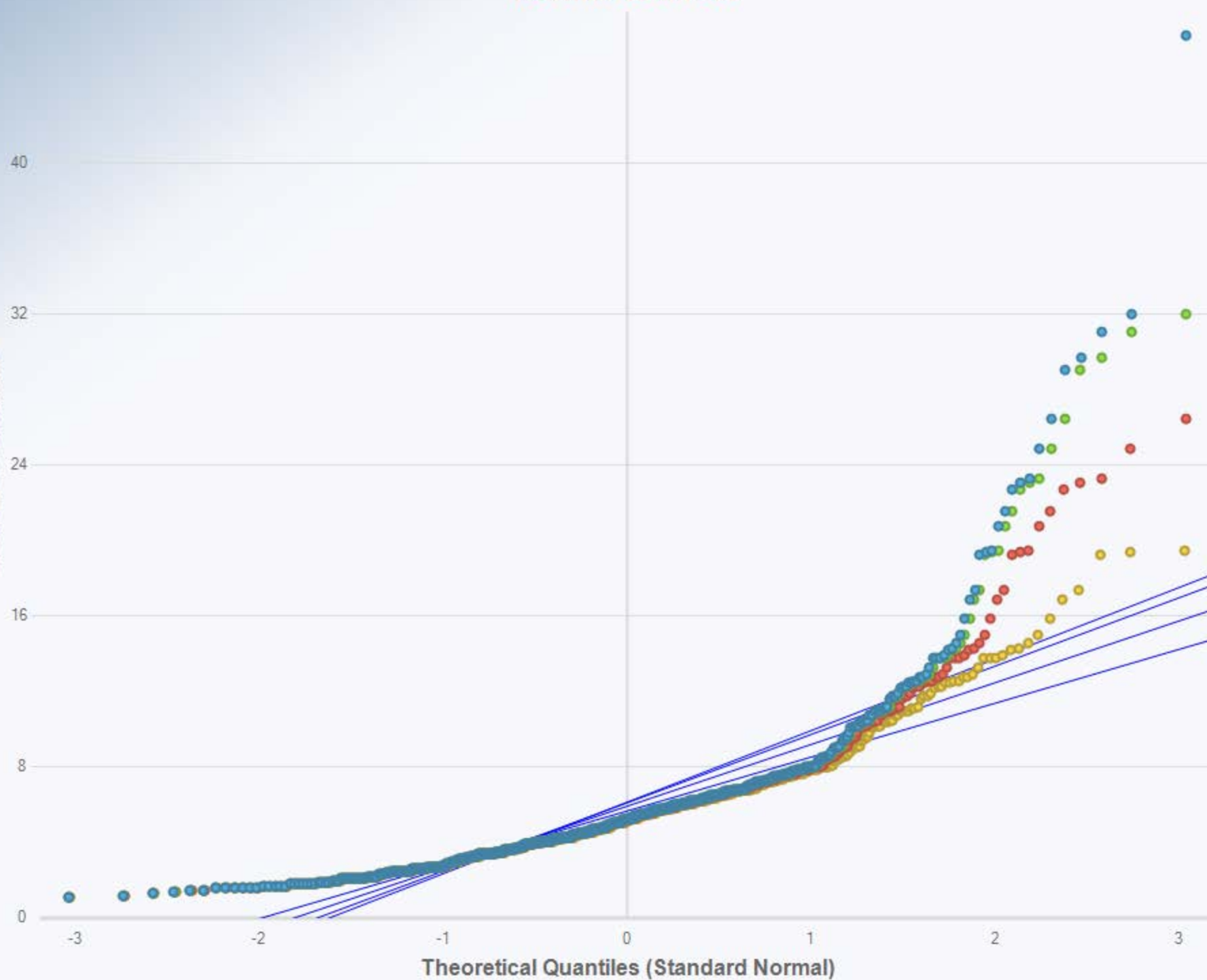
AR_Pb <38

N = 252
Mean = 17.64
Sd = 6.176
Slope = 6.151
Intercept = 17.64
Correlation, R = 0.991

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations



● AZ_As ● AZ_As <33 ● AZ_As <27 ● AZ_As <20

AZ_As

N = 530
Mean = 6.136
Sd = 4.55
Slope = 3.807
Intercept = 6.136
Correlation, R = 0.834

AZ_As <33

N = 529
Mean = 6.059
Sd = 4.196
Slope = 3.633
Intercept = 6.059
Correlation, R = 0.863

AZ_As <27

N = 525
Mean = 5.873
Sd = 3.626
Slope = 3.283
Intercept = 5.873
Correlation, R = 0.903

AZ_As <20

N = 518
Mean = 5.638
Sd = 3.021
Slope = 2.87
Intercept = 5.638
Correlation, R = 0.947

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations

150
125
100
75
50
25
0

-3 -2 -1 0 1 2 3

Theoretical Quantiles (Standard Normal)

● AZ_Pb ● AZ_Pb <93 ● AZ_Pb <50 ● AZ_Pb <40

AZ_Pb

N = 530
Mean = 21.14
Sd = 13.54
Slope = 10.97
Intercept = 21.14
Correlation, R = 0.808

AZ_Pb <93

N = 526
Mean = 20.36
Sd = 10.02
Slope = 9.257
Intercept = 20.36
Correlation, R = 0.921

AZ_Pb <50

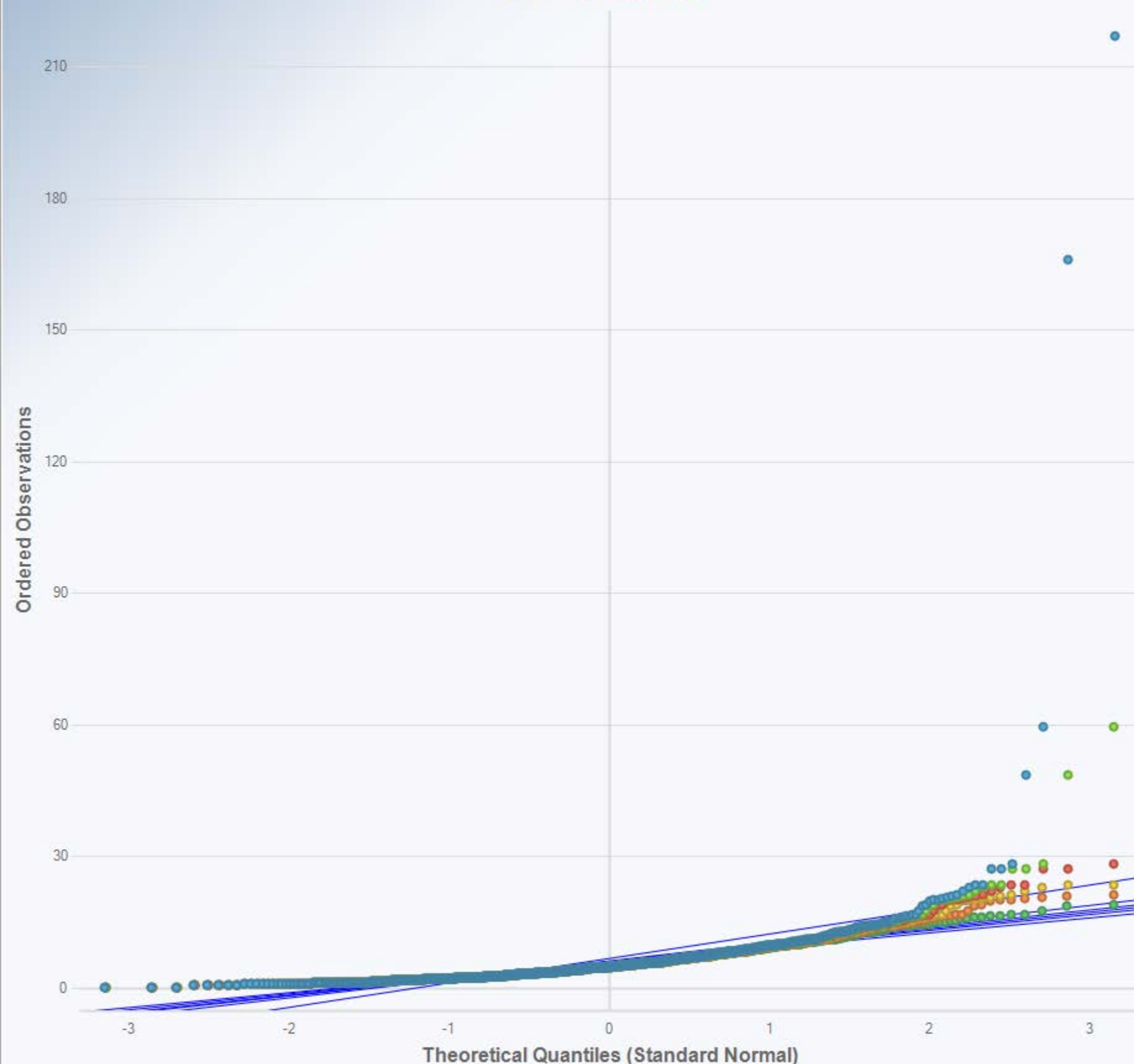
N = 517
Mean = 19.57
Sd = 7.932
Slope = 7.821
Intercept = 19.57
Correlation, R = 0.983

AZ_Pb <40

N = 509
Mean = 19.18
Sd = 7.336
Slope = 7.285
Intercept = 19.18
Correlation, R = 0.99

■ Best Fit Line

Normal Q-Q Plot



● CA_As
 ● CA_As <60
 ● CA_As <30
 ● CA_As <24
 ● CA_As <22
 ● CA_As <20

CA_As
 N = 773
 Mean = 6.601
 Sd = 10.7
 Slope = 5.614
 Intercept = 6.601
 Correlation, R = 0.524

CA_As <60
 N = 771
 Mean = 6.121
 Sd = 4.905
 Slope = 4.258
 Intercept = 6.121
 Correlation, R = 0.866

CA_As <30
 N = 769
 Mean = 5.996
 Sd = 4.244
 Slope = 3.953
 Intercept = 5.996
 Correlation, R = 0.93

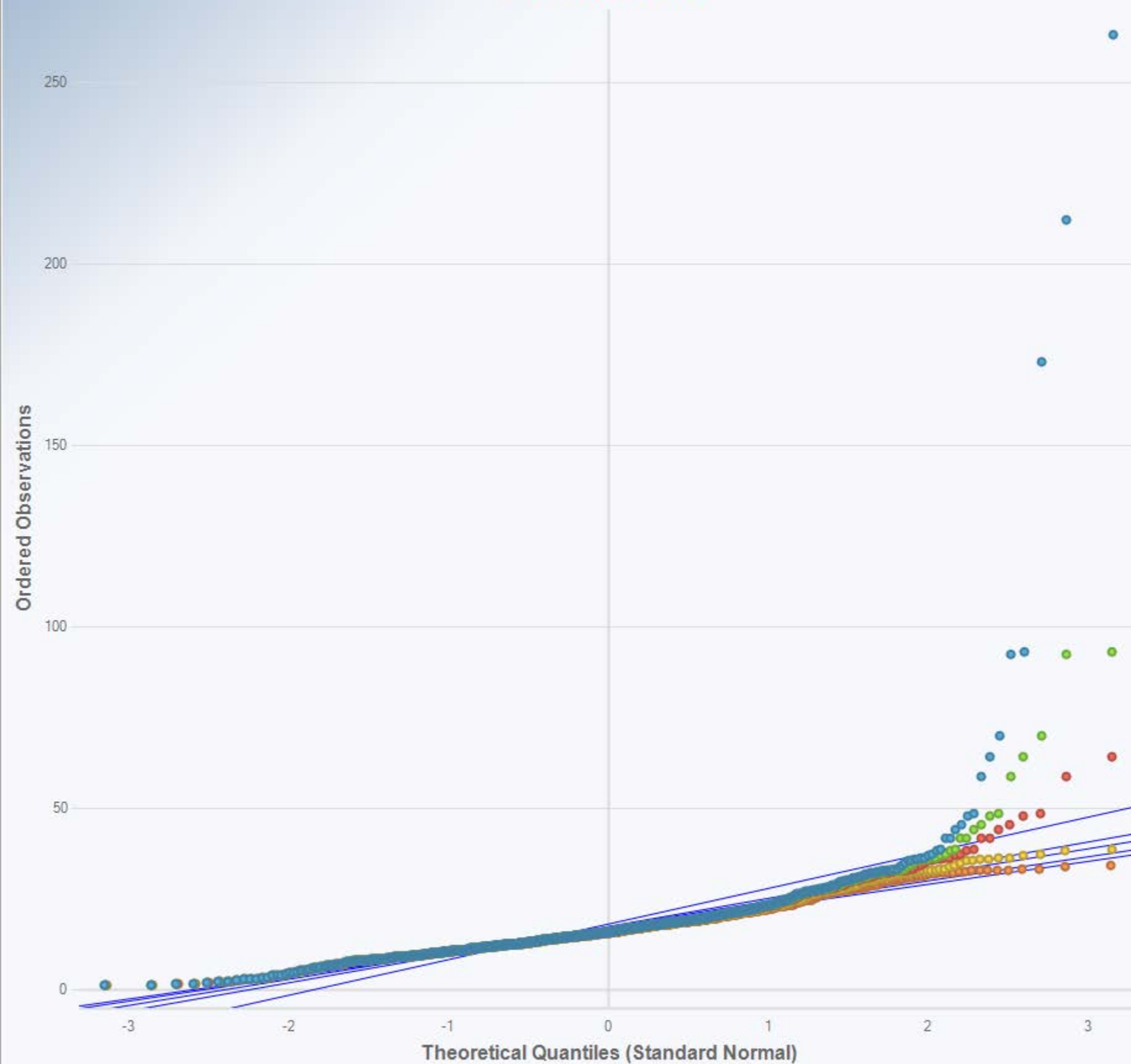
CA_As <24
 N = 766
 Mean = 5.911
 Sd = 4.027
 Slope = 3.8
 Intercept = 5.911
 Correlation, R = 0.942

CA_As <22
 N = 762
 Mean = 5.821
 Sd = 3.839
 Slope = 3.656
 Intercept = 5.821
 Correlation, R = 0.95

CA_As <20
 N = 755
 Mean = 5.684
 Sd = 3.582
 Slope = 3.447
 Intercept = 5.684
 Correlation, R = 0.961

■ Best Fit Line

Normal Q-Q Plot



CA_Pb
N = 773
Mean = 18.3
Sd = 15.22
Slope = 9.853
Intercept = 18.3
Correlation, R = 0.646

CA_Pb <100
N = 770
Mean = 17.53
Sd = 8.621
Slope = 7.818
Intercept = 17.53
Correlation, R = 0.905

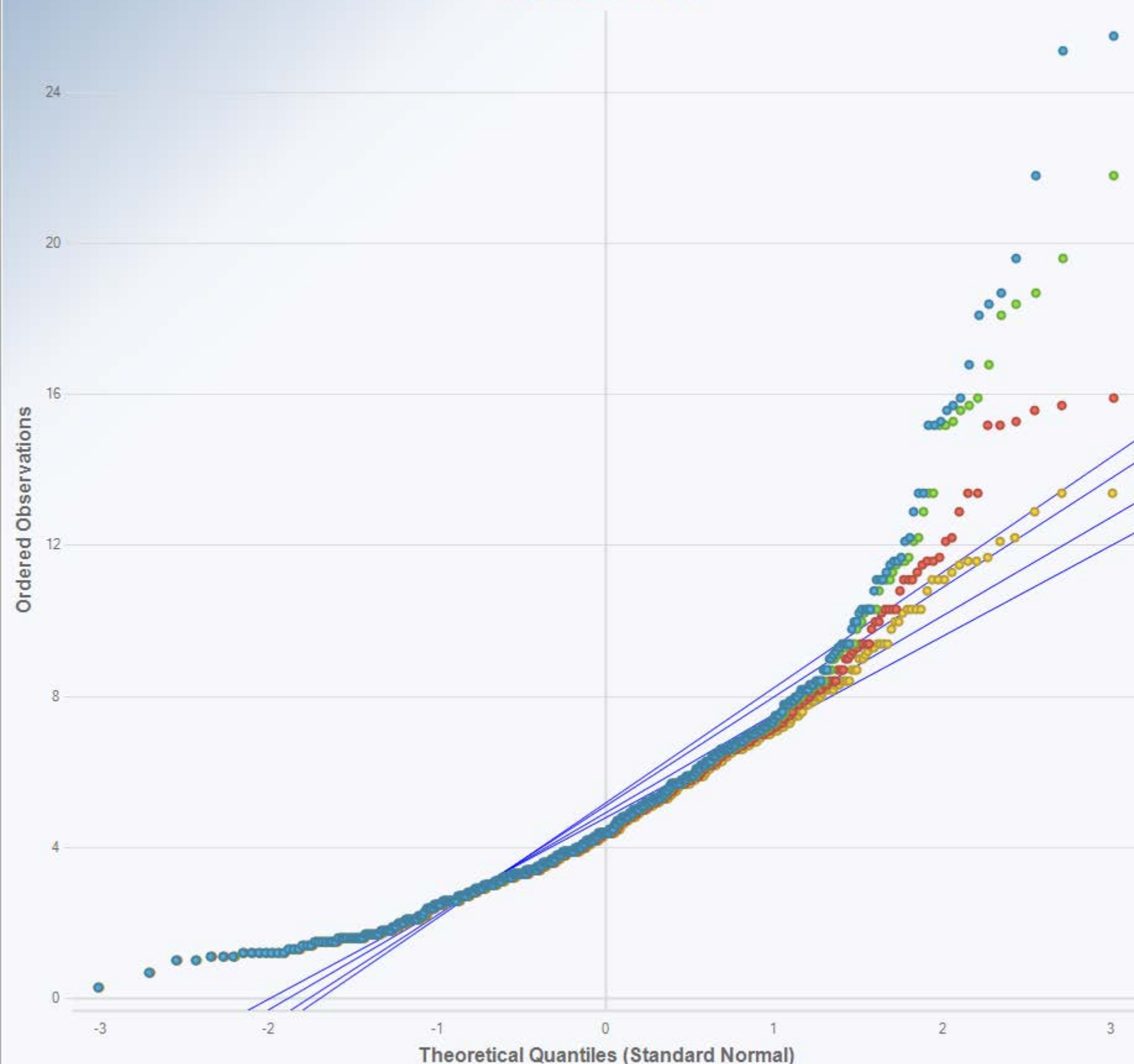
CA_Pb <65
N = 767
Mean = 17.26
Sd = 7.489
Slope = 7.222
Intercept = 17.26
Correlation, R = 0.962

CA_Pb <40
N = 759
Mean = 16.93
Sd = 6.719
Slope = 6.633
Intercept = 16.93
Correlation, R = 0.985

CA_Pb <35
N = 748
Mean = 16.63
Sd = 6.316
Slope = 6.267
Intercept = 16.63
Correlation, R = 0.99

Best Fit Line

Normal Q-Q Plot



CO_As
N = 493
Mean = 5.169
Sd = 3.359
Slope = 3.055
Intercept = 5.169
Correlation, R = 0.907

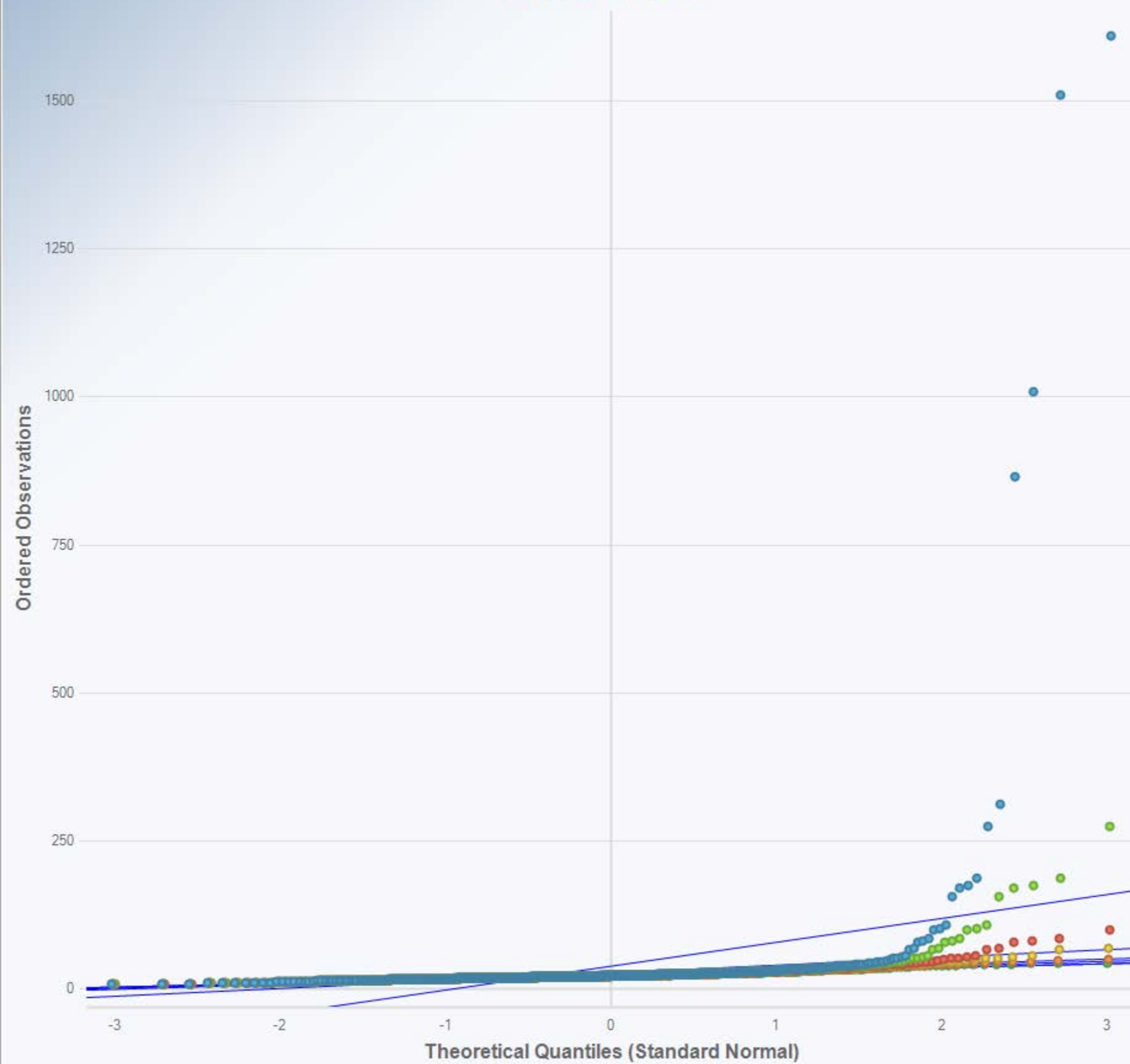
CO_As <22
N = 491
Mean = 5.087
Sd = 3.11
Slope = 2.898
Intercept = 5.087
Correlation, R = 0.929

CO_As <16
N = 485
Mean = 4.916
Sd = 2.714
Slope = 2.61
Intercept = 4.916
Correlation, R = 0.959

CO_As <14
N = 479
Mean = 4.784
Sd = 2.457
Slope = 2.405
Intercept = 4.784
Correlation, R = 0.976

Best Fit Line

Normal Q-Q Plot



CO_Pb

N = 493
 Mean = 36.78
 Sd = 116
 Slope = 40.6
 Intercept = 36.78
 Correlation, R = 0.349

CO_Pb <275

N = 488
 Mean = 26.28
 Sd = 20.6
 Slope = 13.13
 Intercept = 26.28
 Correlation, R = 0.636

CO_Pb <100

N = 481
 Mean = 24.23
 Sd = 9.71
 Slope = 8.467
 Intercept = 24.23
 Correlation, R = 0.869

CO_Pb <70

N = 477
 Mean = 23.71
 Sd = 7.873
 Slope = 7.413
 Intercept = 23.71
 Correlation, R = 0.939

CO_Pb <50

N = 471
 Mean = 23.27
 Sd = 6.843
 Slope = 6.661
 Intercept = 23.27
 Correlation, R = 0.971

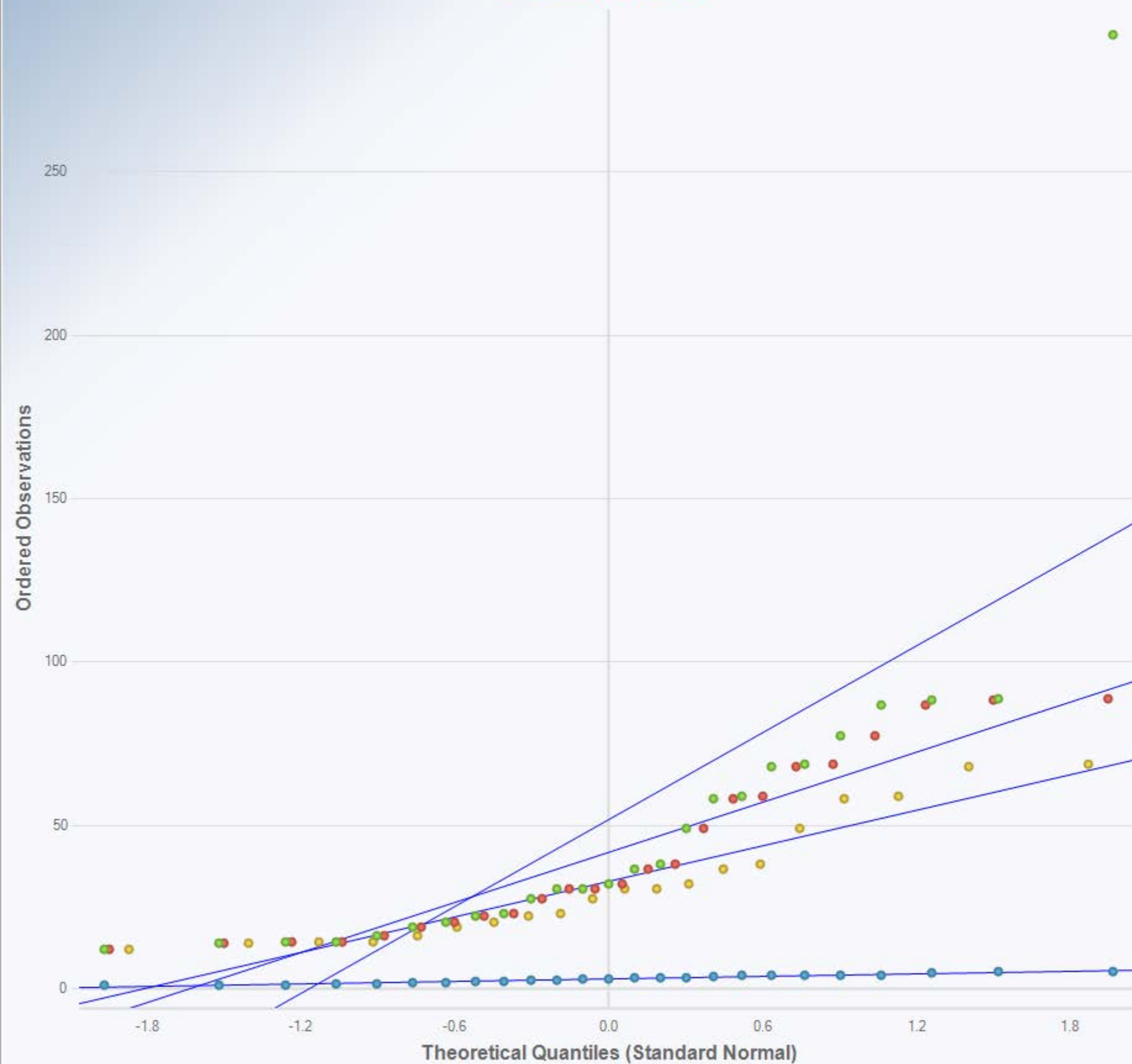
CO_Pb <45

N = 466
 Mean = 23.01
 Sd = 6.408
 Slope = 6.296
 Intercept = 23.01
 Correlation, R = 0.98

Best Fit Line

CO_Pb CO_Pb <275 CO_Pb <100 CO_Pb <70 CO_Pb <50 CO_Pb <45

Normal Q-Q Plot



CT_As
N = 25
Mean = 3.148
Sd = 1.292
Slope = 1.308
Intercept = 3.148
Correlation, R = 0.981

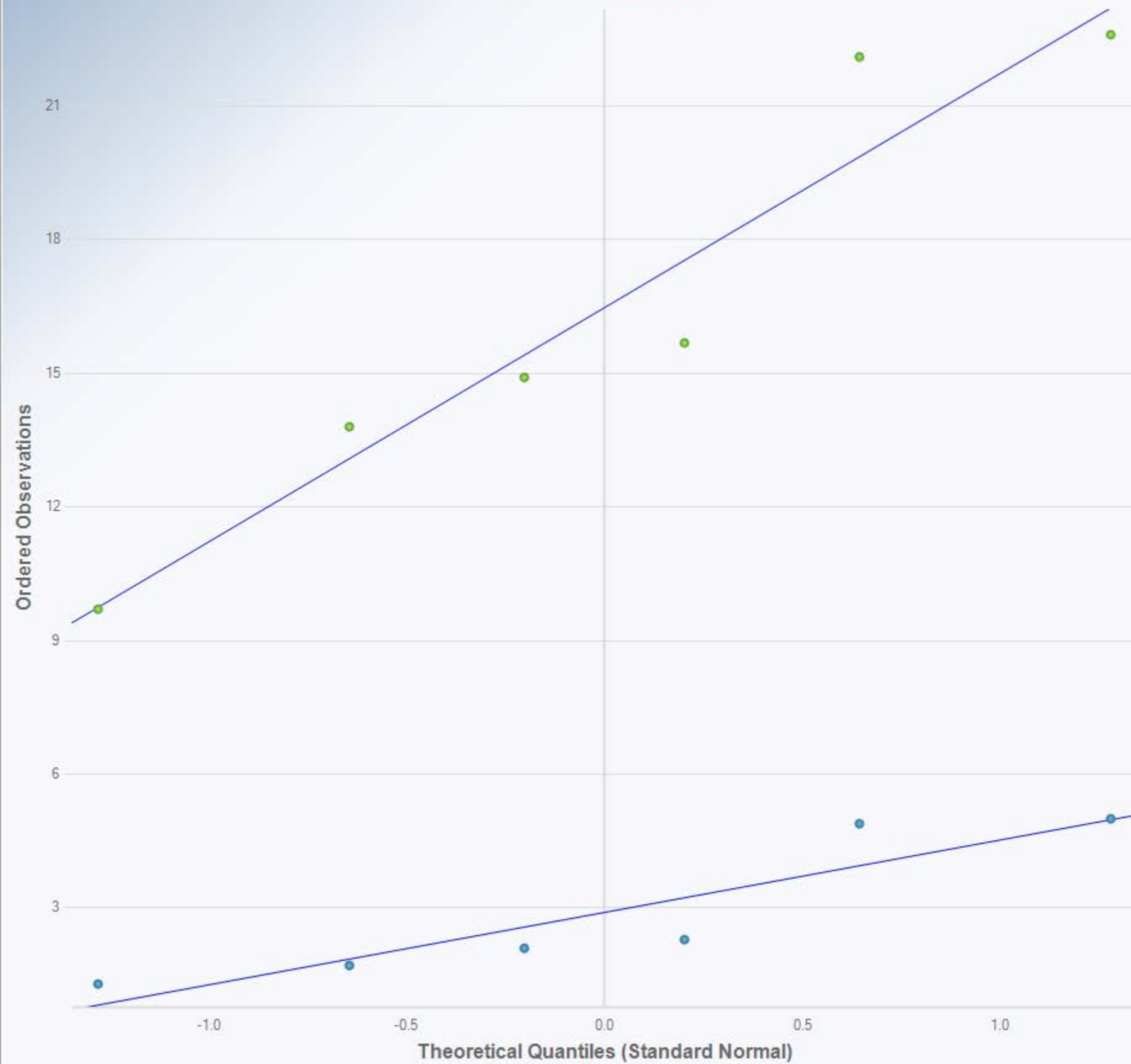
CT_Pb
N = 25
Mean = 51.6
Sd = 56.29
Slope = 44.37
Intercept = 51.6
Correlation, R = 0.764

CT_Pb <90
N = 24
Mean = 41.58
Sd = 26.25
Slope = 25.63
Intercept = 41.58
Correlation, R = 0.945

CT_Pb <69
N = 20
Mean = 32.79
Sd = 18.48
Slope = 18.14
Intercept = 32.79
Correlation, R = 0.946

Best Fit Line

Normal Q-Q Plot



DE_As

N = 6

Mean = 2.883

Sd = 1.638

Slope = 1.631

Intercept = 2.883

Correlation, R = 0.912

DE_Pb

N = 6

Mean = 16.47

Sd = 5.006

Slope = 5.253

Intercept = 16.47

Correlation, R = 0.961

Best Fit Line

DE_As DE_Pb

Normal Q-Q Plot

FL_Pb

N = 267
Mean = 5.044
Sd = 4.85
Slope = 4.318
Intercept = 5.044
Correlation, R = 0.886

FL_Pb <23

N = 265
Mean = 4.873
Sd = 4.446
Slope = 4.028
Intercept = 4.873
Correlation, R = 0.902

FL_Pb <15

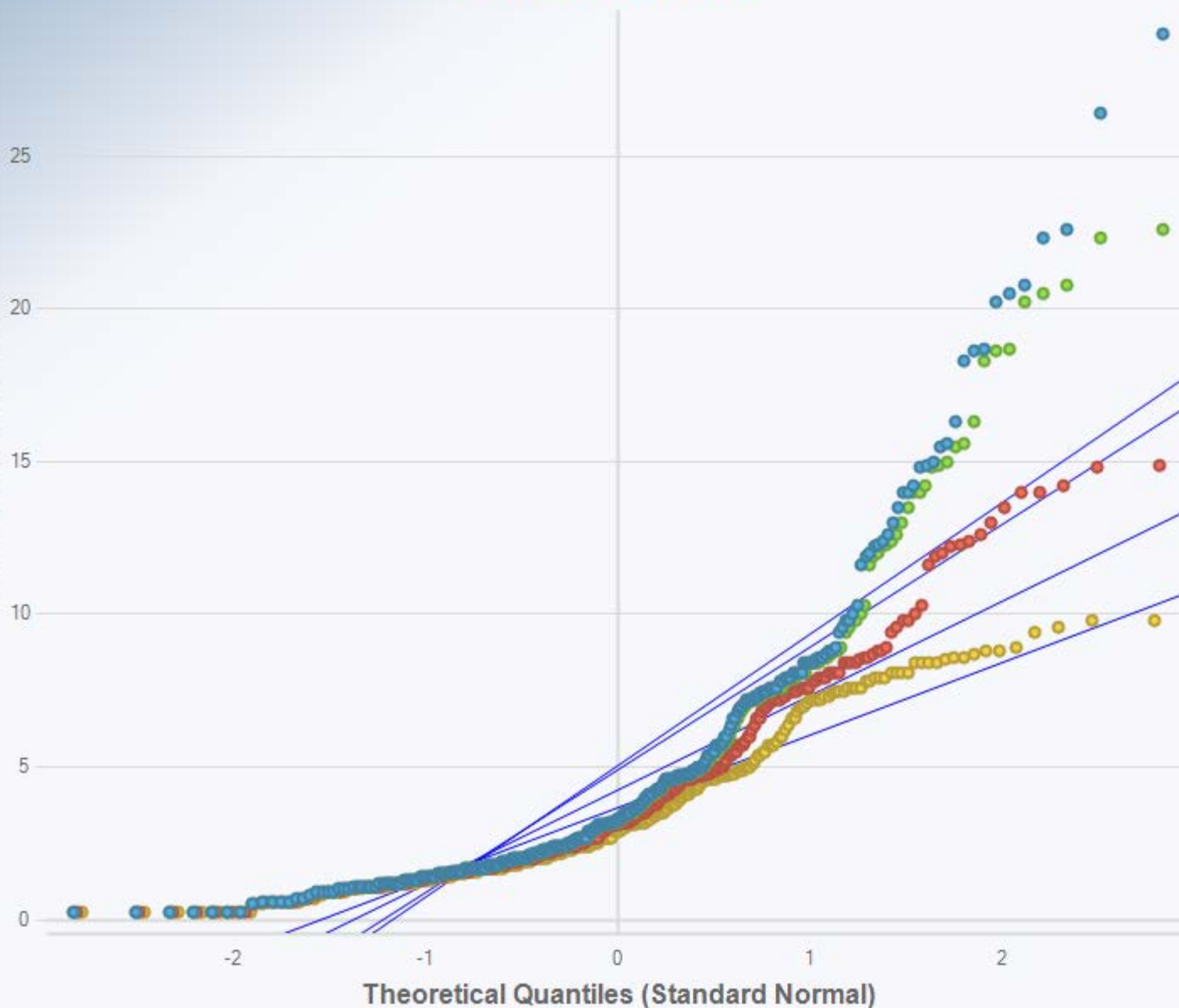
N = 253
Mean = 4.217
Sd = 3.296
Slope = 3.106
Intercept = 4.217
Correlation, R = 0.938

FL_Pb <10

N = 237
Mean = 3.642
Sd = 2.494
Slope = 2.395
Intercept = 3.642
Correlation, R = 0.955

Best Fit Line

Ordered Observations



FL_Pb FL_Pb <23 FL_Pb <15 FL_Pb <10

Normal Q-Q Plot

Ordered Observations

70

60

50

40

30

20

10

0

-2

-1

0

1

2

Theoretical Quantiles (Standard Normal)

GA_As

GA_As <27

GA_As <19

GA_As <10

GA_As

N = 280

Mean = 3.148

Sd = 5.196

Slope = 3.231

Intercept = 3.148

Correlation, R = 0.619

GA_As <27

N = 279

Mean = 2.904

Sd = 3.214

Slope = 2.608

Intercept = 2.904

Correlation, R = 0.808

GA_As <19

N = 277

Mean = 2.742

Sd = 2.594

Slope = 2.272

Intercept = 2.742

Correlation, R = 0.872

GA_As <10

N = 272

Mean = 2.538

Sd = 2.104

Slope = 1.923

Intercept = 2.538

Correlation, R = 0.91

Best Fit Line

Normal Q-Q Plot

Ordered Observations

180

150

120

90

60

30

0

-2

-1

0

1

2

Theoretical Quantiles (Standard Normal)

GA_Pb GA_Pb <66 GA_Pb <46 GA_Pb <40

GA_Pb

N = 280
Mean = 15.72
Sd = 16.35
Slope = 12.14
Intercept = 15.72
Correlation, R = 0.739

GA_Pb <66

N = 278
Mean = 14.69
Sd = 10.22
Slope = 9.655
Intercept = 14.69
Correlation, R = 0.94

GA_Pb <46

N = 276
Mean = 14.37
Sd = 9.52
Slope = 9.106
Intercept = 14.37
Correlation, R = 0.952

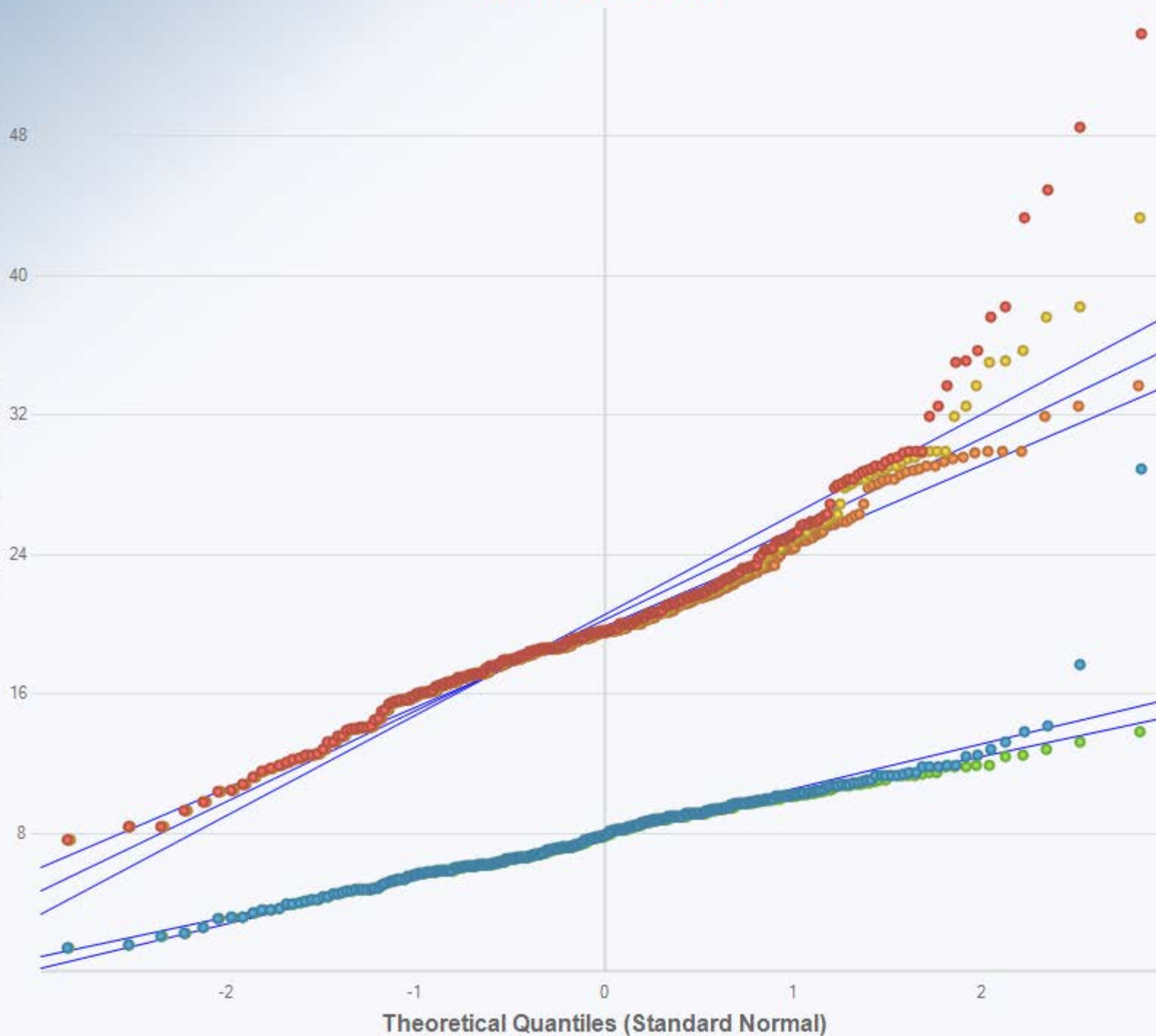
GA_Pb <40

N = 271
Mean = 13.84
Sd = 8.76
Slope = 8.432
Intercept = 13.84
Correlation, R = 0.958

Best Fit Line

Normal Q-Q Plot

Ordered Observations



IA_As

N = 273
Mean = 7.937
Sd = 2.725
Slope = 2.59
Intercept = 7.937
Correlation, R = 0.946

IA_As <14

N = 270
Mean = 7.8
Sd = 2.315
Slope = 2.318
Intercept = 7.8
Correlation, R = 0.997

IA_Pb

N = 273
Mean = 20.55
Sd = 6.094
Slope = 5.774
Intercept = 20.55
Correlation, R = 0.943

IA_Pb <44

N = 270
Mean = 20.24
Sd = 5.311
Slope = 5.215
Intercept = 20.24
Correlation, R = 0.977

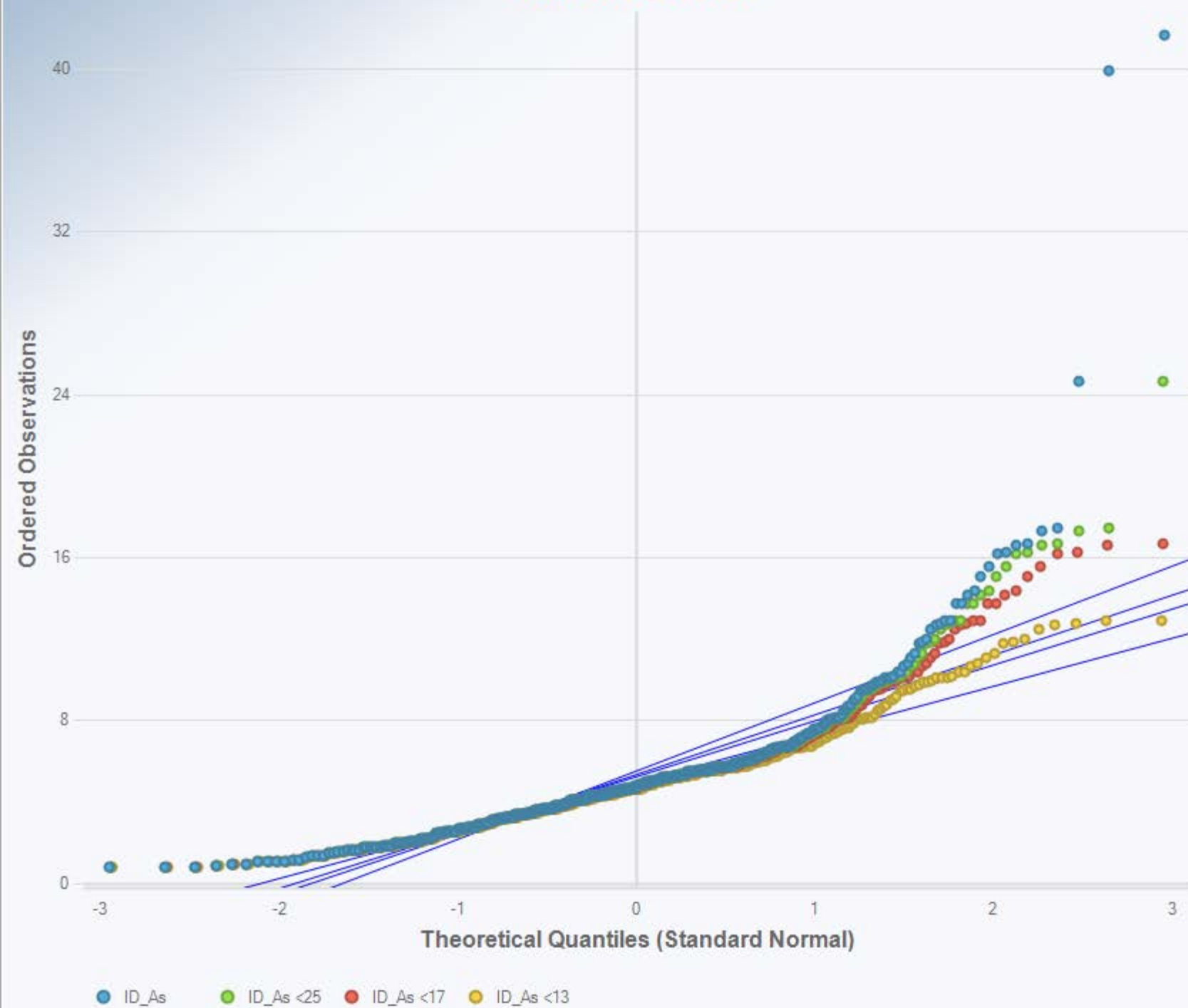
IA_Pb <35

N = 264
Mean = 19.84
Sd = 4.661
Slope = 4.649
Intercept = 19.84
Correlation, R = 0.993

● IA_As ● IA_As <14 ● IA_Pb ● IA_Pb <44 ● IA_Pb <35

■ Best Fit Line

Normal Q-Q Plot



ID_As

N = 395
Mean = 5.51
Sd = 4.045
Slope = 3.355
Intercept = 5.51
Correlation, R = 0.826

ID_As <25

N = 393
Mean = 5.331
Sd = 3.171
Slope = 2.944
Intercept = 5.331
Correlation, R = 0.925

ID_As <17

N = 390
Mean = 5.219
Sd = 2.9
Slope = 2.752
Intercept = 5.219
Correlation, R = 0.946

ID_As <13

N = 380
Mean = 4.955
Sd = 2.422
Slope = 2.368
Intercept = 4.955
Correlation, R = 0.974

Normal Q-Q Plot

Ordered Observations

21

18

15

12

9

6

3

-2

-1

0

1

2

Theoretical Quantiles (Standard Normal)

● IL_As ● IL_As <18 ● IL_As <14 ● IL_As <11

IL_As

N = 264

Mean = 7.58

Sd = 2.751

Slope = 2.642

Intercept = 7.58

Correlation, R = 0.955

IL_As <18

N = 263

Mean = 7.527

Sd = 2.616

Slope = 2.545

Intercept = 7.527

Correlation, R = 0.968

IL_As <14

N = 257

Mean = 7.305

Sd = 2.196

Slope = 2.2

Intercept = 7.305

Correlation, R = 0.996

IL_As <11

N = 243

Mean = 7.028

Sd = 1.911

Slope = 1.914

Intercept = 7.028

Correlation, R = 0.996

■ Best Fit Line

Normal Q-Q Plot

IL_Pb

N = 264
Mean = 23.19
Sd = 9.908
Slope = 8.585
Intercept = 23.19
Correlation, R = 0.862

IL_Pb <76

N = 263
Mean = 22.89
Sd = 8.611
Slope = 7.921
Intercept = 22.89
Correlation, R = 0.915

IL_Pb <44

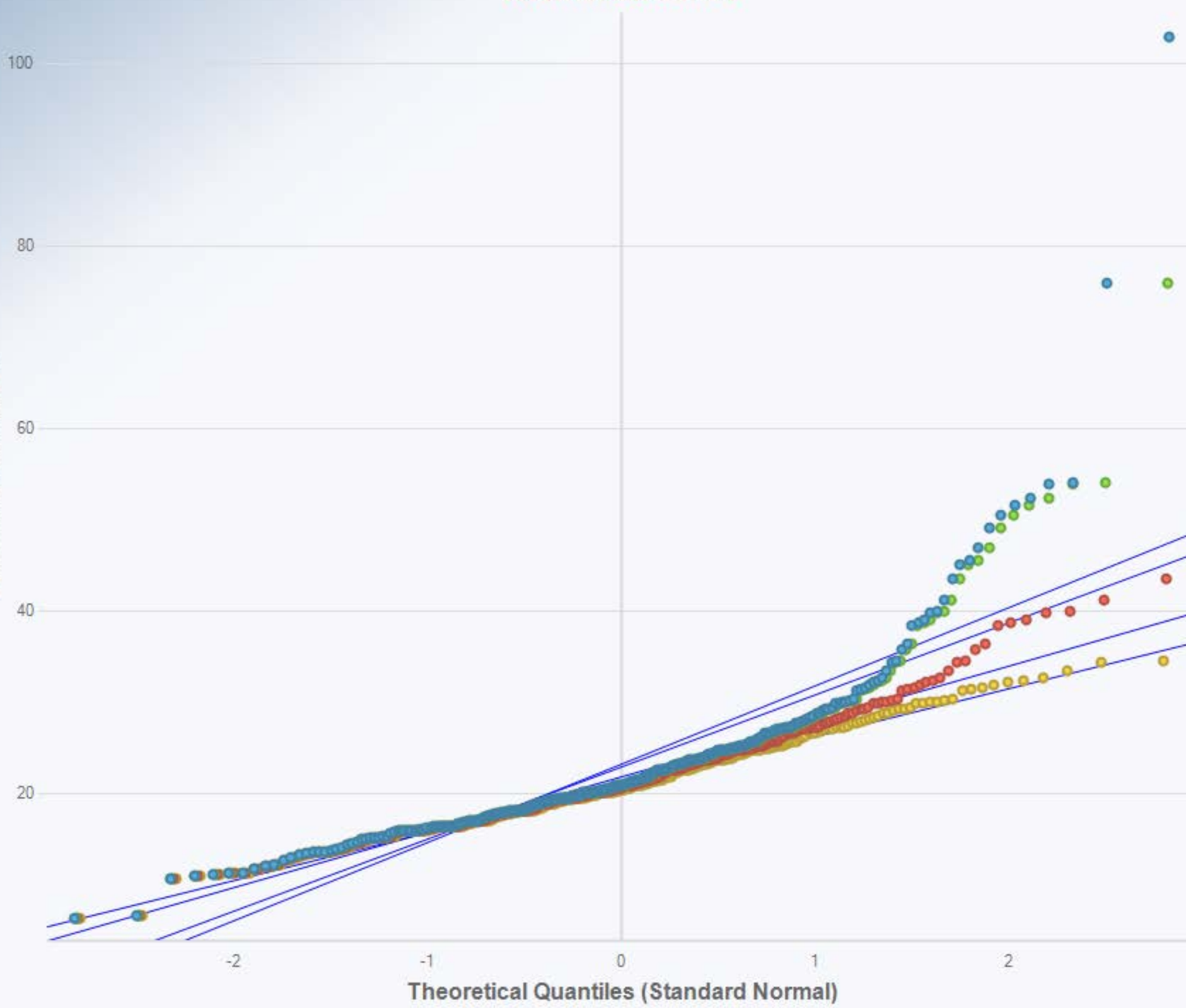
N = 253
Mean = 21.72
Sd = 6.168
Slope = 6.09
Intercept = 21.72
Correlation, R = 0.982

IL_Pb <35

N = 244
Mean = 21.07
Sd = 5.245
Slope = 5.253
Intercept = 21.07
Correlation, R = 0.996

Best Fit Line

Ordered Observations



IL_Pb IL_Pb <76 IL_Pb <44 IL_Pb <35

Normal Q-Q Plot

Ordered Observations

100

80

60

40

20

0

-2

-1

0

1

2

Theoretical Quantiles (Standard Normal)

● IN_As ● IN_As <22 ● IN_As <14 ● IN_As <11

IN_As

N = 168
Mean = 8.554
Sd = 10.82
Slope = 5.802
Intercept = 8.554
Correlation, R = 0.533

IN_As <22

N = 166
Mean = 7.425
Sd = 3.159
Slope = 3.067
Intercept = 7.425
Correlation, R = 0.964

IN_As <14

N = 163
Mean = 7.192
Sd = 2.671
Slope = 2.669
Intercept = 7.192
Correlation, R = 0.992

IN_As <11

N = 152
Mean = 6.842
Sd = 2.4
Slope = 2.371
Intercept = 6.842
Correlation, R = 0.98

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations

420

360

300

240

180

120

60

0

-2

-1

0

1

2

Theoretical Quantiles (Standard Normal)

● IN_Pb ● IN_Pb <260 ● IN_Pb <55 ● IN_Pb <30

IN_Pb

N = 168
Mean = 24.93
Sd = 37.69
Slope = 18.8
Intercept = 24.93
Correlation, R = 0.495

IN_Pb <260

N = 167
Mean = 22.55
Sd = 21.66
Slope = 13.07
Intercept = 22.55
Correlation, R = 0.599

IN_Pb <55

N = 162
Mean = 19.73
Sd = 7.17
Slope = 6.95
Intercept = 19.73
Correlation, R = 0.962

IN_Pb <30

N = 156
Mean = 18.88
Sd = 5.629
Slope = 5.639
Intercept = 18.88
Correlation, R = 0.994

■ Best Fit Line

Normal Q-Q Plot

ID_Pb

N = 395
Mean = 22.23
Sd = 32.66
Slope = 15.52
Intercept = 22.23
Correlation, R = 0.474

ID_Pb <201

N = 394
Mean = 20.91
Sd = 19.56
Slope = 12
Intercept = 20.91
Correlation, R = 0.611

ID_Pb <100

N = 386
Mean = 18.37
Sd = 7.085
Slope = 6.355
Intercept = 18.37
Correlation, R = 0.894

ID_Pb <48

N = 385
Mean = 18.18
Sd = 6.049
Slope = 5.892
Intercept = 18.18
Correlation, R = 0.971

ID_Pb <38

N = 381
Mean = 17.93
Sd = 5.535
Slope = 5.48
Intercept = 17.93
Correlation, R = 0.986

Best Fit Line

Ordered Observations

540
480
420
360
300
240
180
120
60
0

-3 -2 -1 0 1 2 3

Theoretical Quantiles (Standard Normal)

ID_Pb ID_Pb <201 ID_Pb <100 ID_Pb <48 ID_Pb <38

Normal Q-Q Plot

Ordered Observations

40

32

24

16

8

0

-3

-2

-1

0

1

2

3

Theoretical Quantiles (Standard Normal)

● KS_As

● KS_As <20

● KS_As <12

KS_As

N = 386

Mean = 6.794

Sd = 3.409

Slope = 2.94

Intercept = 6.794

Correlation, R = 0.859

KS_As <20

N = 385

Mean = 6.692

Sd = 2.756

Slope = 2.681

Intercept = 6.692

Correlation, R = 0.969

KS_As <12

N = 367

Mean = 6.305

Sd = 2.131

Slope = 2.136

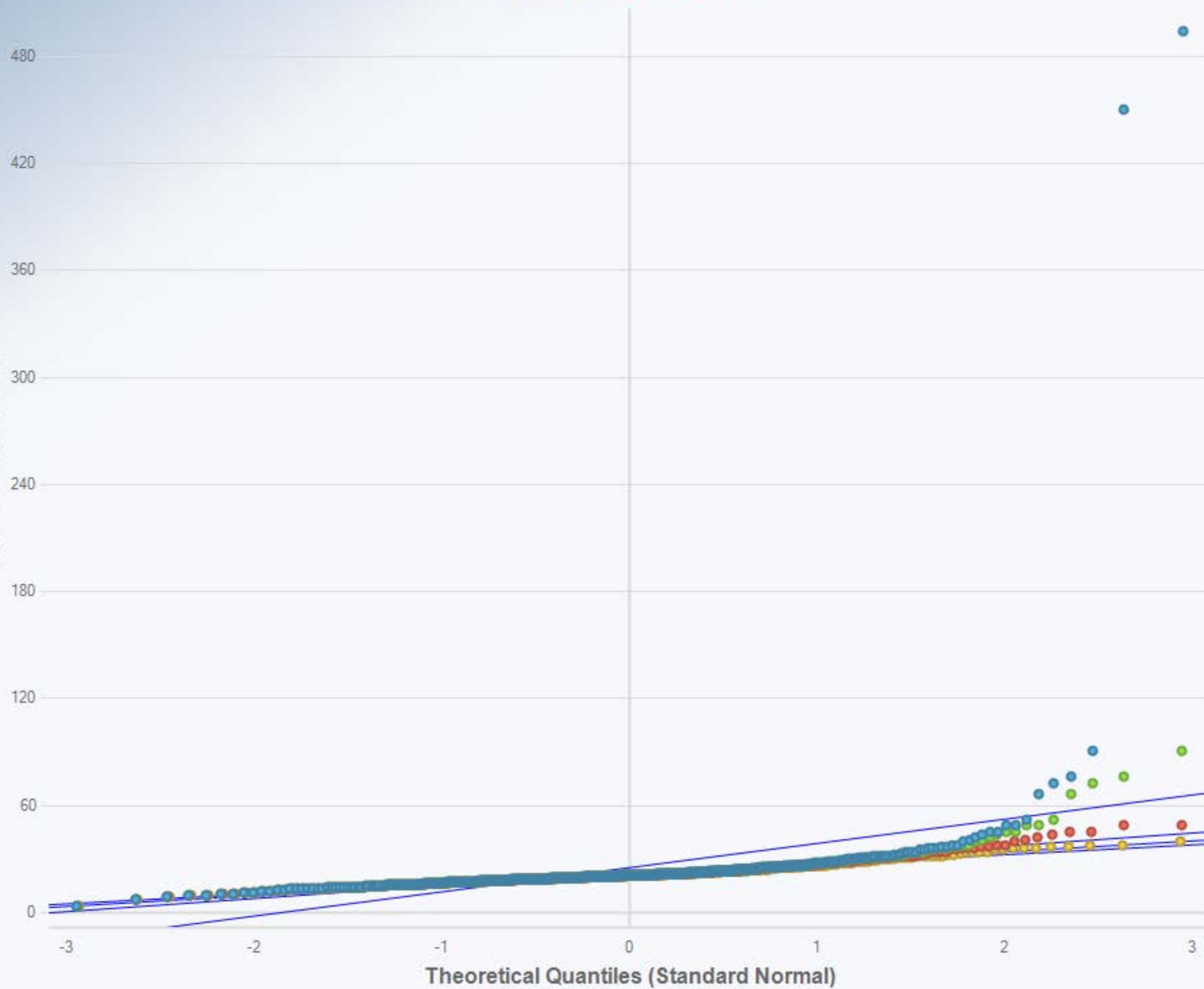
Intercept = 6.305

Correlation, R = 0.998

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations



KS_Pb

N = 386
Mean = 24.95
Sd = 33.45
Slope = 13.67
Intercept = 24.95
Correlation, R = 0.407

KS_Pb <91

N = 384
Mean = 22.62
Sd = 8.54
Slope = 7.385
Intercept = 22.62
Correlation, R = 0.862

KS_Pb <49

N = 379
Mean = 21.98
Sd = 6.302
Slope = 6.083
Intercept = 21.98
Correlation, R = 0.962

KS_Pb <40

N = 372
Mean = 21.55
Sd = 5.496
Slope = 5.427
Intercept = 21.55
Correlation, R = 0.984

Best Fit Line

KS_Pb KS_Pb <91 KS_Pb <49 KS_Pb <40

Normal Q-Q Plot

Ordered Observations

80

60

40

20

-2

-1

0

1

2

Theoretical Quantiles (Standard Normal)

● KY_As ● KY_As <39 ● KY_As <25 ● KY_As <20

KY_As

N = 192
Mean = 8.976
Sd = 8.087
Slope = 5.655
Intercept = 8.976
Correlation, R = 0.695

KY_As <39

N = 191
Mean = 8.55
Sd = 5.538
Slope = 4.646
Intercept = 8.55
Correlation, R = 0.834

KY_As <25

N = 186
Mean = 7.878
Sd = 3.717
Slope = 3.459
Intercept = 7.878
Correlation, R = 0.925

KY_As <20

N = 184
Mean = 7.708
Sd = 3.351
Slope = 3.185
Intercept = 7.708
Correlation, R = 0.944

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations

300
250
200
150
100
50
0

-2

-1

0

1

2

Theoretical Quantiles (Standard Normal)

● KY_Pb ● KY_Pb <112 ● KY_Pb <77 ● KY_Pb <48 ● KY_Pb <40

KY_Pb

N = 192
Mean = 26.99
Sd = 27.26
Slope = 17.13
Intercept = 26.99
Correlation, R = 0.624

KY_Pb <112

N = 191
Mean = 25.39
Sd = 15.96
Slope = 13.2
Intercept = 25.39
Correlation, R = 0.821

KY_Pb <77

N = 185
Mean = 23.22
Sd = 10.44
Slope = 9.507
Intercept = 23.22
Correlation, R = 0.904

KY_Pb <48

N = 179
Mean = 21.97
Sd = 7.814
Slope = 7.539
Intercept = 21.97
Correlation, R = 0.958

KY_Pb <40

N = 171
Mean = 20.95
Sd = 6.354
Slope = 6.28
Intercept = 20.95
Correlation, R = 0.981

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations

15

12

9

6

3

-1.8

-1.2

-0.6

0.0

0.6

1.2

1.8

Theoretical Quantiles (Standard Normal)

MA_As

MA_As <14

MA_As <9.4

MA_As <7

MA_As

N = 42

Mean = 5.29

Sd = 3.717

Slope = 3.559

Intercept = 5.29

Correlation, R = 0.937

MA_As <14

N = 41

Mean = 5.024

Sd = 3.333

Slope = 3.222

Intercept = 5.024

Correlation, R = 0.946

MA_As <9.4

N = 36

Mean = 4.053

Sd = 2.14

Slope = 2.144

Intercept = 4.053

Correlation, R = 0.978

MA_As <7

N = 32

Mean = 3.538

Sd = 1.62

Slope = 1.641

Intercept = 3.538

Correlation, R = 0.986

Best Fit Line

Normal Q-Q Plot

MA_Pb

N = 42
Mean = 58.14
Sd = 62.6
Slope = 51.54
Intercept = 58.14
Correlation, R = 0.806

MA_Pb <93

N = 37
Mean = 39
Sd = 22.36
Slope = 21.76
Intercept = 39
Correlation, R = 0.951

MA_Pb <65

N = 41
Mean = 51.58
Sd = 46.54
Slope = 40.44
Intercept = 51.58
Correlation, R = 0.85

MA_Pb <45

N = 26
Mean = 26.03
Sd = 8.629
Slope = 8.811
Intercept = 26.03
Correlation, R = 0.99

Best Fit Line

Ordered Observations

300

250

200

150

100

50

Theoretical Quantiles (Standard Normal)

-1.8

-1.2

-0.6

0.0

0.6

1.2

1.8

MA_Pb

MA_Pb <93

MA_Pb <65

MA_Pb <45

Q-Q Plot for MA_Pb <65

MA_Pb <65

N = 32

Mean = 32.53

Sd = 15.89

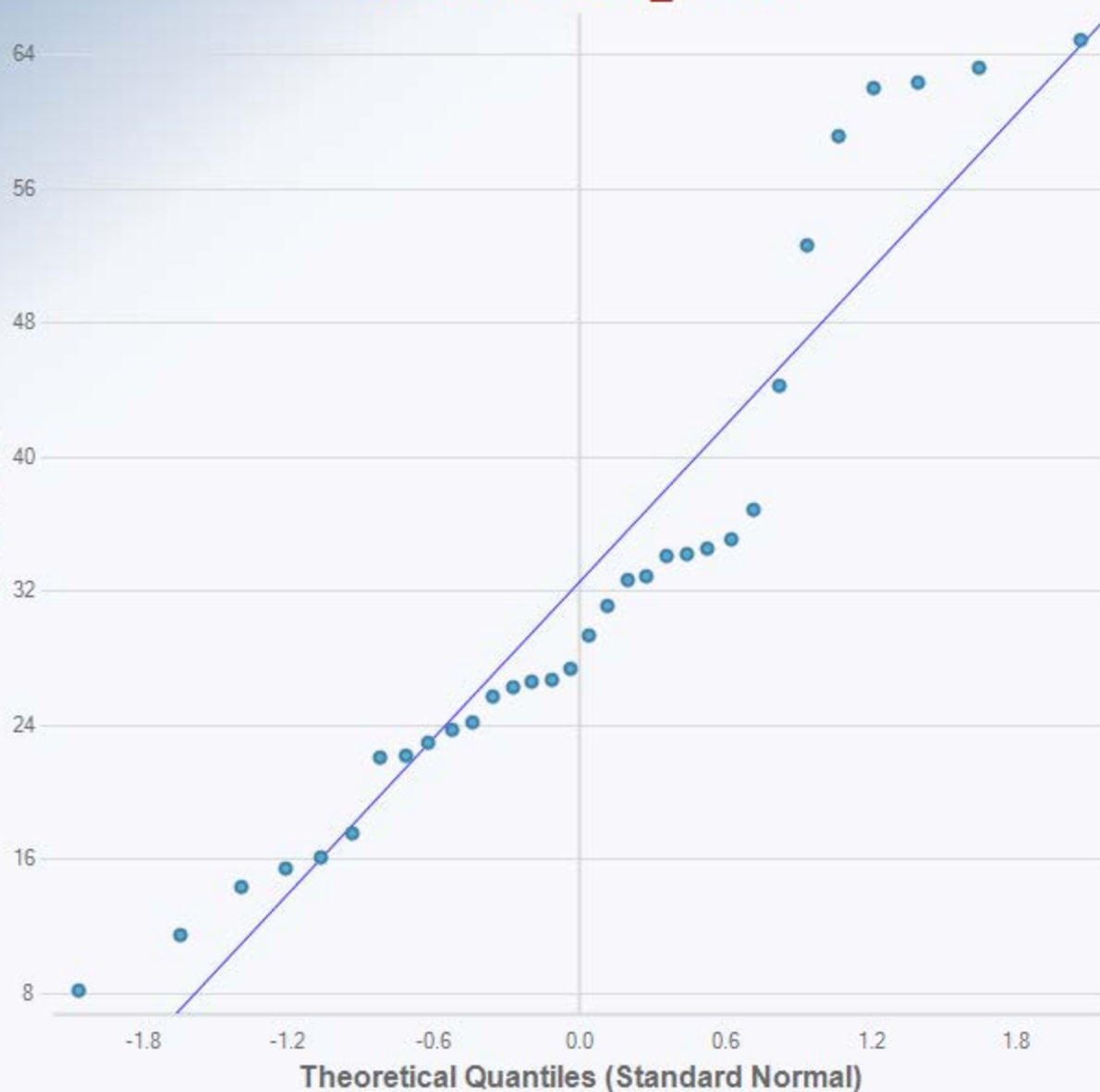
Slope = 15.54

Intercept = 32.53

Correlation, R = 0.953

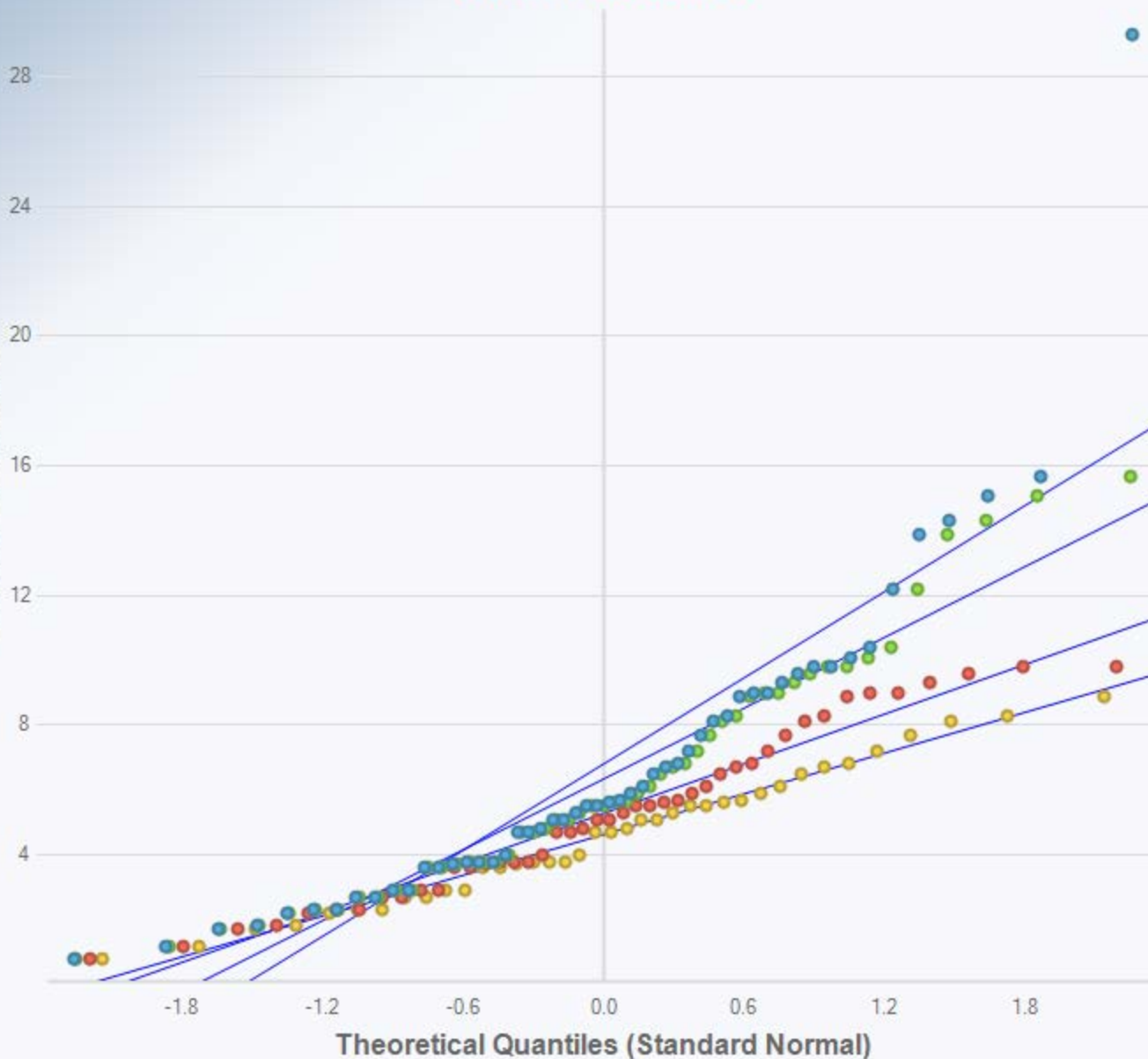
■ Best Fit Line

MA_Pb <65



Normal Q-Q Plot

Ordered Observations



MD_As

N = 52

Mean = 6.76

Sd = 4.855

Slope = 4.449

Intercept = 6.76

Correlation, R = 0.9

MD_As <16

N = 51

Mean = 6.318

Sd = 3.699

Slope = 3.655

Intercept = 6.318

Correlation, R = 0.97

MD_As <10

N = 44

Mean = 5.239

Sd = 2.557

Slope = 2.568

Intercept = 5.239

Correlation, R = 0.984

MD_As <9

N = 38

Mean = 4.579

Sd = 2.074

Slope = 2.108

Intercept = 4.579

Correlation, R = 0.993

Best Fit Line

MD_As MD_As <16 MD_As <10 MD_As <9

Normal Q-Q Plot

Ordered Observations

150

125

100

75

50

25

-1.8

-1.2

-0.6

0.0

0.6

1.2

1.8

Theoretical Quantiles (Standard Normal)

● MD_Pb

● MD_Pb <106

● MD_Pb <68

● MD_Pb <41

MD_Pb

N = 52

Mean = 32.53

Sd = 33.26

Slope = 27.38

Intercept = 32.53

Correlation, R = 0.808

MD_Pb <106

N = 49

Mean = 25.73

Sd = 18.22

Slope = 16.57

Intercept = 25.73

Correlation, R = 0.892

MD_Pb <68

N = 48

Mean = 24.08

Sd = 14.24

Slope = 13.75

Intercept = 24.08

Correlation, R = 0.947

MD_Pb <41

N = 41

Mean = 19.43

Sd = 8.562

Slope = 8.618

Intercept = 19.43

Correlation, R = 0.985

■ Best Fit Line

Normal Q-Q Plot

ME_As

N = 150
Mean = 8.956
Sd = 6.062
Slope = 5.594
Intercept = 8.956
Correlation, R = 0.916

ME_As <31

N = 148
Mean = 8.566
Sd = 5.073
Slope = 4.912
Intercept = 8.566
Correlation, R = 0.96

ME_As <20

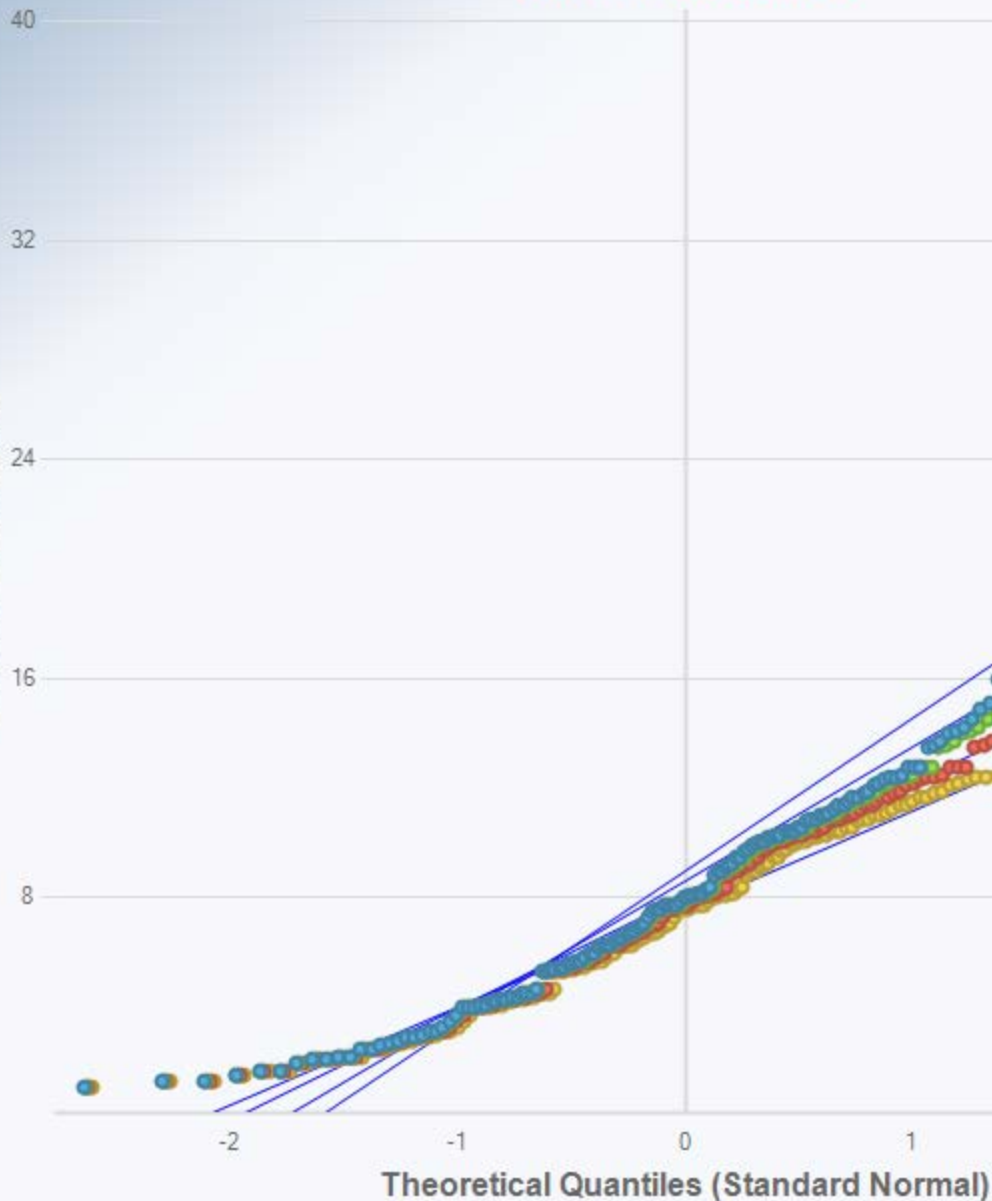
N = 143
Mean = 8.011
Sd = 4.131
Slope = 4.116
Intercept = 8.011
Correlation, R = 0.988

ME_As <15

N = 136
Mean = 7.53
Sd = 3.612
Slope = 3.597
Intercept = 7.53
Correlation, R = 0.987

■ Best Fit Line

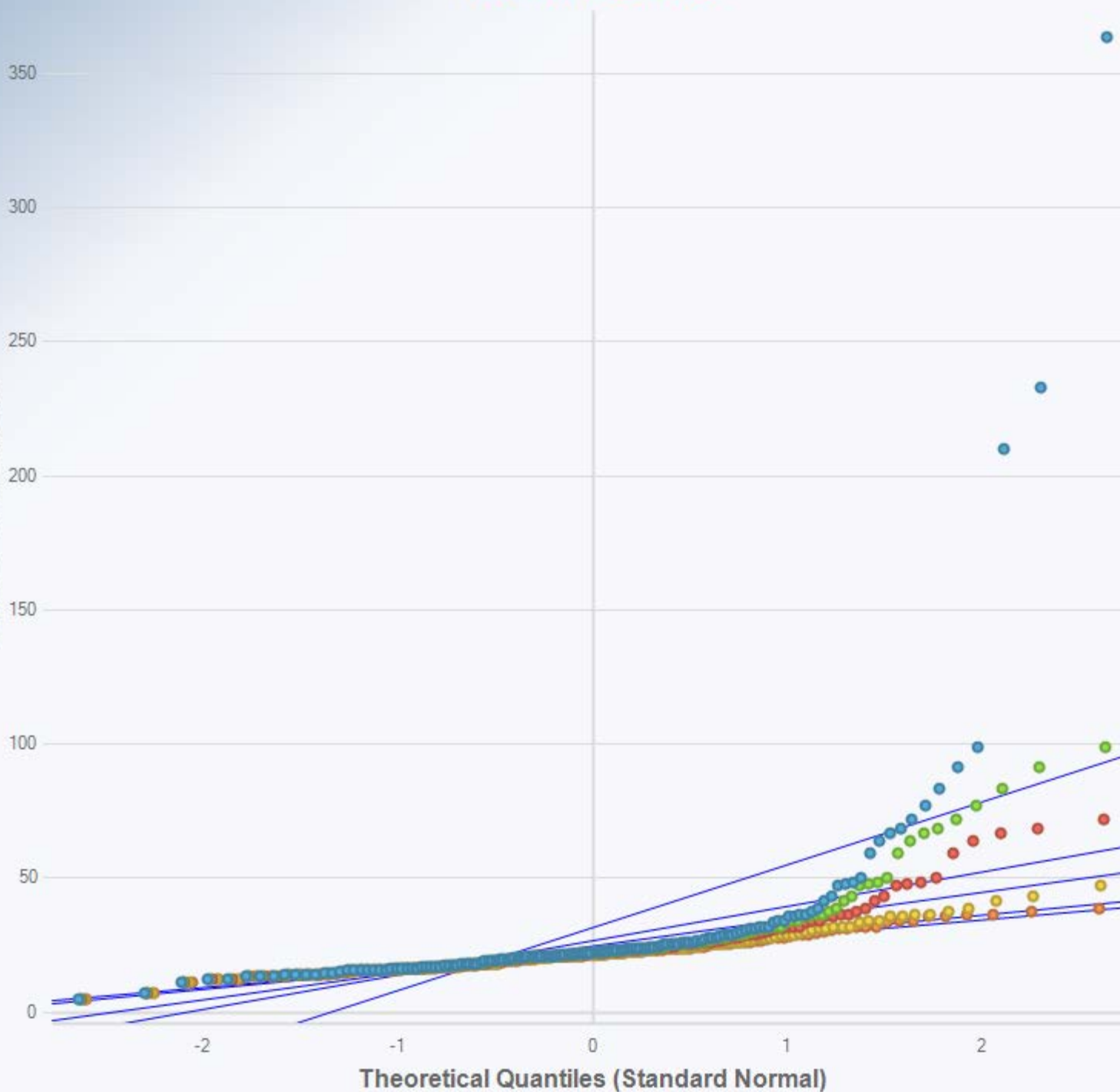
Ordered Observations



● ME_As ● ME_As <31 ● ME_As <20 ● ME_As <15

Normal Q-Q Plot

Ordered Observations



ME_Pb ME_Pb <100 ME_Pb <72 ME_Pb 48 ME_Pb 40

ME_Pb

N = 150
Mean = 31.15
Sd = 38.48
Slope = 23.53
Intercept = 31.15
Correlation, R = 0.607

ME_Pb <100

N = 147
Mean = 26.3
Sd = 15.17
Slope = 12.9
Intercept = 26.3
Correlation, R = 0.844

ME_Pb <72

N = 143
Mean = 24.57
Sd = 11.17
Slope = 10.09
Intercept = 24.57
Correlation, R = 0.896

ME_Pb 48

N = 135
Mean = 22.5
Sd = 7.058
Slope = 6.962
Intercept = 22.5
Correlation, R = 0.978

ME_Pb 40

N = 132
Mean = 22.01
Sd = 6.316
Slope = 6.3
Intercept = 22.01
Correlation, R = 0.989

Best Fit Line

Normal Q-Q Plot

Ordered Observations

24

20

16

12

8

4

0

Theoretical Quantiles (Standard Normal)

● MI_As ● MI_As <16 ● MI_As <14 ● MI_As <11

MI_As

N = 285
Mean = 3.612
Sd = 3.021
Slope = 2.69
Intercept = 3.612
Correlation, R = 0.886

MI_As <16

N = 284
Mean = 3.535
Sd = 2.731
Slope = 2.523
Intercept = 3.535
Correlation, R = 0.92

MI_As <14

N = 283
Mean = 3.492
Sd = 2.638
Slope = 2.452
Intercept = 3.492
Correlation, R = 0.925

MI_As <11

N = 276
Mean = 3.275
Sd = 2.285
Slope = 2.159
Intercept = 3.275
Correlation, R = 0.94

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations

56

48

40

32

24

16

8

-2

-1

0

1

2

Theoretical Quantiles (Standard Normal)

● MI_Pb ● MI_Pb <42 ● MI_Pb <36 ● MI_Pb <30

MI_Pb

N = 285
Mean = 13.86
Sd = 7.539
Slope = 6.935
Intercept = 13.86
Correlation, R = 0.916

MI_Pb <42

N = 283
Mean = 13.54
Sd = 6.578
Slope = 6.324
Intercept = 13.54
Correlation, R = 0.957

MI_Pb <36

N = 281
Mean = 13.35
Sd = 6.175
Slope = 6.007
Intercept = 13.35
Correlation, R = 0.968

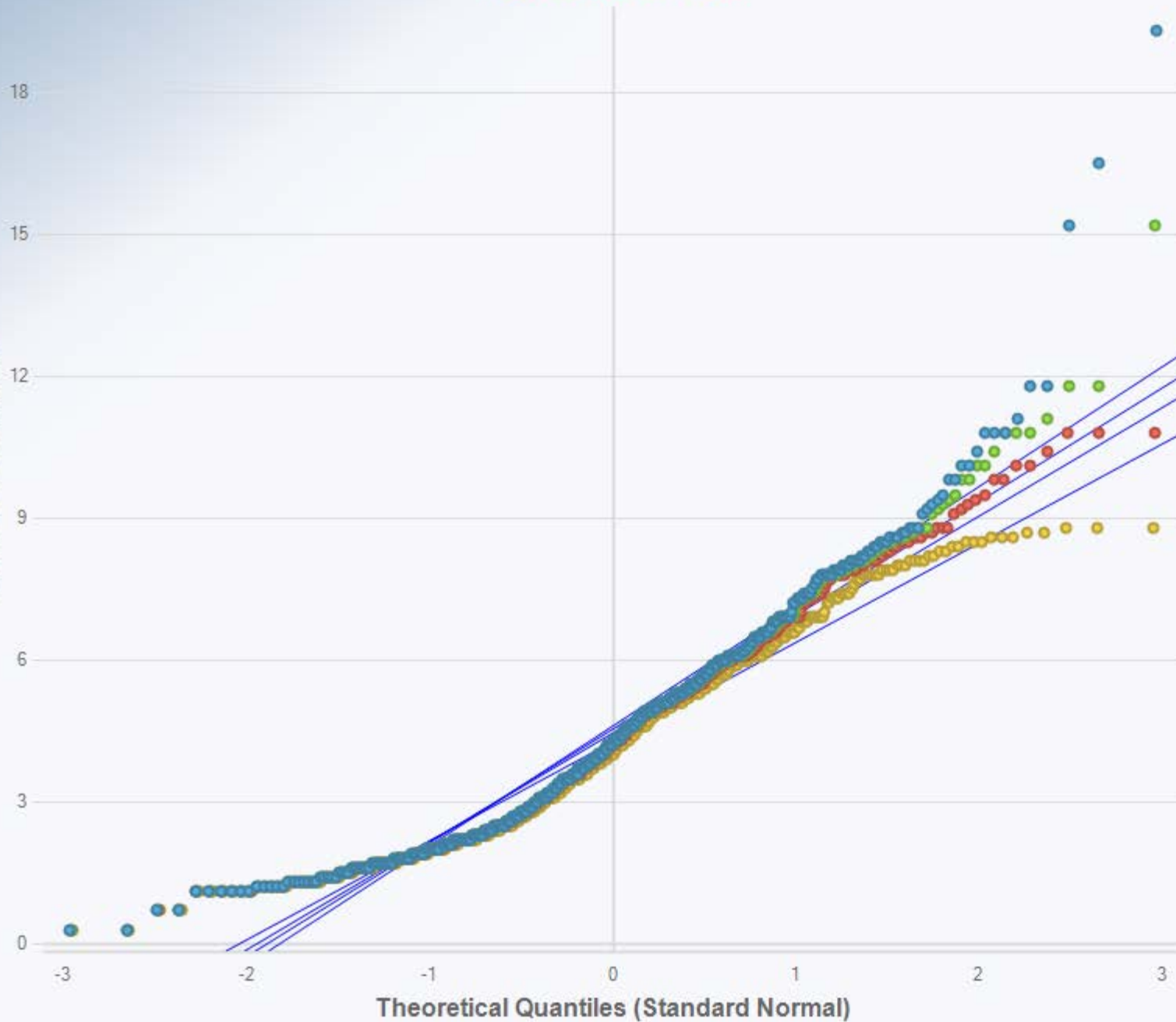
MI_Pb <30

N = 276
Mean = 13
Sd = 5.637
Slope = 5.542
Intercept = 13
Correlation, R = 0.978

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations



● MN_As ● MN_As <16 ● MN_As <11 ● MN_As <9

MN_As

N = 410
Mean = 4.593
Sd = 2.626
Slope = 2.534
Intercept = 4.593
Correlation, R = 0.962

MN_As <16

N = 408
Mean = 4.527
Sd = 2.459
Slope = 2.411
Intercept = 4.527
Correlation, R = 0.977

MN_As <11

N = 404
Mean = 4.449
Sd = 2.334
Slope = 2.297
Intercept = 4.449
Correlation, R = 0.981

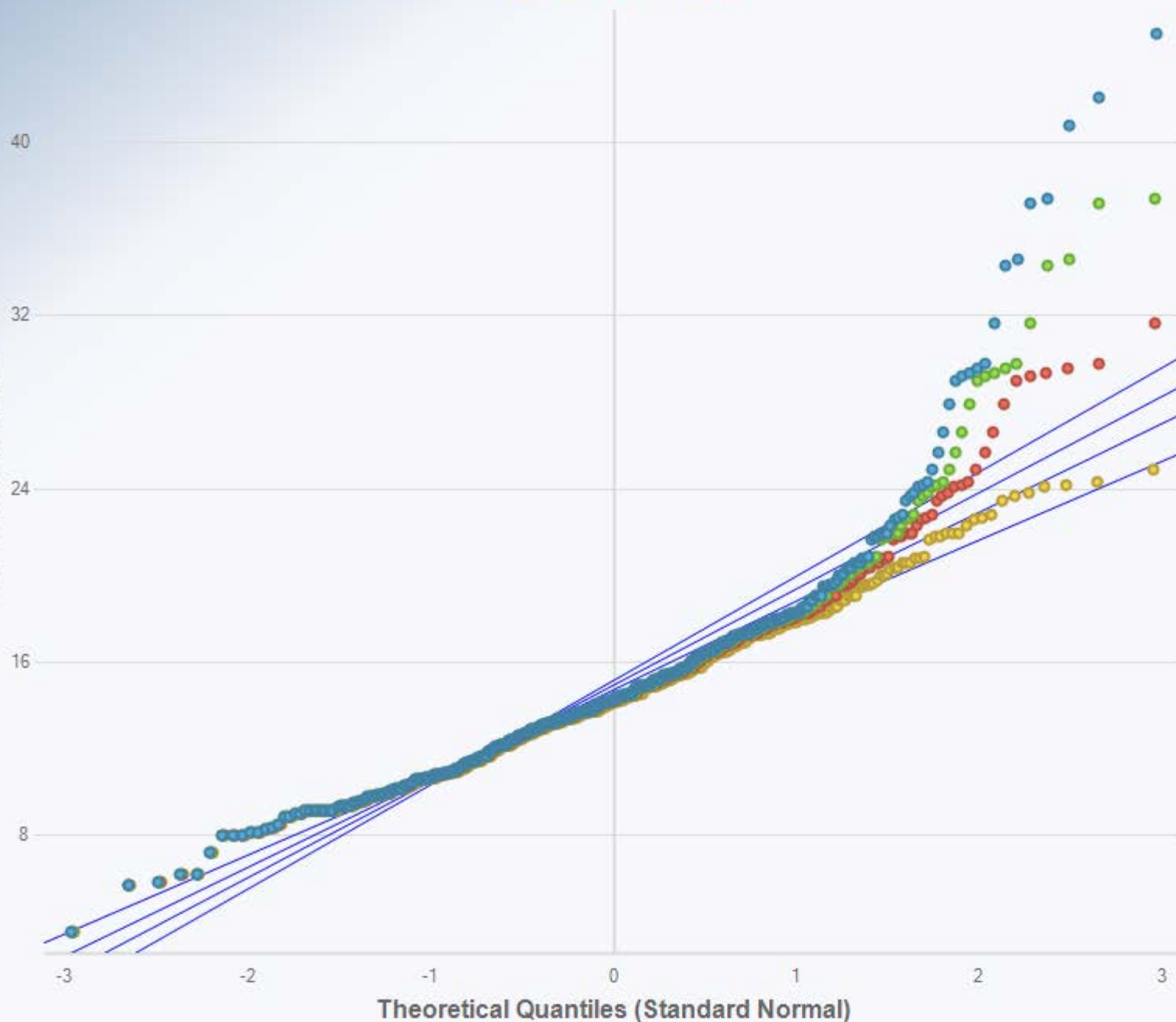
MN_As <9

N = 391
Mean = 4.266
Sd = 2.141
Slope = 2.106
Intercept = 4.266
Correlation, R = 0.98

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations



● MN_Pb ● MN_Pb <40 ● MN_Pb <32 ● MN_Pb <25

MN_Pb

N = 410
Mean = 15.12
Sd = 5.213
Slope = 4.824
Intercept = 15.12
Correlation, R = 0.922

MN_Pb <40

N = 407
Mean = 14.91
Sd = 4.661
Slope = 4.455
Intercept = 14.91
Correlation, R = 0.953

MN_Pb <32

N = 403
Mean = 14.7
Sd = 4.183
Slope = 4.102
Intercept = 14.7
Correlation, R = 0.977

MN_Pb <25

N = 394
Mean = 14.38
Sd = 3.634
Slope = 3.631
Intercept = 14.38
Correlation, R = 0.996

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations

21

18

15

12

9

6

3

-3 -2 -1 0 1 2 3

Theoretical Quantiles (Standard Normal)

● MO_As ● MO_As <17 ● MO_As <15 ● MO_As <13

MO_As

N = 345
Mean = 7.96
Sd = 3.144
Slope = 3.096
Intercept = 7.96
Correlation, R = 0.981

MO_As <17

N = 340
Mean = 7.809
Sd = 2.901
Slope = 2.884
Intercept = 7.809
Correlation, R = 0.99

MO_As <15

N = 331
Mean = 7.592
Sd = 2.619
Slope = 2.618
Intercept = 7.592
Correlation, R = 0.995

MO_As <13

N = 324
Mean = 7.46
Sd = 2.484
Slope = 2.477
Intercept = 7.46
Correlation, R = 0.993

■ Best Fit Line

Normal Q-Q Plot

MO_Pb

N = 345
Mean = 30.16
Sd = 45.18
Slope = 20.67
Intercept = 30.16
Correlation, R = 0.456

MO_Pb <120

N = 340
Mean = 25.49
Sd = 10.82
Slope = 9.126
Intercept = 25.49
Correlation, R = 0.84

MO_Pb <53

N = 333
Mean = 24.4
Sd = 7.239
Slope = 7.022
Intercept = 24.4
Correlation, R = 0.966

MO_Pb <42

N = 323
Mean = 23.72
Sd = 6.145
Slope = 6.09
Intercept = 23.72
Correlation, R = 0.987

Best Fit Line

Ordered Observations

600

500

400

300

200

100

0

-3

-2

-1

0

1

2

3

Theoretical Quantiles (Standard Normal)

MO_Pb

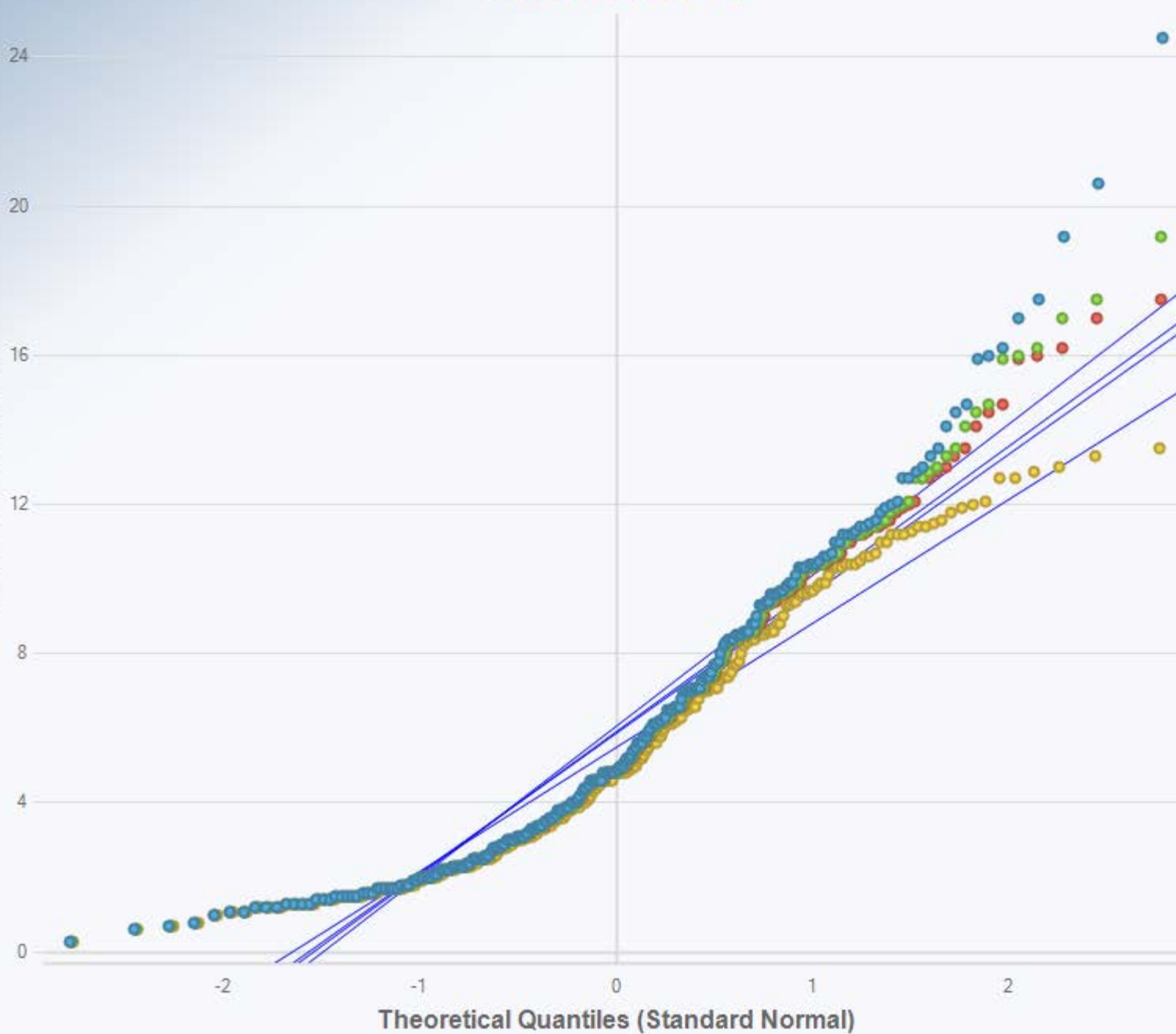
MO_Pb <120

MO_Pb <53

MO_Pb <42

Normal Q-Q Plot

Ordered Observations



● MS_As ● MS_As <20 ● MS_As <18 ● MS_As <14

MS_As

N = 231
Mean = 6.044
Sd = 4.232
Slope = 4.058
Intercept = 6.044
Correlation, R = 0.954

MS_As <20

N = 229
Mean = 5.9
Sd = 3.952
Slope = 3.829
Intercept = 5.9
Correlation, R = 0.963

MS_As <18

N = 228
Mean = 5.841
Sd = 3.861
Slope = 3.747
Intercept = 5.841
Correlation, R = 0.965

MS_As <14

N = 220
Mean = 5.481
Sd = 3.42
Slope = 3.329
Intercept = 5.481
Correlation, R = 0.968

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations

175
150
125
100
75
50
25
0

-2

-1

0

1

2

Theoretical Quantiles (Standard Normal)

● MS_Pb ● MS_Pb <56 ● MS_Pb <44 ● MS_Pb <38

MS_Pb

N = 231
Mean = 18.43
Sd = 17.66
Slope = 12.07
Intercept = 18.43
Correlation, R = 0.68

MS_Pb <56

N = 228
Mean = 16.69
Sd = 8.758
Slope = 8.142
Intercept = 16.69
Correlation, R = 0.924

MS_Pb <44

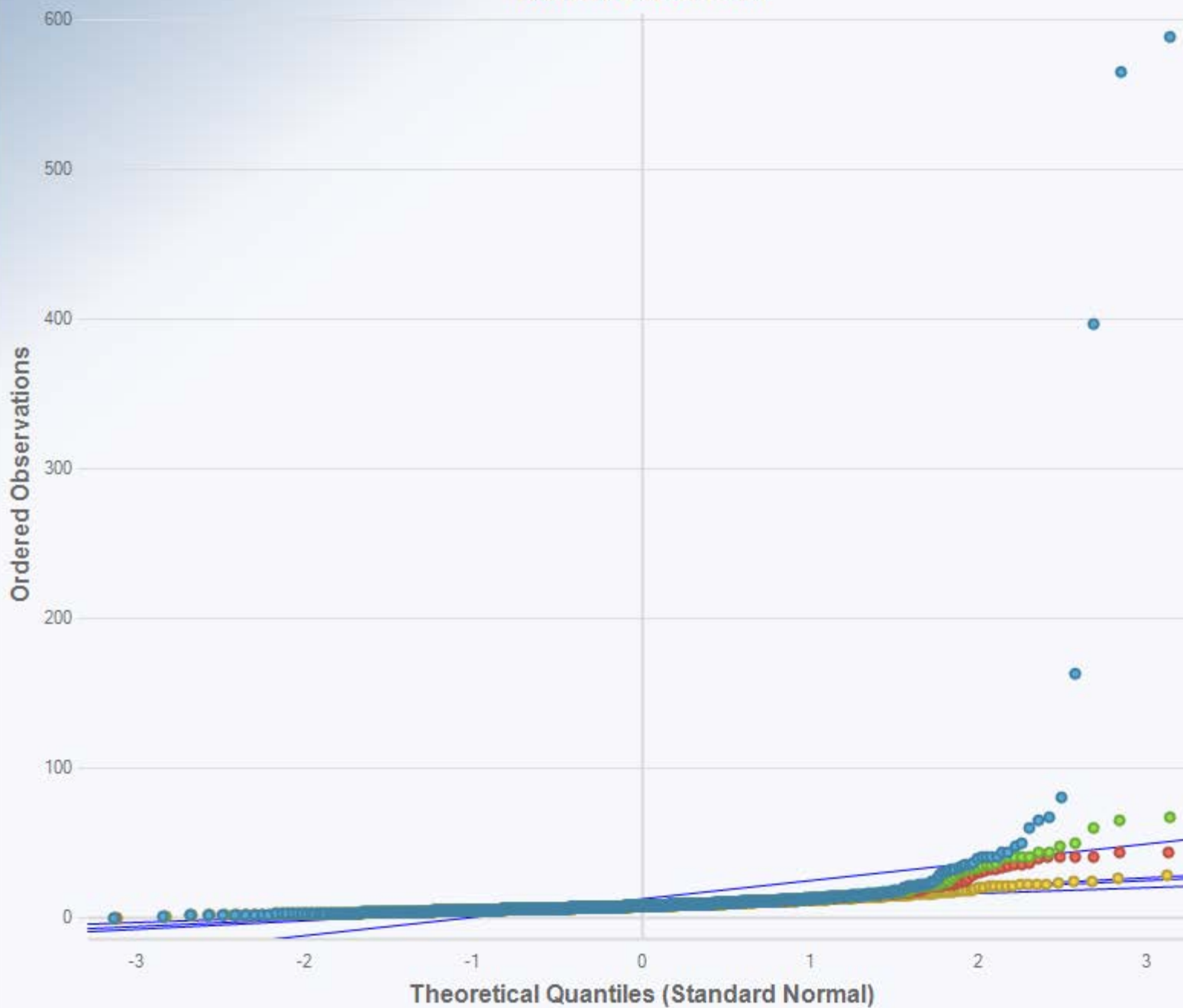
N = 223
Mean = 15.95
Sd = 7.263
Slope = 7.001
Intercept = 15.95
Correlation, R = 0.958

MS_Pb <38

N = 220
Mean = 15.59
Sd = 6.628
Slope = 6.481
Intercept = 15.59
Correlation, R = 0.972

■ Best Fit Line

Normal Q-Q Plot



MT_As

N = 717
Mean = 12
Sd = 34.54
Slope = 12.47
Intercept = 12
Correlation, R = 0.36

MT_As <67

N = 712
Mean = 9.568
Sd = 7.196
Slope = 5.79
Intercept = 9.568
Correlation, R = 0.803

MT_As <44

N = 707
Mean = 9.226
Sd = 5.914
Slope = 5.089
Intercept = 9.226
Correlation, R = 0.859

MT_As <30

N = 690
Mean = 8.549
Sd = 4.033
Slope = 3.869
Intercept = 8.549
Correlation, R = 0.957

Best Fit Line

Normal Q-Q Plot

Ordered Observations

120

100

80

60

40

20

Theoretical Quantiles (Standard Normal)

● MT_Pb ● MT_Pb <84 ● MT_Pb <55 ● MT_Pb <40

MT_Pb

N = 717
Mean = 18.7
Sd = 10.68
Slope = 8.2
Intercept = 18.7
Correlation, R = 0.766

MT_Pb <84

N = 714
Mean = 18.27
Sd = 8.441
Slope = 7.214
Intercept = 18.27
Correlation, R = 0.853

MT_Pb <55

N = 705
Mean = 17.69
Sd = 6.647
Slope = 6.113
Intercept = 17.69
Correlation, R = 0.918

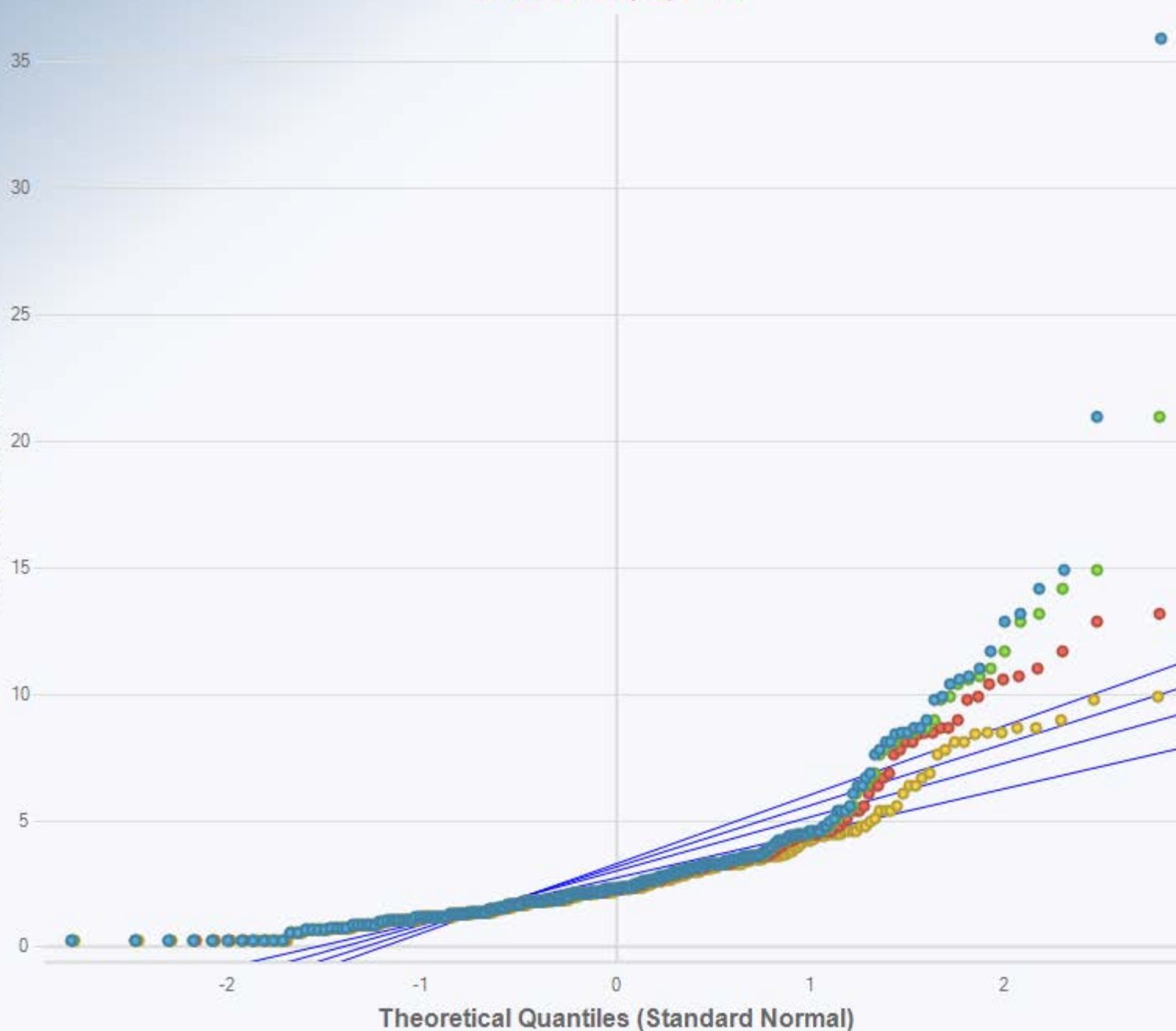
MT_Pb <40

N = 693
Mean = 17.18
Sd = 5.439
Slope = 5.252
Intercept = 17.18
Correlation, R = 0.964

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations



● NC_As ● NC_As <22 ● NC_As <14 ● NC_As <10

NC_As

N = 249
Mean = 3.276
Sd = 3.502
Slope = 2.738
Intercept = 3.276
Correlation, R = 0.778

NC_As <22

N = 248
Mean = 3.144
Sd = 2.826
Slope = 2.436
Intercept = 3.144
Correlation, R = 0.857

NC_As <14

N = 245
Mean = 2.978
Sd = 2.384
Slope = 2.142
Intercept = 2.978
Correlation, R = 0.894

NC_As <10

N = 238
Mean = 2.727
Sd = 1.9
Slope = 1.771
Intercept = 2.727
Correlation, R = 0.927

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations

100

80

60

40

20

0

-2

-1

0

1

2

Theoretical Quantiles (Standard Normal)

● NC_Pb ● NC_Pb <75 ● NC_Pb <45 ● NC_Pb <40

NC_Pb

N = 249

Mean = 19.41

Sd = 12.22

Slope = 11.14

Intercept = 19.41

Correlation, R = 0.906

NC_Pb <75

N = 248

Mean = 19.03

Sd = 10.66

Slope = 10.3

Intercept = 19.03

Correlation, R = 0.961

NC_Pb <45

N = 242

Mean = 18.18

Sd = 9.166

Slope = 9.068

Intercept = 18.18

Correlation, R = 0.984

NC_Pb <40

N = 235

Mean = 17.44

Sd = 8.233

Slope = 8.198

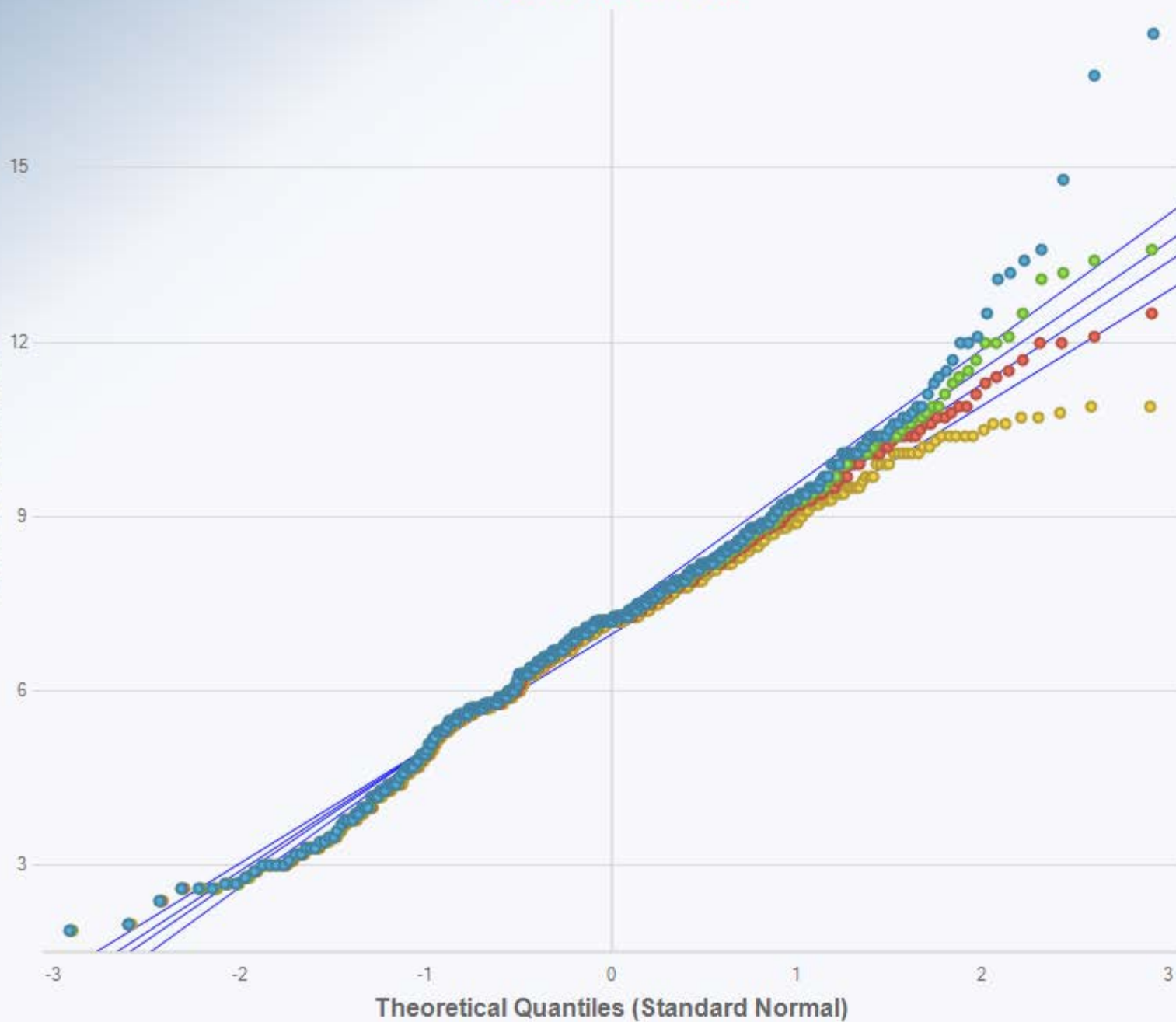
Intercept = 17.44

Correlation, R = 0.99

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations



● ND_As ● ND_As <14 ● ND_As <13 ● ND_As <11

ND_As

N = 353
Mean = 7.241
Sd = 2.334
Slope = 2.316
Intercept = 7.241
Correlation, R = 0.988

ND_As <14

N = 350
Mean = 7.164
Sd = 2.188
Slope = 2.189
Intercept = 7.164
Correlation, R = 0.997

ND_As <13

N = 346
Mean = 7.093
Sd = 2.097
Slope = 2.098
Intercept = 7.093
Correlation, R = 0.997

ND_As <11

N = 337
Mean = 6.969
Sd = 1.979
Slope = 1.972
Intercept = 6.969
Correlation, R = 0.993

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations

24

21

18

15

12

9

-3

-2

-1

0

1

2

3

Theoretical Quantiles (Standard Normal)

● ND_Pb ● ND_Pb <23 ● ND_Pb <19 ● ND_Pb <17

ND_Pb

N = 353
Mean = 12.89
Sd = 2.414
Slope = 2.381
Intercept = 12.89
Correlation, R = 0.982

ND_Pb <23

N = 352
Mean = 12.85
Sd = 2.328
Slope = 2.316
Intercept = 12.85
Correlation, R = 0.991

ND_Pb <19

N = 349
Mean = 12.78
Sd = 2.201
Slope = 2.203
Intercept = 12.78
Correlation, R = 0.997

ND_Pb <17

N = 334
Mean = 12.55
Sd = 1.95
Slope = 1.951
Intercept = 12.55
Correlation, R = 0.996

■ Best Fit Line

Normal Q-Q Plot

NE_As

N = 390
Mean = 4.892
Sd = 3.496
Slope = 3.321
Intercept = 4.892
Correlation, R = 0.946

NE_As <18

N = 389
Mean = 4.851
Sd = 3.409
Slope = 3.251
Intercept = 4.851
Correlation, R = 0.95

NE_As <13

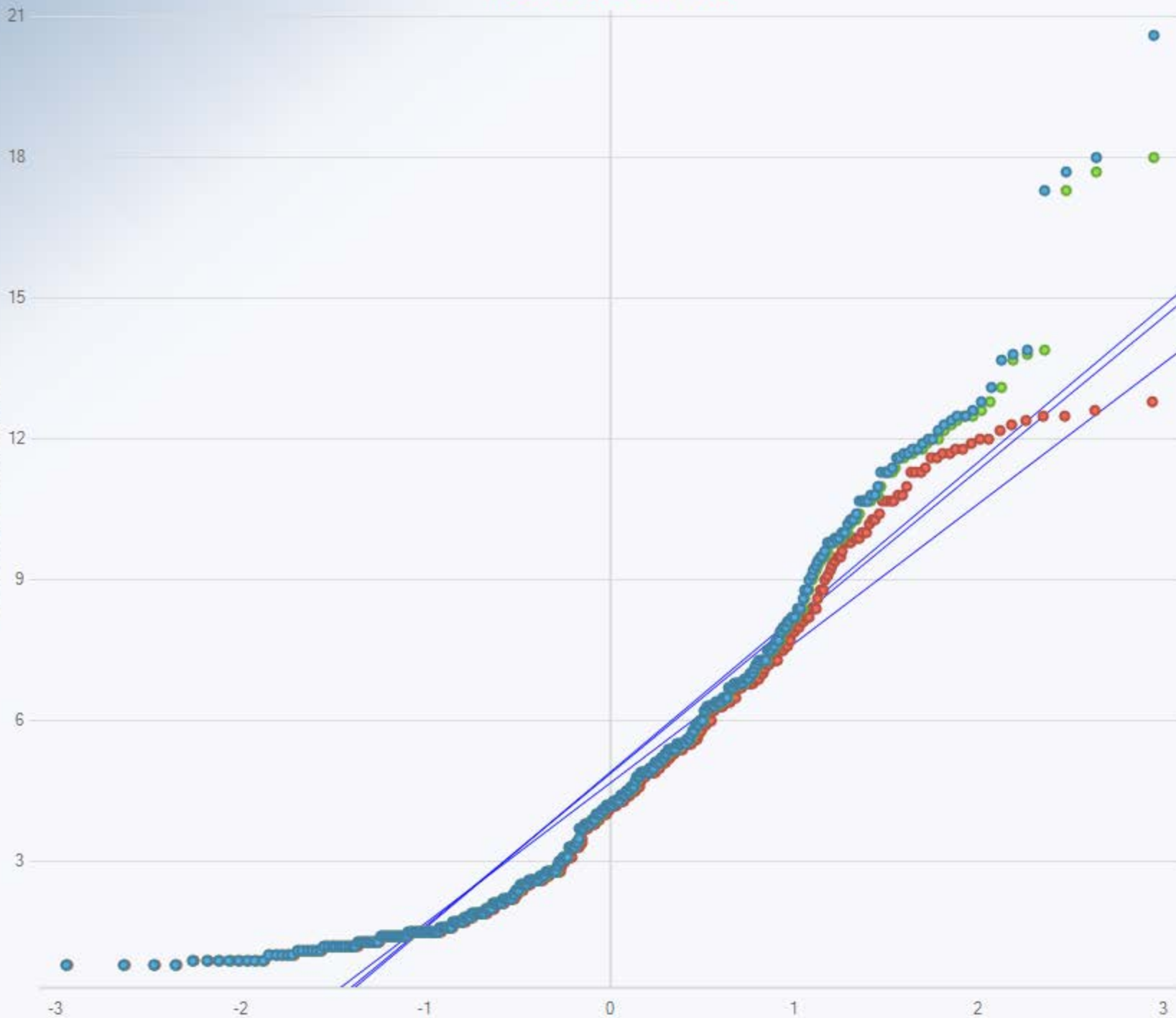
N = 382
Mean = 4.659
Sd = 3.113
Slope = 2.989
Intercept = 4.659
Correlation, R = 0.957

Best Fit Line

Ordered Observations

Theoretical Quantiles (Standard Normal)

NE_As NE_As <18 NE_As <13



Normal Q-Q Plot

NE_Pb

N = 390
Mean = 18.05
Sd = 7.159
Slope = 5.66
Intercept = 18.05
Correlation, R = 0.788

NE_Pb <71

N = 389
Mean = 17.81
Sd = 5.434
Slope = 5.052
Intercept = 17.81
Correlation, R = 0.926

NE_Pb <27

N = 379
Mean = 17.39
Sd = 4.395
Slope = 4.363
Intercept = 17.39
Correlation, R = 0.989

Best Fit Line

Ordered Observations

100

80

60

40

20

-3

-2

-1

0

1

2

3

Theoretical Quantiles (Standard Normal)

NE_Pb

NE_Pb <71

NE_Pb <27

Normal Q-Q Plot

NH_As

N = 43
Mean = 8.986
Sd = 16.83
Slope = 10.53
Intercept = 8.986
Correlation, R = 0.613

NH_As <55

N = 42
Mean = 6.748
Sd = 8.326
Slope = 6.012
Intercept = 6.748
Correlation, R = 0.707

NH_As <14

N = 39
Mean = 5.154
Sd = 3.241
Slope = 3.198
Intercept = 5.154
Correlation, R = 0.965

■ Best Fit Line

Ordered Observations

100

80

60

40

20

0

-1.8

-1.2

-0.6

0.0

0.6

1.2

1.8

Theoretical Quantiles (Standard Normal)

● NH_As

● NH_As <55

● NH_As <14

Normal Q-Q Plot

NH_Pb

N = 43
Mean = 44.84
Sd = 33.86
Slope = 28.49
Intercept = 44.84
Correlation, R = 0.824

NH_Pb <94

N = 40
Mean = 37.23
Sd = 18.22
Slope = 16.73
Intercept = 37.23
Correlation, R = 0.898

NH_Pb <62

N = 35
Mean = 31.33
Sd = 9.141
Slope = 9.049
Intercept = 31.33
Correlation, R = 0.966

NH_Pb <41

N = 30
Mean = 28.88
Sd = 6.634
Slope = 6.746
Intercept = 28.88
Correlation, R = 0.989

Best Fit Line

Ordered Observations

Theoretical Quantiles (Standard Normal)

● NH_Pb ● NH_Pb <94 ● NH_Pb <62 ● NH_Pb <41

Normal Q-Q Plot

NJ_As

N = 36
Mean = 9.097
Sd = 13.52
Slope = 10.25
Intercept = 9.097
Correlation, R = 0.74

NJ_As <45

N = 35
Mean = 7.294
Sd = 8.229
Slope = 6.957
Intercept = 7.294
Correlation, R = 0.825

NJ_As <18

N = 34
Mean = 6.2
Sd = 5.157
Slope = 4.954
Intercept = 6.2
Correlation, R = 0.937

■ Best Fit Line

Ordered Observations

70

60

50

40

30

20

10

0

-1.8

-1.2

-0.6

0.0

0.6

1.2

1.8

Theoretical Quantiles (Standard Normal)

● NJ_As

● NJ_As <45

● NJ_As <18

Normal Q-Q Plot

NJ_Pb

N = 36
Mean = 50.59
Sd = 84.31
Slope = 62.55
Intercept = 50.59
Correlation, R = 0.724

NJ_Pb <147

N = 34
Mean = 32.3
Sd = 35.43
Slope = 30.37
Intercept = 32.3
Correlation, R = 0.836

NJ_Pb <56

N = 30
Mean = 20.54
Sd = 13.12
Slope = 13.02
Intercept = 20.54
Correlation, R = 0.966

NJ_Pb <39

N = 27
Mean = 17.51
Sd = 9.607
Slope = 9.716
Intercept = 17.51
Correlation, R = 0.982

Best Fit Line

Ordered Observations

360

300

240

180

120

60

0

Theoretical Quantiles (Standard Normal)

● NJ_Pb ● NJ_Pb <147 ● NJ_Pb <56 ● NJ_Pb <39

Normal Q-Q Plot

NM_As

N = 608
Mean = 4.649
Sd = 2.238
Slope = 2.159
Intercept = 4.649
Correlation, R = 0.962

NM_As <13

N = 606
Mean = 4.608
Sd = 2.123
Slope = 2.077
Intercept = 4.608
Correlation, R = 0.976

NM_As <11

N = 599
Mean = 4.523
Sd = 1.983
Slope = 1.955
Intercept = 4.523
Correlation, R = 0.984

NM_As <9

N = 581
Mean = 4.361
Sd = 1.781
Slope = 1.769
Intercept = 4.361
Correlation, R = 0.991

■ Best Fit Line

Ordered Observations

15

12

9

6

3

0

-3

-2

-1

0

1

2

3

Theoretical Quantiles (Standard Normal)

● NM_As

● NM_As <13

● NM_As <11

● NM_As <9

Normal Q-Q Plot

Ordered Observations

40
32
24
16
8
0

Theoretical Quantiles (Standard Normal)

● NM_Pb ● NM_Pb <40 ● NM_Pb <35 ● NM_Pb <28

NM_Pb

N = 608
Mean = 15.81
Sd = 6.328
Slope = 6.241
Intercept = 15.81
Correlation, R = 0.984

NM_Pb <40

N = 606
Mean = 15.72
Sd = 6.152
Slope = 6.097
Intercept = 15.72
Correlation, R = 0.989

NM_Pb <35

N = 601
Mean = 15.54
Sd = 5.827
Slope = 5.811
Intercept = 15.54
Correlation, R = 0.995

NM_Pb <28

N = 582
Mean = 15.06
Sd = 5.273
Slope = 5.273
Intercept = 15.06
Correlation, R = 0.997

■ Best Fit Line

Normal Q-Q Plot

NV_Pb <80

N = 513
Mean = 19.67
Sd = 7.81
Slope = 7.074
Intercept = 19.67
Correlation, R = 0.903

NV_Pb <41

N = 505
Mean = 19.06
Sd = 5.895
Slope = 5.883
Intercept = 19.06
Correlation, R = 0.995

NV_Pb <34

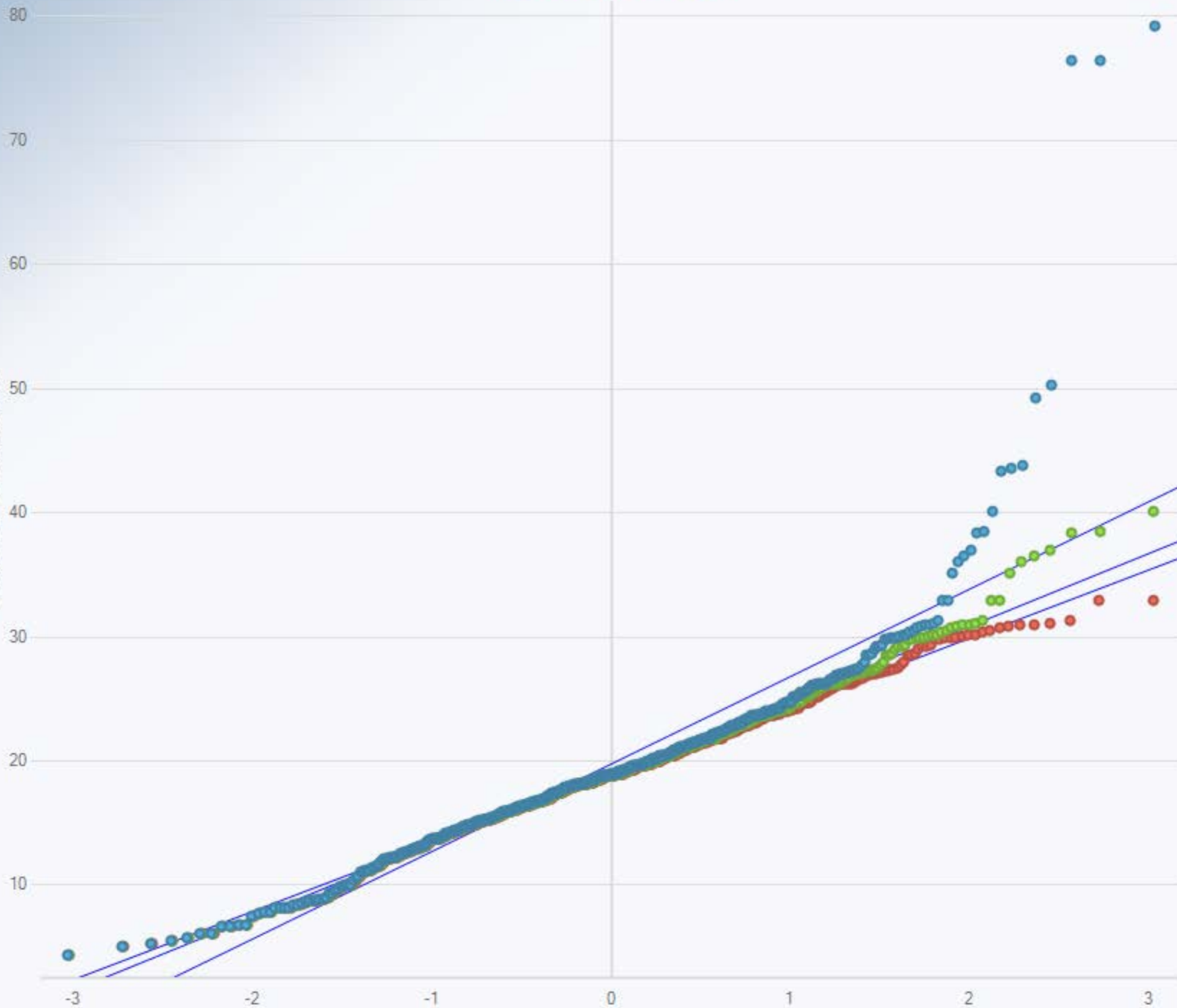
N = 498
Mean = 18.81
Sd = 5.514
Slope = 5.519
Intercept = 18.81
Correlation, R = 0.998

■ Best Fit Line

Ordered Observations

Theoretical Quantiles (Standard Normal)

● NV_Pb <80 ● NV_Pb <41 ● NV_Pb <34



Normal Q-Q Plot

Ordered Observations

1000

800

600

400

200

0

-3

-2

-1

0

1

2

3

Theoretical Quantiles (Standard Normal)

● NV_As ● NV_As <418 ● NV_As <85 ● NV_As <39 ● NV_As <30

NV_As

N = 515
Mean = 16.01
Sd = 65.6
Slope = 22.61
Intercept = 16.01
Correlation, R = 0.344

NV_As <418

N = 513
Mean = 12.3
Sd = 25.98
Slope = 12.52
Intercept = 12.3
Correlation, R = 0.481

NV_As <85

N = 509
Mean = 10.28
Sd = 9.552
Slope = 7.349
Intercept = 10.28
Correlation, R = 0.767

NV_As <39

N = 497
Mean = 9.13
Sd = 5.804
Slope = 5.153
Intercept = 9.13
Correlation, R = 0.885

NV_As <30

N = 490
Mean = 8.766
Sd = 4.959
Slope = 4.552
Intercept = 8.766
Correlation, R = 0.915

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations

12000
10000
8000
6000
4000
2000
0

-3 -2 -1 0 1 2 3

Theoretical Quantiles (Standard Normal)

● NV_Pb ● NV_Pb <80 ● NV_Pb <41 ● NV_Pb <34

NV_Pb

N = 515
Mean = 47.94
Sd = 553.8
Slope = 91.97
Intercept = 47.94
Correlation, R = 0.166

NV_Pb <80

N = 513
Mean = 19.67
Sd = 7.81
Slope = 7.074
Intercept = 19.67
Correlation, R = 0.903

NV_Pb <41

N = 505
Mean = 19.06
Sd = 5.895
Slope = 5.883
Intercept = 19.06
Correlation, R = 0.995

NV_Pb <34

N = 498
Mean = 18.81
Sd = 5.514
Slope = 5.519
Intercept = 18.81
Correlation, R = 0.998

■ Best Fit Line

Normal Q-Q Plot

NY_As

N = 213
Mean = 6.383
Sd = 4.825
Slope = 4.426
Intercept = 6.383
Correlation, R = 0.912

NY_As <26

N = 212
Mean = 6.245
Sd = 4.396
Slope = 4.154
Intercept = 6.245
Correlation, R = 0.939

NY_As <20

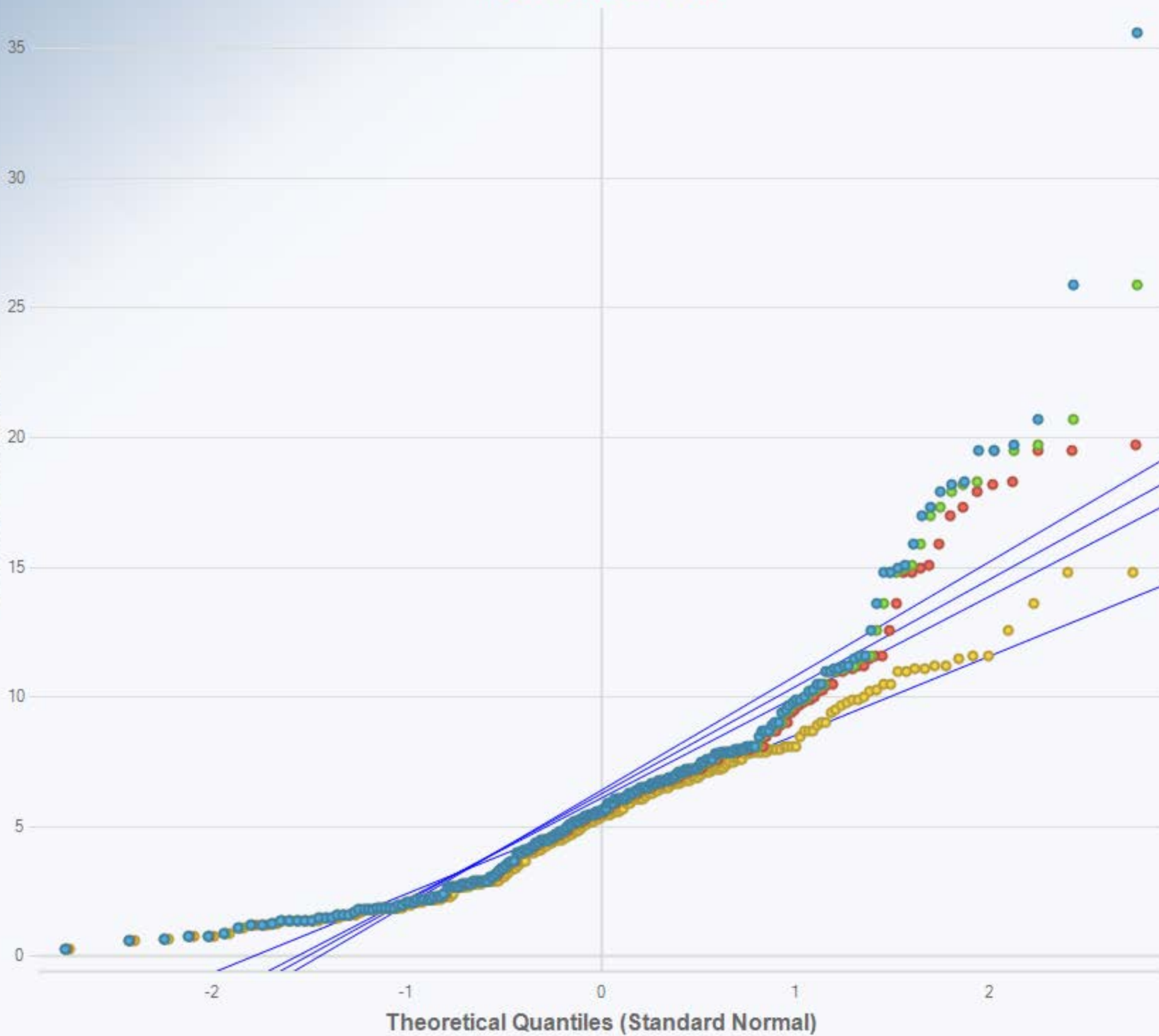
N = 210
Mean = 6.083
Sd = 4.079
Slope = 3.904
Intercept = 6.083
Correlation, R = 0.951

NY_As <15

N = 199
Mean = 5.447
Sd = 3.109
Slope = 3.072
Intercept = 5.447
Correlation, R = 0.982

Best Fit Line

Ordered Observations



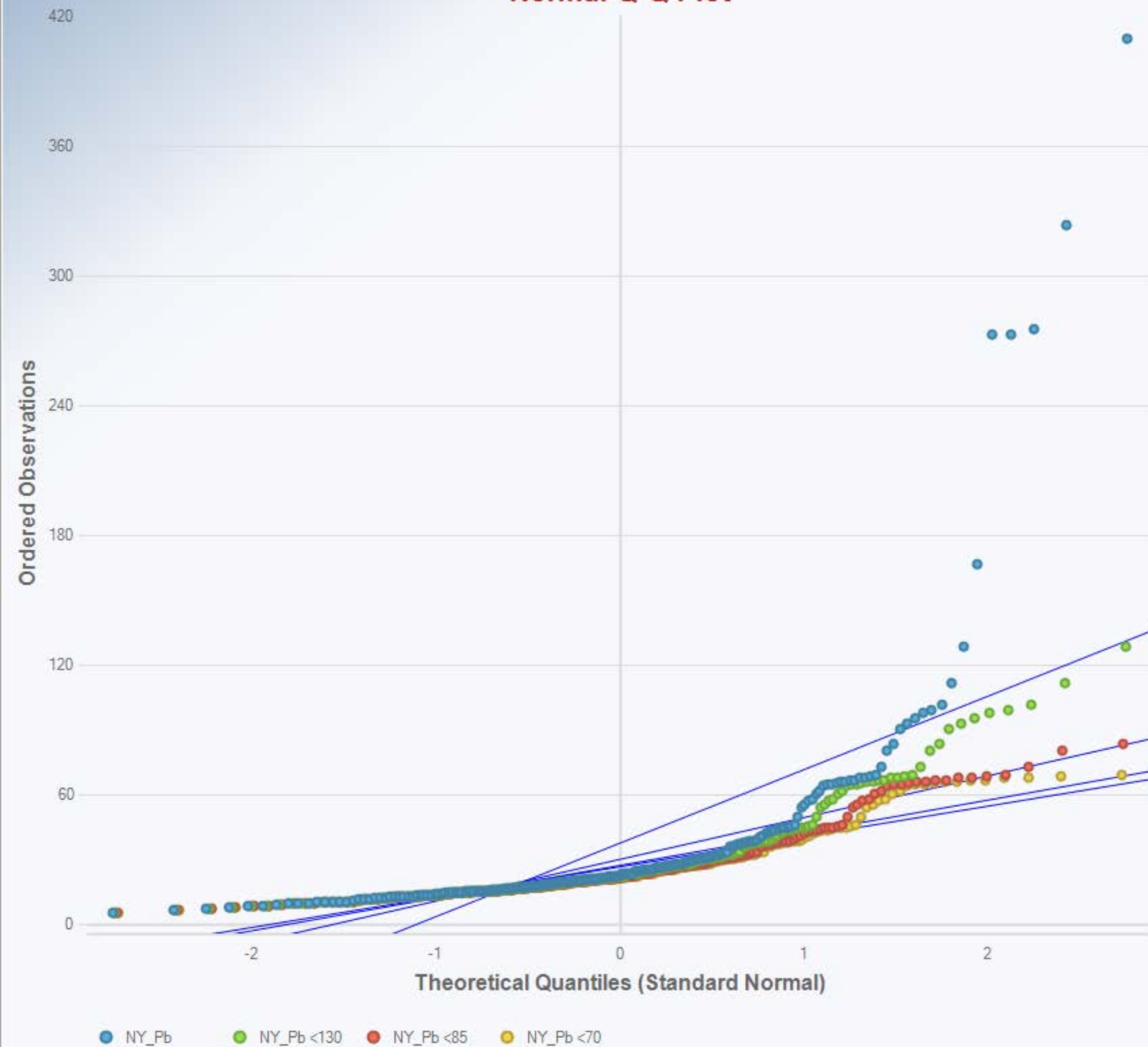
NY_As

NY_As <26

NY_As <20

NY_As <15

Normal Q-Q Plot



NY_Pb

N = 213
Mean = 37.51
Sd = 49.24
Slope = 34.12
Intercept = 37.51
Correlation, R = 0.689

NY_Pb <130

N = 207
Mean = 30.27
Sd = 21.78
Slope = 19.45
Intercept = 30.27
Correlation, R = 0.888

NY_Pb <85

N = 199
Mean = 27.37
Sd = 16.37
Slope = 15.2
Intercept = 27.37
Correlation, R = 0.922

NY_Pb <70

N = 196
Mean = 26.57
Sd = 15.16
Slope = 14.15
Intercept = 26.57
Correlation, R = 0.928

Best Fit Line

Normal Q-Q Plot

OH_As

N = 207
Mean = 11.84
Sd = 8.1
Slope = 6.095
Intercept = 11.84
Correlation, R = 0.748

OH_As <55

N = 206
Mean = 11.44
Sd = 5.759
Slope = 5.16
Intercept = 11.44
Correlation, R = 0.891

OH_As <27

N = 203
Mean = 11.02
Sd = 4.455
Slope = 4.364
Intercept = 11.02
Correlation, R = 0.974

OH_As <21

N = 196
Mean = 10.56
Sd = 3.778
Slope = 3.766
Intercept = 10.56
Correlation, R = 0.991

Best Fit Line

Ordered Observations

80

60

40

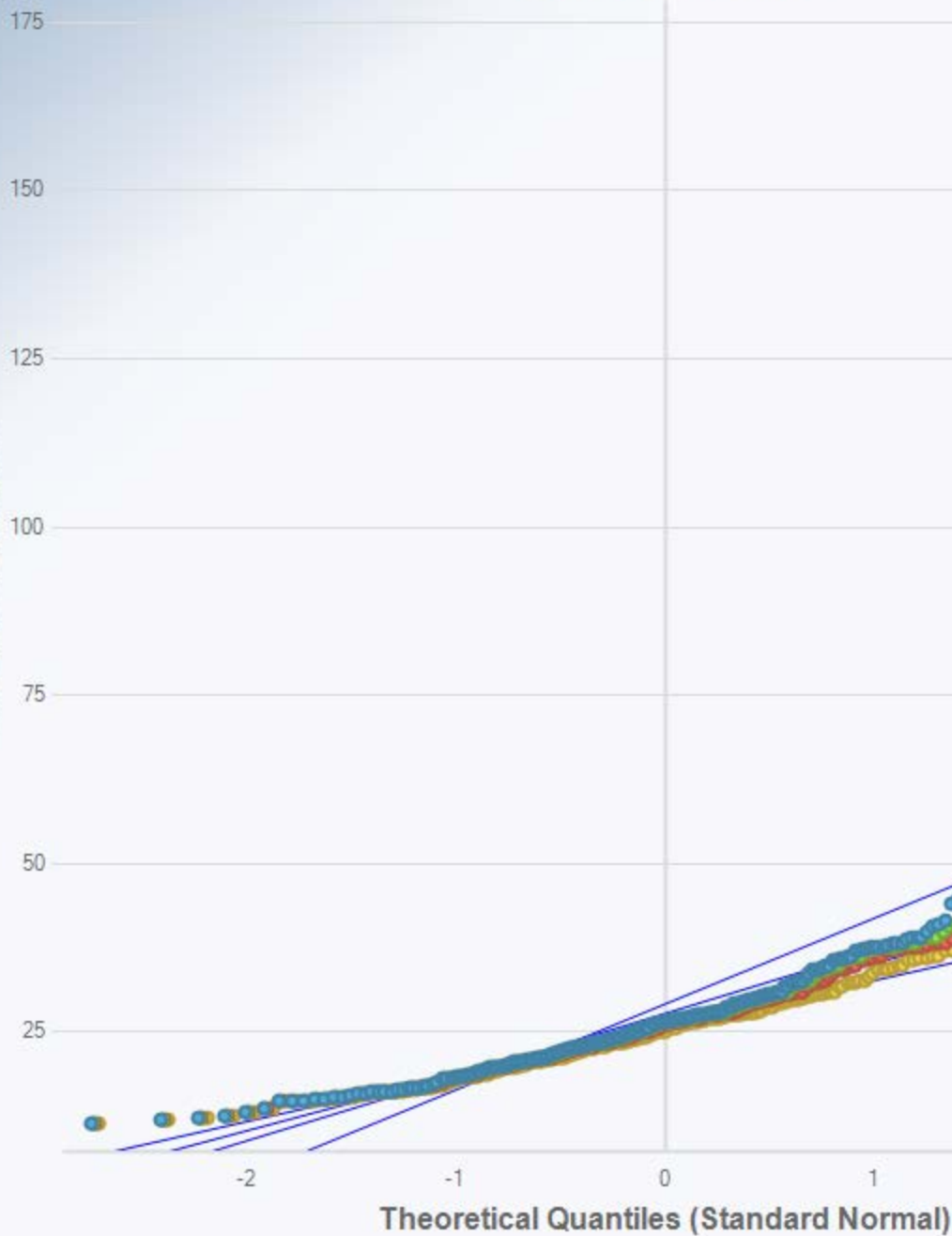
20

Theoretical Quantiles (Standard Normal)

OH_As OH_As <55 OH_As <27 OH_As <21

Normal Q-Q Plot

Ordered Observations



OH_Pb

N = 207
Mean = 29
Sd = 16.63
Slope = 12.78
Intercept = 29
Correlation, R = 0.764

OH_Pb <72

N = 204
Mean = 27.48
Sd = 9.723
Slope = 9.469
Intercept = 27.48
Correlation, R = 0.968

OH_Pb <50

N = 198
Mean = 26.63
Sd = 8.435
Slope = 8.361
Intercept = 26.63
Correlation, R = 0.985

OH_Pb <40

N = 186
Mean = 25.39
Sd = 7.037
Slope = 7.014
Intercept = 25.39
Correlation, R = 0.99

Best Fit Line

OH_Pb OH_Pb <72 OH_Pb <50 OH_Pb <40

Normal Q-Q Plot

OR_As

N = 456
Mean = 4.866
Sd = 4.458
Slope = 3.188
Intercept = 4.866
Correlation, R = 0.713

OR_As <36

N = 453
Mean = 4.604
Sd = 3.014
Slope = 2.582
Intercept = 4.604
Correlation, R = 0.854

OR_As <23

N = 452
Mean = 4.536
Sd = 2.642
Slope = 2.417
Intercept = 4.536
Correlation, R = 0.912

OR_As <15

N = 446
Mean = 4.372
Sd = 2.229
Slope = 2.134
Intercept = 4.372
Correlation, R = 0.954

Best Fit Line

Ordered Observations

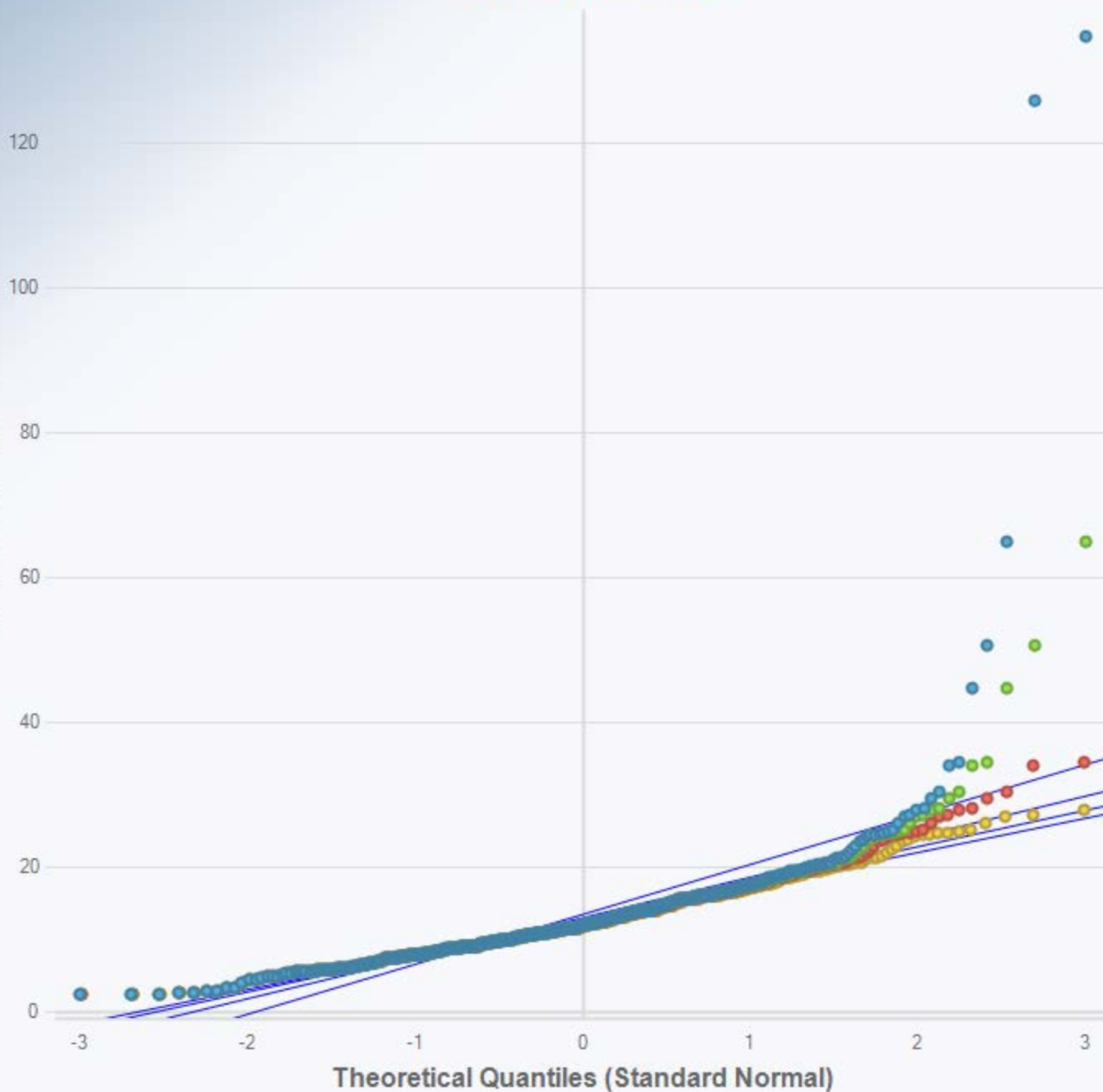
56
48
40
32
24
16
8
0

-3 -2 -1 0 1 2 3
Theoretical Quantiles (Standard Normal)

OR_As OR_As <36 OR_As <23 OR_As <15

Normal Q-Q Plot

Ordered Observations



● OR_Pb ● OR_Pb <66 ● OR_Pb <35 ● OR_Pb <28

OR_Pb

N = 456
Mean = 13.43
Sd = 9.914
Slope = 6.949
Intercept = 13.43
Correlation, R = 0.699

OR_Pb <66

N = 454
Mean = 12.91
Sd = 6.152
Slope = 5.649
Intercept = 12.91
Correlation, R = 0.915

OR_Pb <35

N = 451
Mean = 12.64
Sd = 5.153
Slope = 5.07
Intercept = 12.64
Correlation, R = 0.981

OR_Pb <28

N = 446
Mean = 12.43
Sd = 4.78
Slope = 4.753
Intercept = 12.43
Correlation, R = 0.991

■ Best Fit Line

Normal Q-Q Plot

PA_As

N = 227
Mean = 10.37
Sd = 6.272
Slope = 5.783
Intercept = 10.37
Correlation, R = 0.917

PA_As <36

N = 225
Mean = 10.11
Sd = 5.649
Slope = 5.344
Intercept = 10.11
Correlation, R = 0.941

PA_As <24

N = 220
Mean = 9.619
Sd = 4.649
Slope = 4.563
Intercept = 9.619
Correlation, R = 0.976

PA_As <20

N = 213
Mean = 9.213
Sd = 4.132
Slope = 4.083
Intercept = 9.213
Correlation, R = 0.982

Best Fit Line

Ordered Observations

40

32

24

16

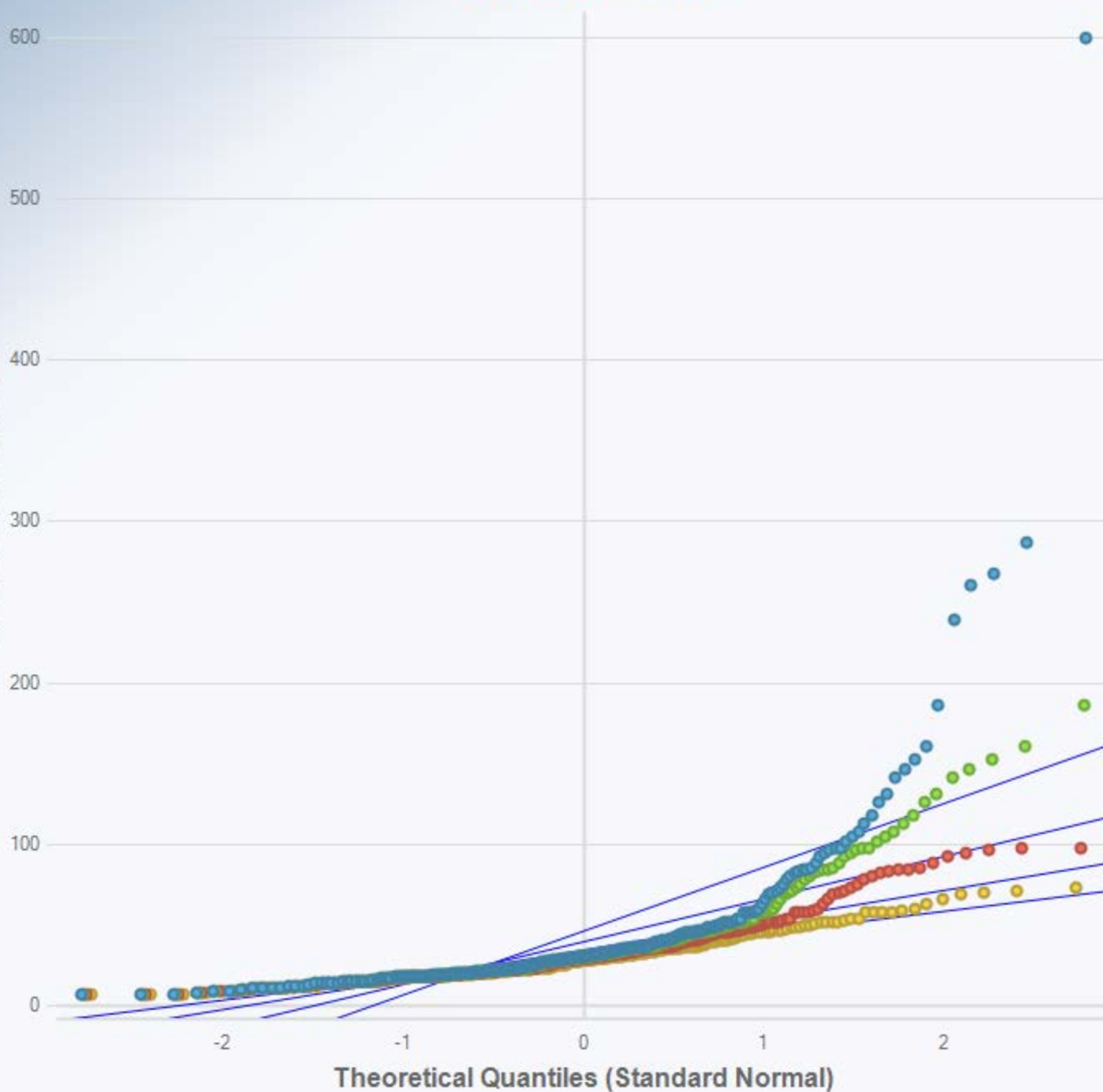
8

Theoretical Quantiles (Standard Normal)

PA_As PA_As <36 PA_As <24 PA_As <20

Normal Q-Q Plot

Ordered Observations



● PA_Pb ● PA_Pb <187 ● PA_Pb <99 ● PA_Pb <74

PA_Pb

N = 227
Mean = 46.1
Sd = 55.9
Slope = 39.71
Intercept = 46.1
Correlation, R = 0.706

PA_Pb <187

N = 222
Mean = 39.68
Sd = 30.06
Slope = 26.6
Intercept = 39.68
Correlation, R = 0.88

PA_Pb <99

N = 210
Mean = 34.37
Sd = 19.87
Slope = 18.74
Intercept = 34.37
Correlation, R = 0.938

PA_Pb <74

N = 196
Mean = 30.58
Sd = 14.25
Slope = 13.98
Intercept = 30.58
Correlation, R = 0.975

■ Best Fit Line

Normal Q-Q Plot

RI_As

N = 6

Mean = 3.633

Sd = 0.579

Slope = 0.617

Intercept = 3.633

Correlation, R = 0.976

RI_Pb

N = 6

Mean = 46.32

Sd = 20.5

Slope = 21.41

Intercept = 46.32

Correlation, R = 0.956

Best Fit Line

Ordered Observations

60

50

40

30

20

10

-1.0

-0.5

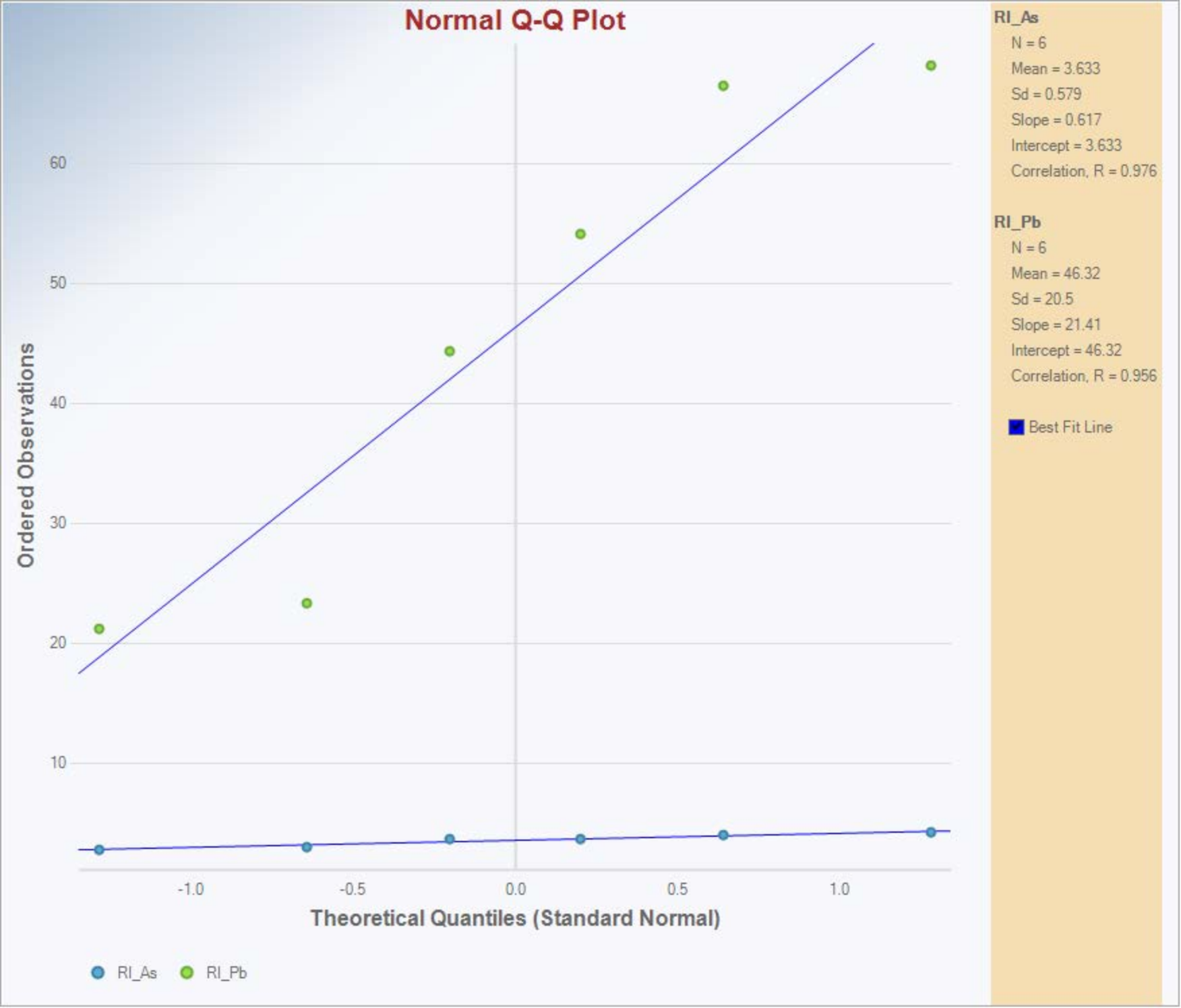
0.0

0.5

1.0

Theoretical Quantiles (Standard Normal)

RI_As RI_Pb



Normal Q-Q Plot

SC_As

N = 150
Mean = 2.573
Sd = 1.902
Slope = 1.764
Intercept = 2.573
Correlation, R = 0.92

SC_As <8

N = 148
Mean = 2.489
Sd = 1.769
Slope = 1.652
Intercept = 2.489
Correlation, R = 0.926

SC_As <6

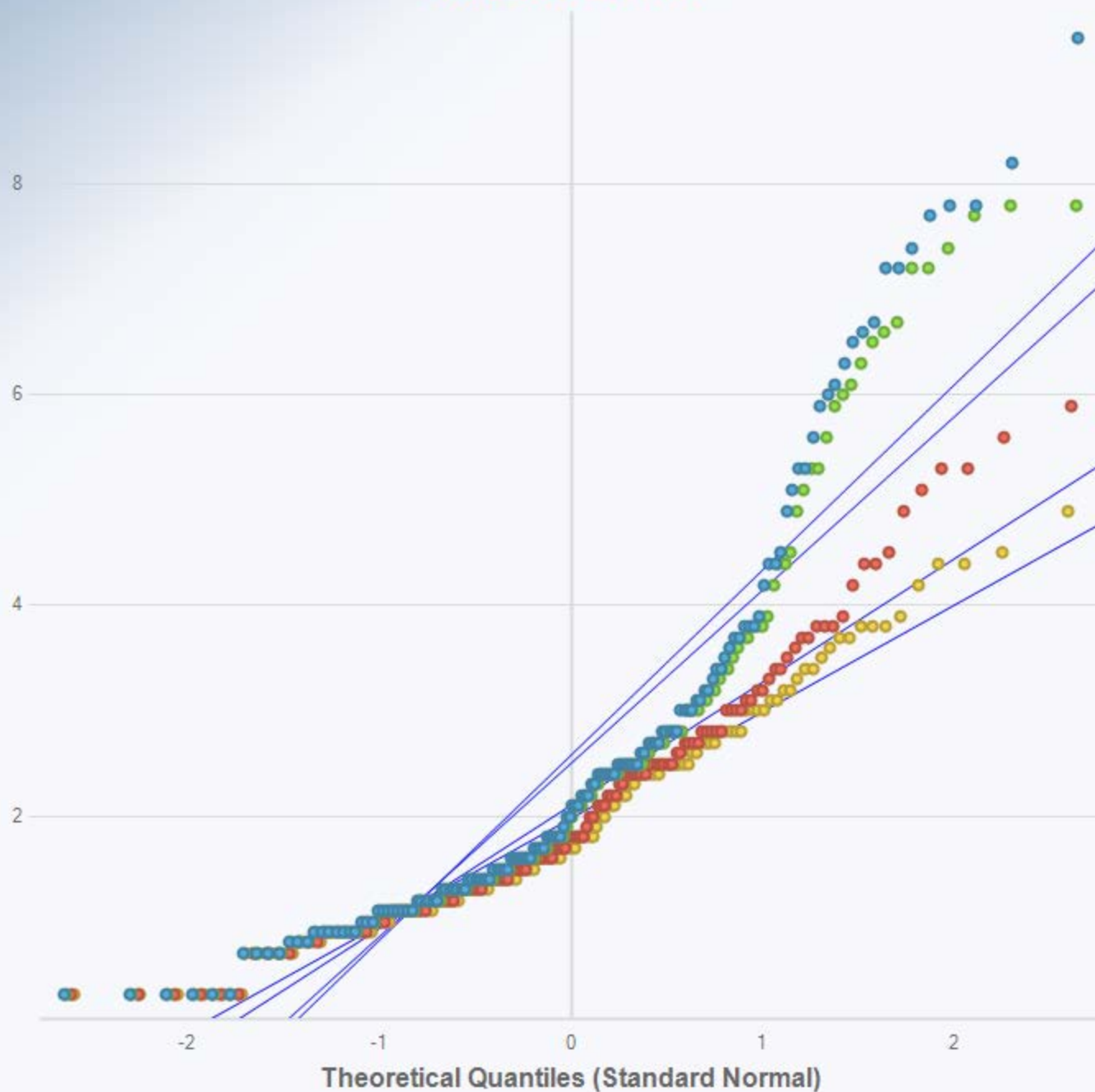
N = 136
Mean = 2.096
Sd = 1.205
Slope = 1.174
Intercept = 2.096
Correlation, R = 0.965

SC_As <5

N = 131
Mean = 1.969
Sd = 1.029
Slope = 1.017
Intercept = 1.969
Correlation, R = 0.98

Best Fit Line

Ordered Observations



● SC_As ● SC_As <8 ● SC_As <6 ● SC_As <5

Normal Q-Q Plot

Ordered Observations

100

80

60

40

20

0

Theoretical Quantiles (Standard Normal)

● SC_Pb ● SC_Pb <41 ● SC_Pb <35 ● SC_Pb <30

SC_Pb

N = 150
Mean = 16.14
Sd = 13.11
Slope = 11.38
Intercept = 16.14
Correlation, R = 0.861

SC_Pb <41

N = 148
Mean = 15.1
Sd = 9.557
Slope = 9.245
Intercept = 15.1
Correlation, R = 0.96

SC_Pb <35

N = 144
Mean = 14.41
Sd = 8.737
Slope = 8.475
Intercept = 14.41
Correlation, R = 0.962

SC_Pb <30

N = 133
Mean = 12.9
Sd = 7.249
Slope = 7.088
Intercept = 12.9
Correlation, R = 0.969

■ Best Fit Line

Normal Q-Q Plot

SD_As

N = 360
Mean = 8.477
Sd = 4.036
Slope = 3.595
Intercept = 8.477
Correlation, R = 0.887

SD_As <26

N = 359
Mean = 8.371
Sd = 3.499
Slope = 3.342
Intercept = 8.371
Correlation, R = 0.952

SD_As <20

N = 355
Mean = 8.194
Sd = 3.093
Slope = 3.039
Intercept = 8.194
Correlation, R = 0.979

SD_As <15

N = 339
Mean = 7.796
Sd = 2.533
Slope = 2.536
Intercept = 7.796
Correlation, R = 0.997

Best Fit Line

Ordered Observations

40

32

24

16

8

0

-3 -2 -1 0 1 2 3

Theoretical Quantiles (Standard Normal)

SD_As SD_As <26 SD_As <20 SD_As <15

Normal Q-Q Plot

SD_Pb

N = 360
Mean = 15.95
Sd = 3.749
Slope = 3.518
Intercept = 15.95
Correlation, R = 0.935

SD_Pb <33

N = 359
Mean = 15.86
Sd = 3.352
Slope = 3.31
Intercept = 15.86
Correlation, R = 0.984

SD_Pb <24

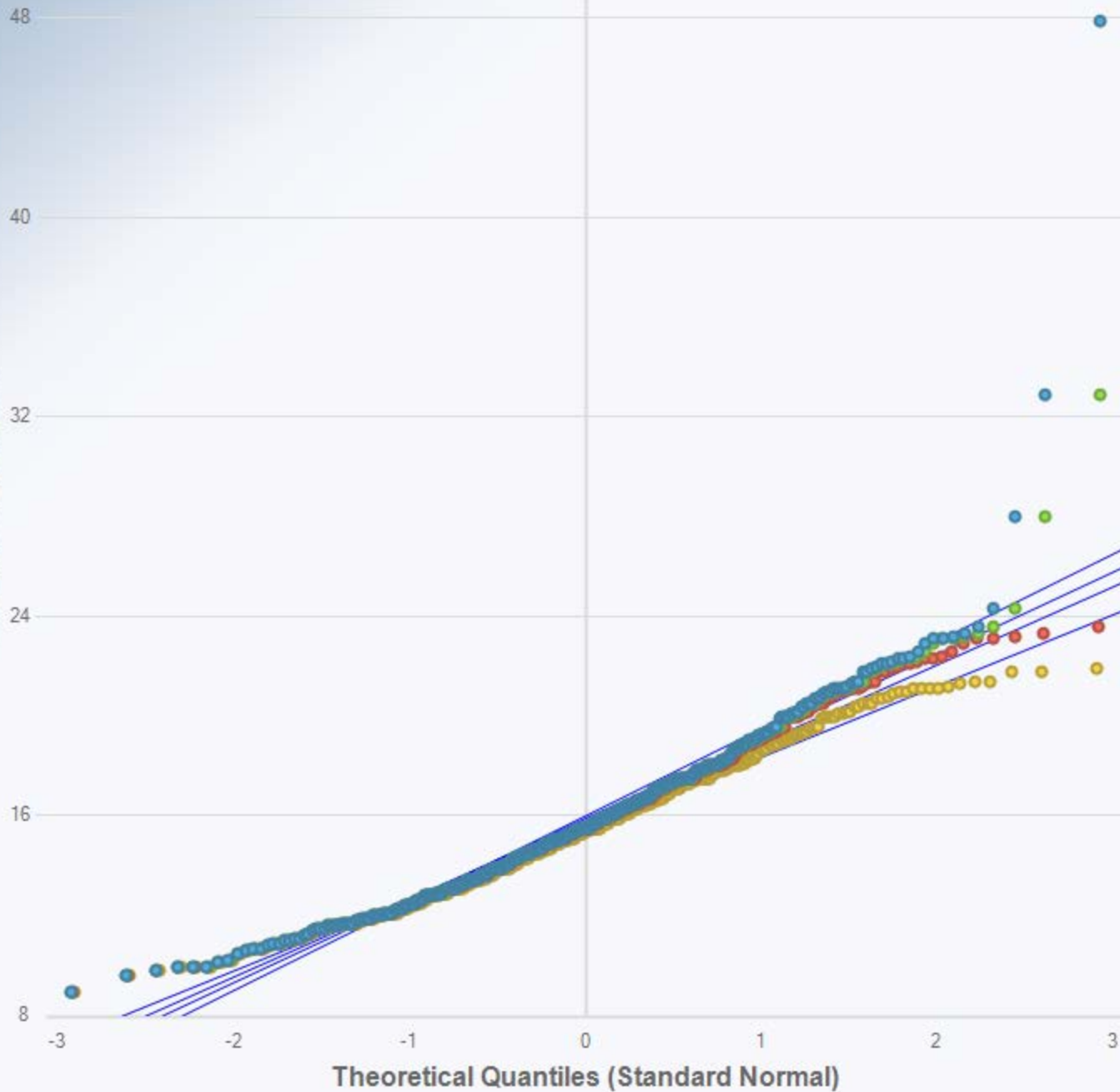
N = 356
Mean = 15.76
Sd = 3.144
Slope = 3.132
Intercept = 15.76
Correlation, R = 0.992

SD_Pb <22

N = 342
Mean = 15.47
Sd = 2.872
Slope = 2.866
Intercept = 15.47
Correlation, R = 0.994

Best Fit Line

Ordered Observations



● SD_Pb ● SD_Pb <33 ● SD_Pb <24 ● SD_Pb <22

Normal Q-Q Plot

TN_As

N = 198
Mean = 7.628
Sd = 5.107
Slope = 4.392
Intercept = 7.628
Correlation, R = 0.855

TN_As <34

N = 197
Mean = 7.471
Sd = 4.615
Slope = 4.096
Intercept = 7.471
Correlation, R = 0.882

TN_As <30

N = 195
Mean = 7.216
Sd = 3.879
Slope = 3.63
Intercept = 7.216
Correlation, R = 0.93

TN_As <19

N = 193
Mean = 7.005
Sd = 3.288
Slope = 3.231
Intercept = 7.005
Correlation, R = 0.977

Best Fit Line

Ordered Observations

35

30

25

20

15

10

5

Theoretical Quantiles (Standard Normal)

● TN_As ● TN_As <34 ● TN_As <30 ● TN_As <19

Normal Q-Q Plot

Ordered Observations

175

150

125

100

75

50

25

0

Theoretical Quantiles (Standard Normal)

● TN_Pb ● TN_Pb <79 ● TN_Pb <46 ● TN_Pb <38

TN_Pb

N = 198
Mean = 23.61
Sd = 19.65
Slope = 13.55
Intercept = 23.61
Correlation, R = 0.685

TN_Pb <79

N = 195
Mean = 21.53
Sd = 9.954
Slope = 9.025
Intercept = 21.53
Correlation, R = 0.901

TN_Pb <46

N = 192
Mean = 20.73
Sd = 7.66
Slope = 7.519
Intercept = 20.73
Correlation, R = 0.975

TN_Pb <38

N = 185
Mean = 19.93
Sd = 6.569
Slope = 6.543
Intercept = 19.93
Correlation, R = 0.99

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations

80

60

40

20

0

-3

-2

-1

0

1

2

3

Theoretical Quantiles (Standard Normal)

● TX_As ● TX_As <75 ● TX_As <39 ● TX_As <24 ● TX_As <20

TX_As

N = 1237
Mean = 6.092
Sd = 6.658
Slope = 4.297
Intercept = 6.092
Correlation, R = 0.644

TX_As <75

N = 1233
Mean = 5.846
Sd = 5.059
Slope = 3.701
Intercept = 5.846
Correlation, R = 0.73

TX_As <39

N = 1226
Mean = 5.556
Sd = 3.237
Slope = 2.989
Intercept = 5.556
Correlation, R = 0.922

TX_As <24

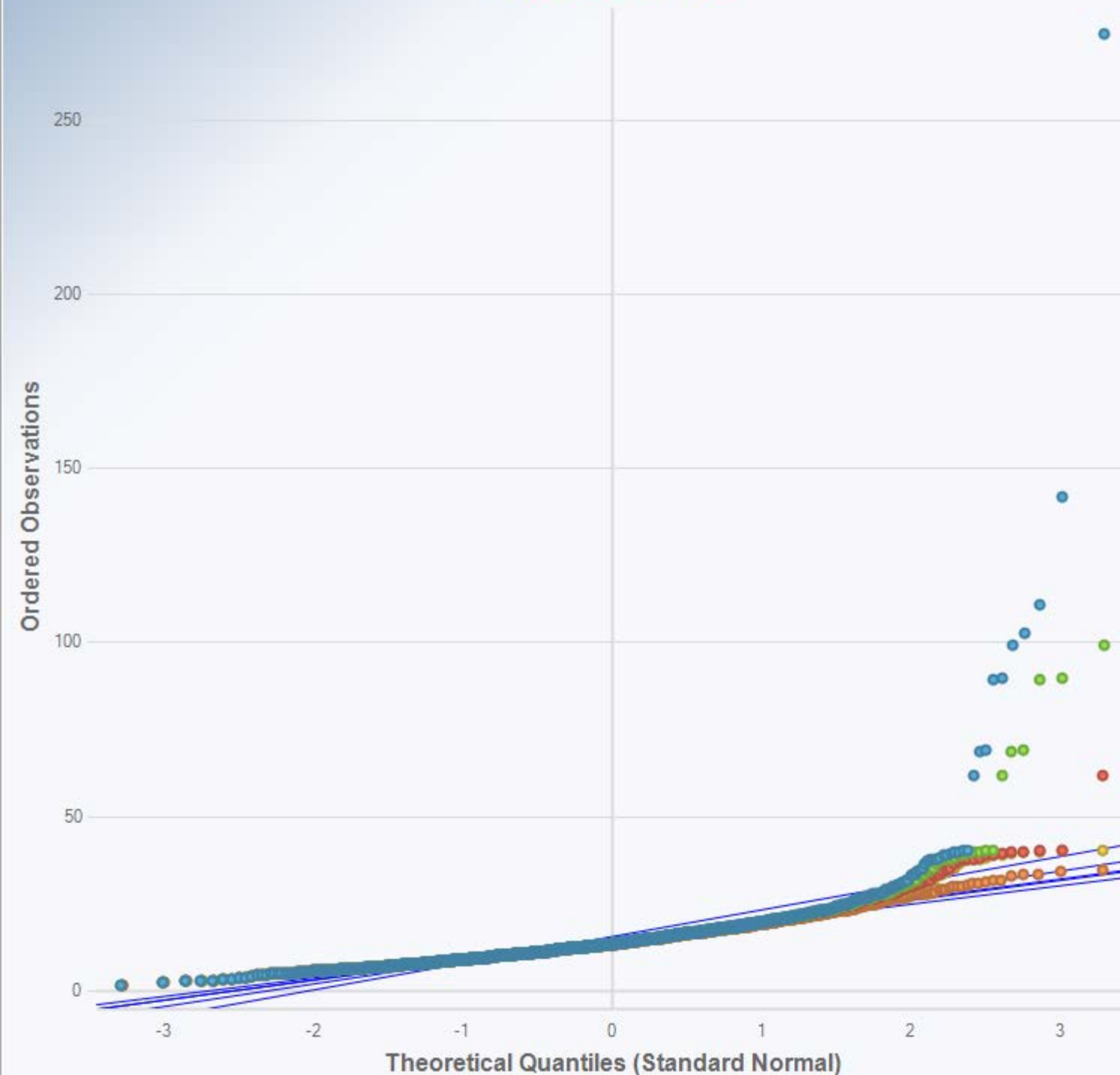
N = 1223
Mean = 5.494
Sd = 2.976
Slope = 2.847
Intercept = 5.494
Correlation, R = 0.955

TX_As <20

N = 1220
Mean = 5.457
Sd = 2.885
Slope = 2.781
Intercept = 5.457
Correlation, R = 0.963

■ Best Fit Line

Normal Q-Q Plot



● TX_Pb ● TX_Pb <100 ● TX_Pb <63 ● TX_Pb <41 ● TX_Pb <35

TX_Pb

N = 1237
Mean = 15.23
Sd = 11.75
Slope = 7.726
Intercept = 15.23
Correlation, R = 0.657

TX_Pb <100

N = 1233
Mean = 14.77
Sd = 7.531
Slope = 6.499
Intercept = 14.77
Correlation, R = 0.862

TX_Pb <63

N = 1228
Mean = 14.49
Sd = 6.087
Slope = 5.831
Intercept = 14.49
Correlation, R = 0.957

TX_Pb <41

N = 1227
Mean = 14.45
Sd = 5.936
Slope = 5.74
Intercept = 14.45
Correlation, R = 0.966

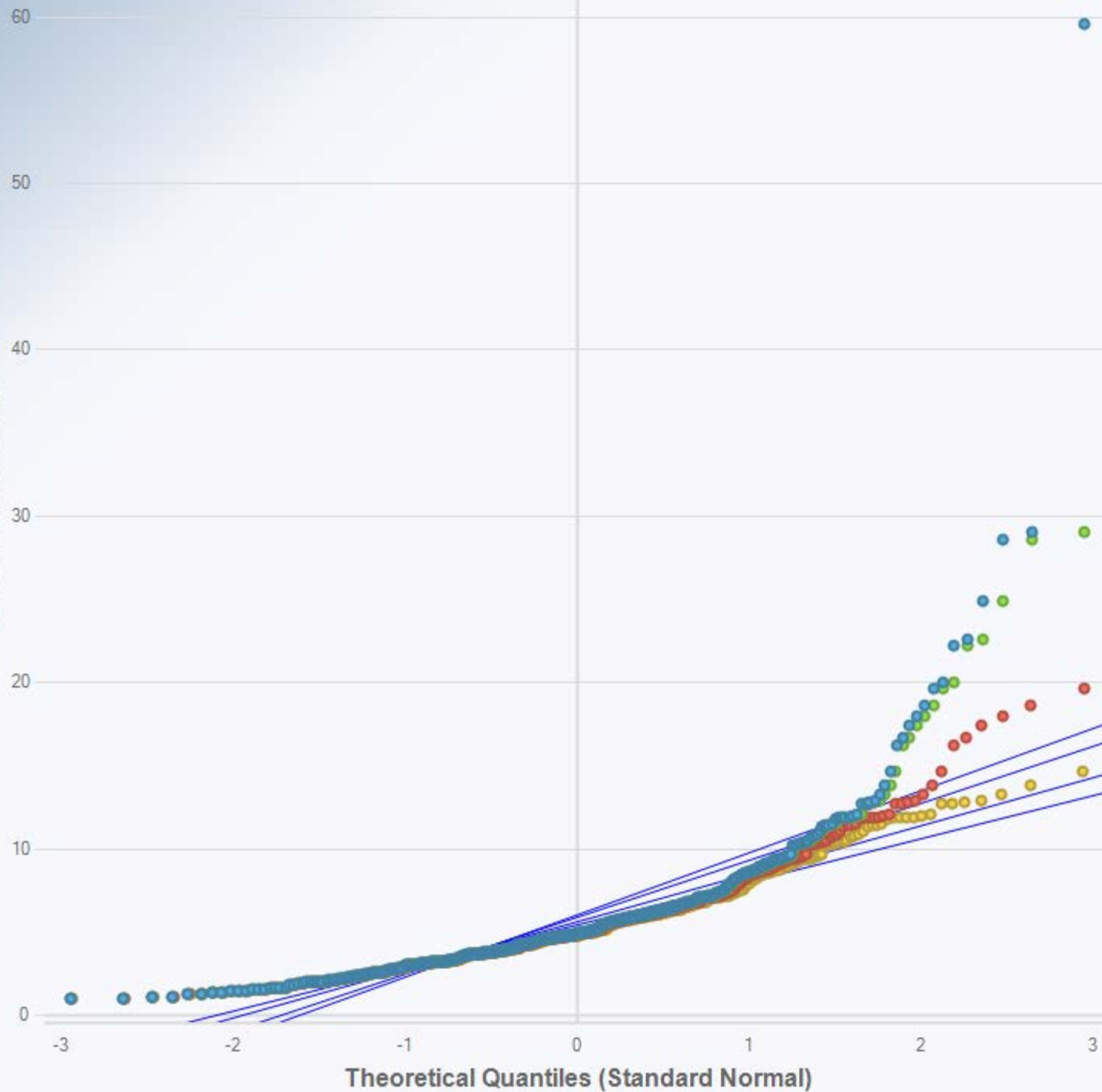
TX_Pb <35

N = 1213
Mean = 14.17
Sd = 5.372
Slope = 5.295
Intercept = 14.17
Correlation, R = 0.984

■ Best Fit Line

Normal Q-Q Plot

Ordered Observations



● UT_As ● UT_As <30 ● UT_As <20 ● UT_As <15

UT_As

N = 397
Mean = 5.983
Sd = 4.695
Slope = 3.76
Intercept = 5.983
Correlation, R = 0.798

UT_As <30

N = 396
Mean = 5.847
Sd = 3.847
Slope = 3.426
Intercept = 5.847
Correlation, R = 0.887

UT_As <20

N = 390
Mean = 5.559
Sd = 3.061
Slope = 2.907
Intercept = 5.559
Correlation, R = 0.946

UT_As <15

N = 384
Mean = 5.369
Sd = 2.67
Slope = 2.601
Intercept = 5.369
Correlation, R = 0.971

■ Best Fit Line

Normal Q-Q Plot

UT_Pb

N = 397
Mean = 17.17
Sd = 11.15
Slope = 8.99
Intercept = 17.17
Correlation, R = 0.803

UT_Pb <67

N = 395
Mean = 16.64
Sd = 8.347
Slope = 7.762
Intercept = 16.64
Correlation, R = 0.927

UT_Pb <47

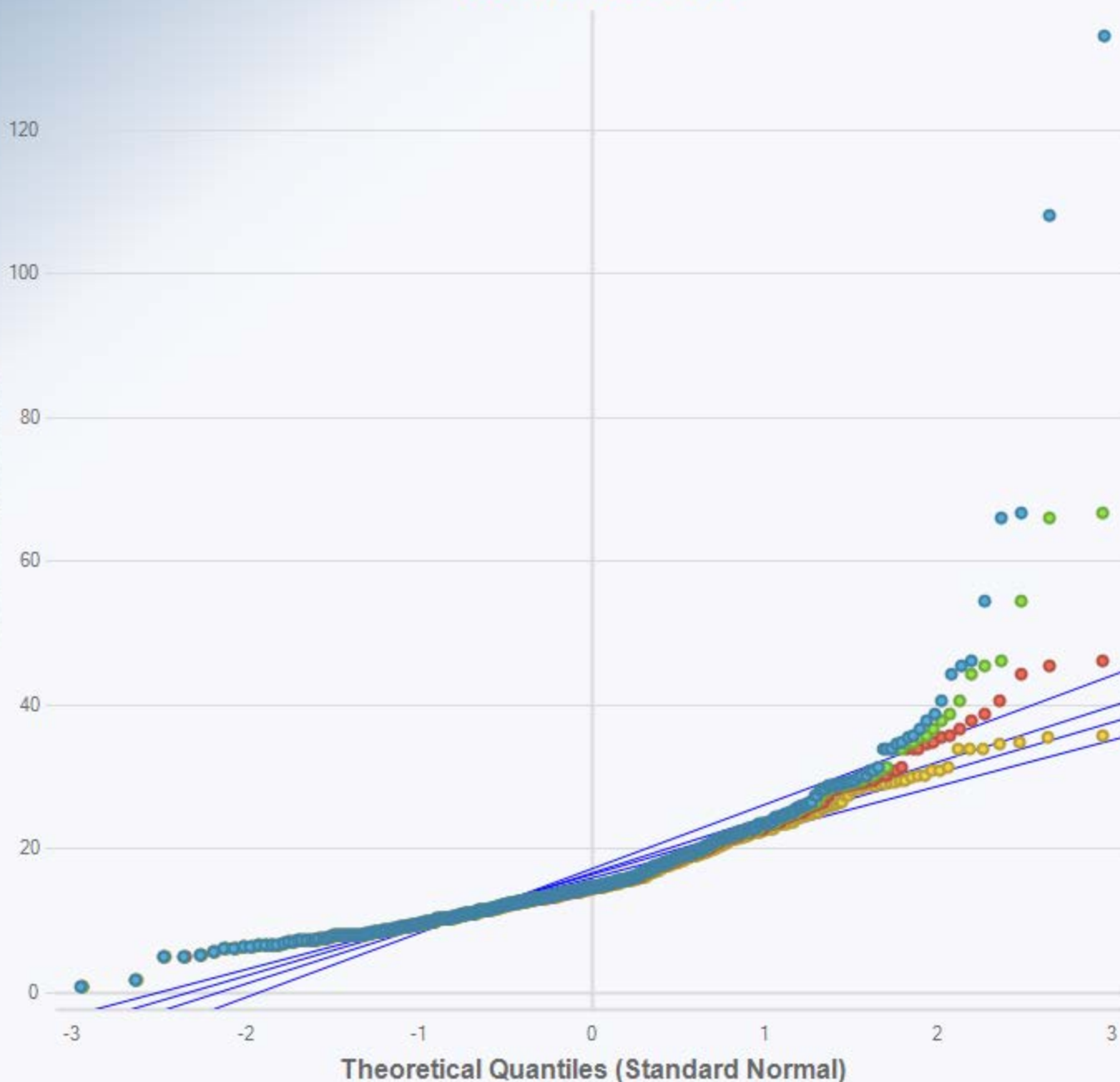
N = 392
Mean = 16.29
Sd = 7.33
Slope = 7.089
Intercept = 16.29
Correlation, R = 0.964

UT_Pb <36

N = 385
Mean = 15.84
Sd = 6.542
Slope = 6.425
Intercept = 15.84
Correlation, R = 0.979

Best Fit Line

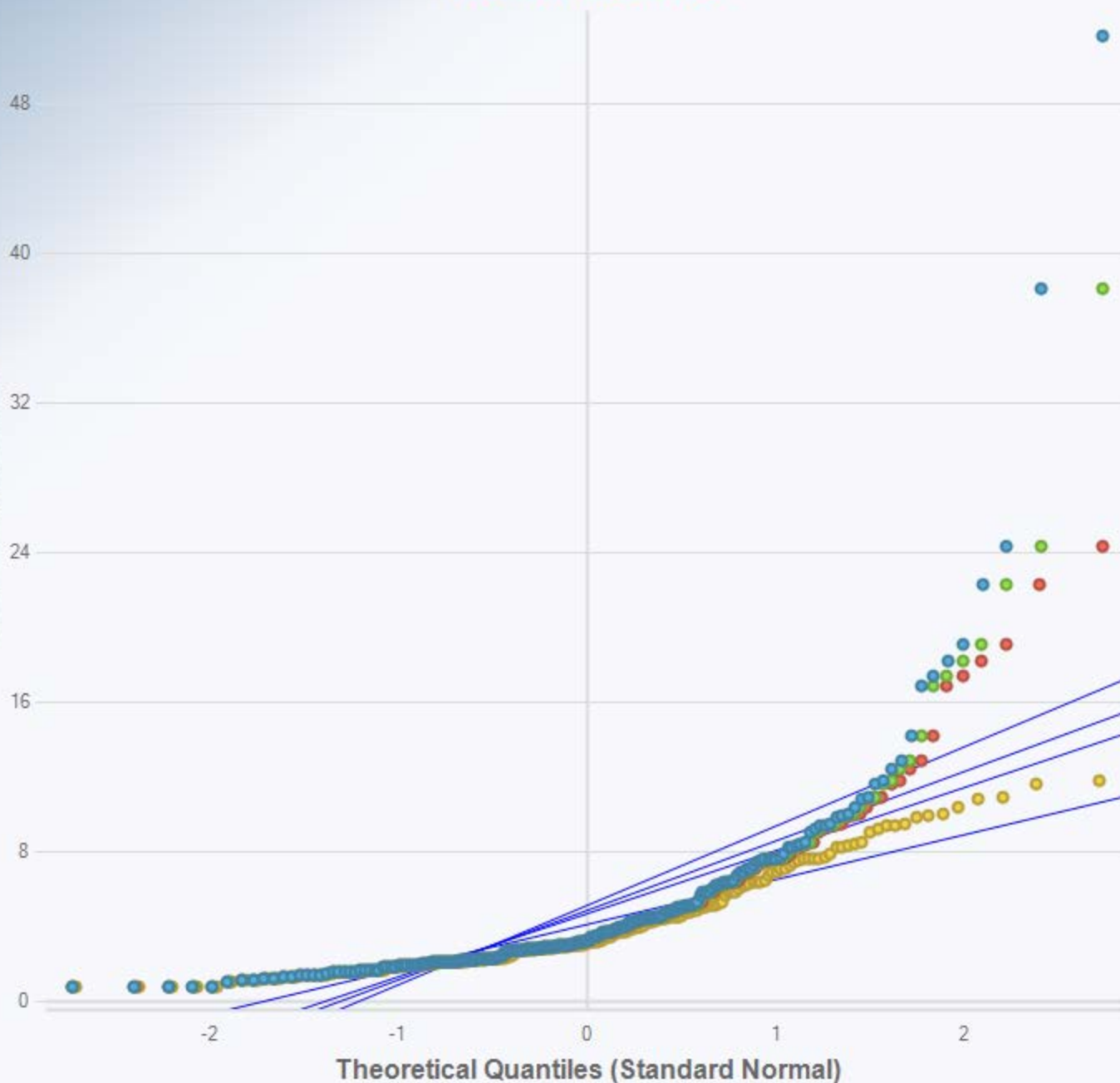
Ordered Observations



UT_Pb UT_Pb <67 UT_Pb <47 UT_Pb <36

Normal Q-Q Plot

Ordered Observations



● VA_As ● VA_As <39 ● VA_As <25 ● VA_As <12

VA_As

N = 198
Mean = 5.057
Sd = 5.602
Slope = 4.263
Intercept = 5.057
Correlation, R = 0.756

VA_As <39

N = 197
Mean = 4.821
Sd = 4.521
Slope = 3.75
Intercept = 4.821
Correlation, R = 0.824

VA_As <25

N = 196
Mean = 4.651
Sd = 3.851
Slope = 3.392
Intercept = 4.651
Correlation, R = 0.875

VA_As <12

N = 187
Mean = 4.032
Sd = 2.539
Slope = 2.414
Intercept = 4.032
Correlation, R = 0.945

■ Best Fit Line

Normal Q-Q Plot

VA_Pb

N = 198
Mean = 25.59
Sd = 17.55
Slope = 15.34
Intercept = 25.59
Correlation, R = 0.869

VA_Pb <88

N = 197
Mean = 24.94
Sd = 15.04
Slope = 13.96
Intercept = 24.94
Correlation, R = 0.922

VA_Pb <60

N = 191
Mean = 23.24
Sd = 11.69
Slope = 11.35
Intercept = 23.24
Correlation, R = 0.965

VA_Pb <42

N = 175
Mean = 20.78
Sd = 8.629
Slope = 8.564
Intercept = 20.78
Correlation, R = 0.986

Best Fit Line

Ordered Observations

140

120

100

80

60

40

20

Theoretical Quantiles (Standard Normal)

VA_Pb VA_Pb <88 VA_Pb <60 VA_Pb <42

Normal Q-Q Plot

VT_As

N = 45
Mean = 5.636
Sd = 6.106
Slope = 5.257
Intercept = 5.636
Correlation, R = 0.844

VT_As <17

N = 43
Mean = 4.614
Sd = 3.863
Slope = 3.621
Intercept = 4.614
Correlation, R = 0.918

VT_As <14

N = 42
Mean = 4.336
Sd = 3.446
Slope = 3.26
Intercept = 4.336
Correlation, R = 0.926

VT_As <10

N = 39
Mean = 3.649
Sd = 2.455
Slope = 2.398
Intercept = 3.649
Correlation, R = 0.955

Best Fit Line

Ordered Observations

28
24
20
16
12
8
4
0

-1.8 -1.2 -0.6 0.0 0.6 1.2 1.8

Theoretical Quantiles (Standard Normal)

VT_As VT_As <17 VT_As <14 VT_As <10

Normal Q-Q Plot

VT_Pb

N = 45
Mean = 28.25
Sd = 14.68
Slope = 14.28
Intercept = 28.25
Correlation, R = 0.953

VT_Pb <63

N = 43
Mean = 26.48
Sd = 12.39
Slope = 12.24
Intercept = 26.48
Correlation, R = 0.968

VT_Pb <54

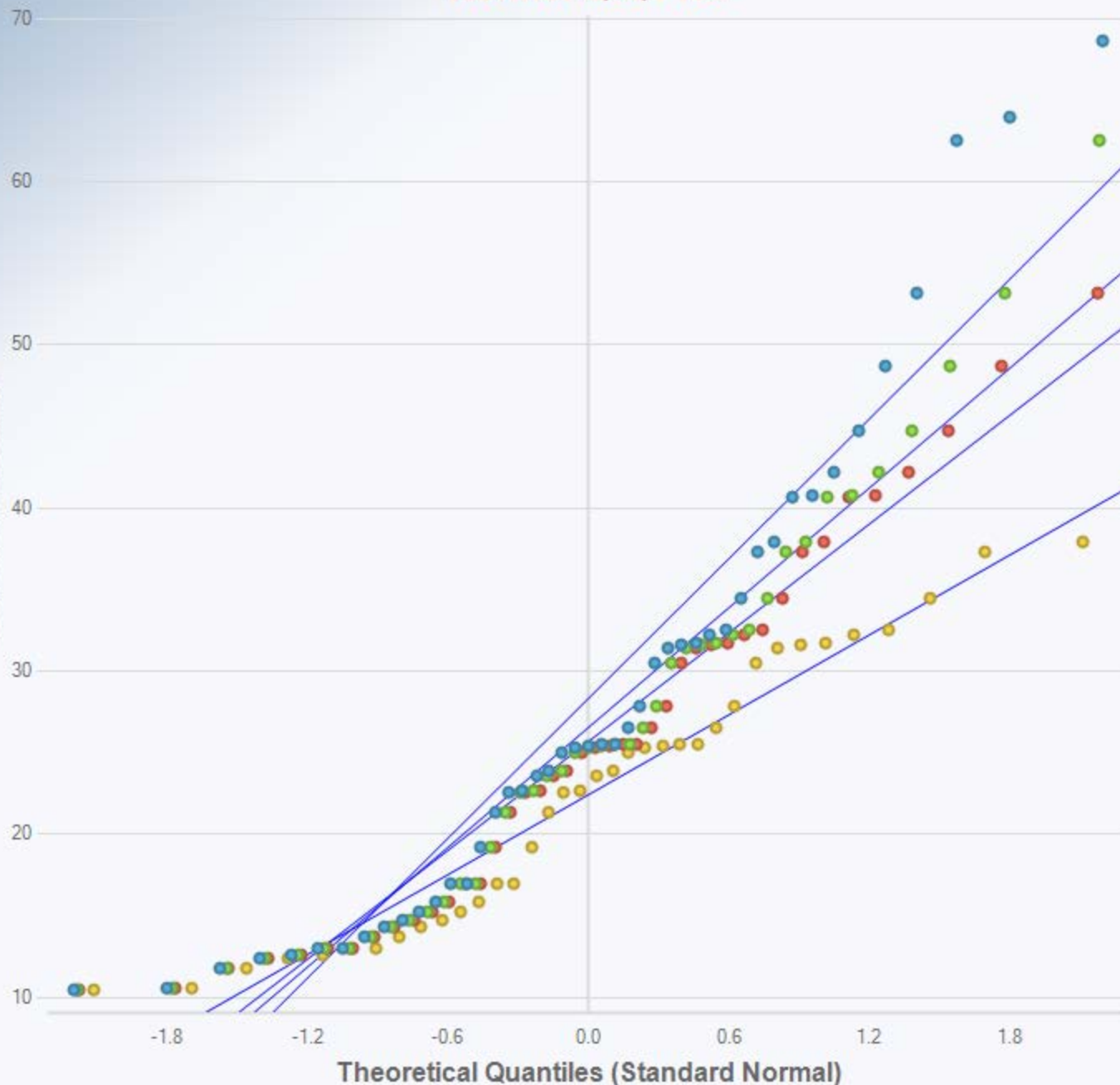
N = 42
Mean = 25.62
Sd = 11.17
Slope = 11.14
Intercept = 25.62
Correlation, R = 0.976

VT_Pb <38

N = 36
Mean = 22.39
Sd = 8.19
Slope = 8.187
Intercept = 22.39
Correlation, R = 0.976

Best Fit Line

Ordered Observations



VT_Pb VT_Pb <63 VT_Pb <54 VT_Pb <38

Normal Q-Q Plot

WA_As

N = 326
Mean = 6.104
Sd = 8.977
Slope = 5.129
Intercept = 6.104
Correlation, R = 0.569

WA_As <64

N = 325
Mean = 5.707
Sd = 5.423
Slope = 4.099
Intercept = 5.707
Correlation, R = 0.753

WA_As <24

N = 322
Mean = 5.335
Sd = 3.599
Slope = 3.264
Intercept = 5.335
Correlation, R = 0.903

WA_As <15

N = 314
Mean = 4.983
Sd = 2.837
Slope = 2.7
Intercept = 4.983
Correlation, R = 0.948

Best Fit Line

Ordered Observations

120

100

80

60

40

20

0

-3

-2

-1

0

1

2

3

Theoretical Quantiles (Standard Normal)

WA_As

WA_As <64

WA_As <24

WA_As <15

Normal Q-Q Plot

WA_Pb <220

N = 323
Mean = 17.47
Sd = 17.68
Slope = 11.56
Intercept = 17.47
Correlation, R = 0.651

WA_Pb <98

N = 320
Mean = 16.19
Sd = 10.95
Slope = 8.695
Intercept = 16.19
Correlation, R = 0.79

WA_Pb <32

N = 305
Mean = 14.26
Sd = 5.343
Slope = 5.181
Intercept = 14.26
Correlation, R = 0.965

■ Best Fit Line

Ordered Observations

210
180
150
120
90
60
30
0

-3 -2 -1 0 1 2 3

Theoretical Quantiles (Standard Normal)

● WA_Pb <220 ● WA_Pb <98 ● WA_Pb <32

Normal Q-Q Plot

Ordered Observations

2400

2000

1600

1200

800

400

0

-3

-2

-1

0

1

2

3

Theoretical Quantiles (Standard Normal)

● WA_Pb

● WA_Pb <220

● WA_Pb <98

● WA_Pb <32

WA_Pb

N = 326

Mean = 28.89

Sd = 145.2

Slope = 42.48

Intercept = 28.89

Correlation, R = 0.291

WA_Pb <220

N = 323

Mean = 17.47

Sd = 17.68

Slope = 11.56

Intercept = 17.47

Correlation, R = 0.651

WA_Pb <98

N = 320

Mean = 16.19

Sd = 10.95

Slope = 8.695

Intercept = 16.19

Correlation, R = 0.79

WA_Pb <32

N = 305

Mean = 14.26

Sd = 5.343

Slope = 5.181

Intercept = 14.26

Correlation, R = 0.965

■ Best Fit Line

Normal Q-Q Plot

WV_As

N = 117
Mean = 8.307
Sd = 5.243
Slope = 4.832
Intercept = 8.307
Correlation, R = 0.913

WV_As <23

N = 114
Mean = 7.754
Sd = 3.999
Slope = 3.917
Intercept = 7.754
Correlation, R = 0.97

WV_As <17

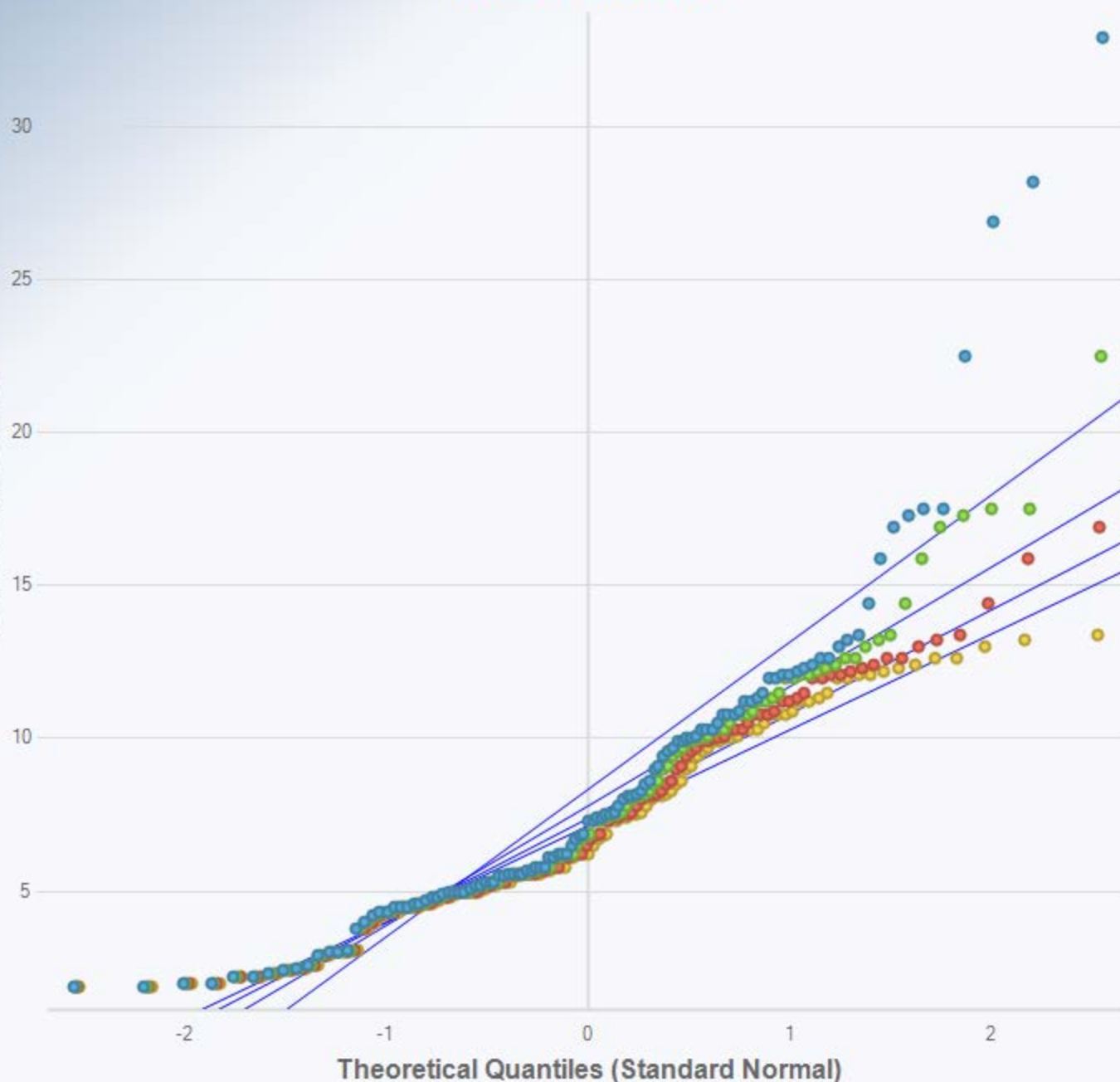
N = 110
Mean = 7.355
Sd = 3.442
Slope = 3.415
Intercept = 7.355
Correlation, R = 0.982

WV_As <14

N = 107
Mean = 7.121
Sd = 3.179
Slope = 3.149
Intercept = 7.121
Correlation, R = 0.98

Best Fit Line

Ordered Observations



WV_As WV_As <23 WV_As <17 WV_As <14

Normal Q-Q Plot

WV_Pb

N = 117
 Mean = 24.85
 Sd = 10.11
 Slope = 10.04
 Intercept = 24.85
 Correlation, R = 0.984

WV_Pb <54

N = 116
 Mean = 24.53
 Sd = 9.565
 Slope = 9.563
 Intercept = 24.53
 Correlation, R = 0.99

WV_Pb <41

N = 109
 Mean = 23.27
 Sd = 8.354
 Slope = 8.375
 Intercept = 23.27
 Correlation, R = 0.992

WV_Pb <35

N = 99
 Mean = 21.78
 Sd = 7.215
 Slope = 7.228
 Intercept = 21.78
 Correlation, R = 0.991

Best Fit Line

Ordered Observations

56

48

40

32

24

16

8

Theoretical Quantiles (Standard Normal)

WV_Pb

WV_Pb <54

WV_Pb <41

WV_Pb <35

BTV Evaluation -Full Conterminous United States

Florida													
Arsenic (Detections Only)							Lead						
Censoring		Not Evaluated (>15% ND)					None	<23	<15	<10			
n	132						267	265	253	237			
Min	0.6						0.25	0.25	0.25	0.25			
Max	8.4						29	22.6	14.9	9.8			
Mean	1.96						5.04	4.87	4.22	3.642			
Median	1.40						3.30	3.30	3.10	2.9			
RPD	33.08	#####	#####	#####	#####	#####	41.80	38.49	30.53	22.68	#####	#####	
std d	1.545						4.850	4.446	3.296	2.494			
CV	0.790	#####	#####	#####	#####	#####	0.962	0.912	0.782	0.6848	#####	#####	
R	0.887						0.886	0.902	0.938	0.955			
BTV Estimators													
95%UPL	4.87						13.06	12.22	9.67	7.77			
95%UTL	4.52						13.81	12.92	10.19	8.18			
95%USL	7.06						22.11	20.51	15.76	12.33			

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

Page 1 of 1

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.2 2/27/2024 8:41:02 AM								
4	From File			D:\Tramm\BACKGROUND EVAL\2013 USGS National Review\USGS_2013_Compiled_State_Data_FL Only.xls								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	FL_As - No NDs											
12												
13	General Statistics											
14	Total Number of Observations					132	Number of Distinct Observations					41
15	Minimum					0.6	First Quartile					0.8
16	Second Largest					6.7	Median					1.4
17	Maximum					8.4	Third Quartile					2.425
18	Mean					1.955	SD					1.545
19	Coefficient of Variation					0.791	Skewness					1.808
20	Mean of logged Data					0.426	SD of logged Data					0.676
21												
22	Critical Values for Background Threshold Values (BTVs)											
23	Tolerance Factor K (For UTL)					1.884	d2max (for USL)					3.302
24												
25	Normal GOF Test											
26	Shapiro Wilk Test Statistic					0.783	Normal GOF Test					
27	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
28	Lilliefors Test Statistic					0.194	Lilliefors GOF Test					
29	1% Lilliefors Critical Value					0.0896	Data Not Normal at 1% Significance Level					
30	Data Not Normal at 1% Significance Level											
31												
32	Background Statistics Assuming Normal Distribution											
33	95% UTL with		95% Coverage	4.866	90% Percentile (z)							3.935
34			95% UPL (t)	4.524	95% Percentile (z)							4.496
35			95% USL	7.057	99% Percentile (z)							5.549
36												
37	Gamma GOF Test											
38	A-D Test Statistic				3.318	Anderson-Darling Gamma GOF Test						
39	5% A-D Critical Value				0.764	Data Not Gamma Distributed at 5% Significance Level						
40	K-S Test Statistic				0.118	Kolmogorov-Smirnov Gamma GOF Test						
41	5% K-S Critical Value				0.0822	Data Not Gamma Distributed at 5% Significance Level						
42	Data Not Gamma Distributed at 5% Significance Level											
43												
44	Gamma Statistics											
45	k hat (MLE)				2.201	k star (bias corrected MLE)						2.156
46	Theta hat (MLE)				0.888	Theta star (bias corrected MLE)						0.907
47	nu hat (MLE)				581.1	nu star (bias corrected)						569.2
48	MLE Mean (bias corrected)				1.955	MLE Sd (bias corrected)						1.331
49												
50	Background Statistics Assuming Gamma Distribution											
51	95% Wilson Hilferty (WH) Approx. Gamma UPL				4.502	90% Percentile						3.735
52	95% Hawkins Wixley (HW) Approx. Gamma UPL				4.533	95% Percentile						4.528
53	95% WH Approx. Gamma UTL with		95% Coverage	5.031	99% Percentile						6.279	
54	95% HW Approx. Gamma UTL with		95% Coverage	5.104								
55	95% WH USL				9.43	95% HW USL						10.15
56												

	A	B	C	D	E	F	G	H	I	J	K	L
57	Lognormal GOF Test											
58	Shapiro Wilk Test Statistic					0.924	Shapiro Wilk Lognormal GOF Test					
59	10% Shapiro Wilk P Value					2.7099E-8	Data Not Lognormal at 10% Significance Level					
60	Lilliefors Test Statistic					0.11	Lilliefors Lognormal GOF Test					
61	10% Lilliefors Critical Value					0.0709	Data Not Lognormal at 10% Significance Level					
62	Data Not Lognormal at 10% Significance Level											
63												
64	Background Statistics assuming Lognormal Distribution											
65	95% UTL with 95% Coverage					5.469	90% Percentile (z)					3.64
66	95% UPL (t)					4.71	95% Percentile (z)					4.653
67	95% USL					14.26	99% Percentile (z)					7.374
68												
69	Nonparametric Distribution Free Background Statistics											
70	Data do not follow a Discernible Distribution											
71												
72	Nonparametric Upper Limits for Background Threshold Values											
73	Order of Statistic, order					130	95% UTL with 95% Coverage					6.3
74	Approx, f used to compute achieved CC					1.697	Approximate Actual Confidence Coefficient achieved by UTL					0.901
75							Approximate Sample Size needed to achieve specified CC					124
76	95% Percentile Bootstrap UTL with 95% Coverage					6.245	95% BCA Bootstrap UTL with 95% Coverage					6.245
77	95% UPL					6.035	90% Percentile					3.89
78	90% Chebyshev UPL					6.608	95% Percentile					5.67
79	95% Chebyshev UPL					8.716	99% Percentile					6.576
80	95% USL					8.4						
81												
82	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
83	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
84	and consists of observations collected from clean unimpacted locations.											
85	The use of USL tends to provide a balance between false positives and false negatives provided the data											
86	represents a background data set and when many onsite observations need to be compared with the BTV.											
87												

Q-Q Plot for FL_As - No NDs

FL_As - No NDs

N = 132

Mean = 1.955

Sd = 1.545

Slope = 1.382

Intercept = 1.955

Correlation, R = 0.887

Best Fit Line

FL_As - No NDs

8

6

4

2

-2

-1

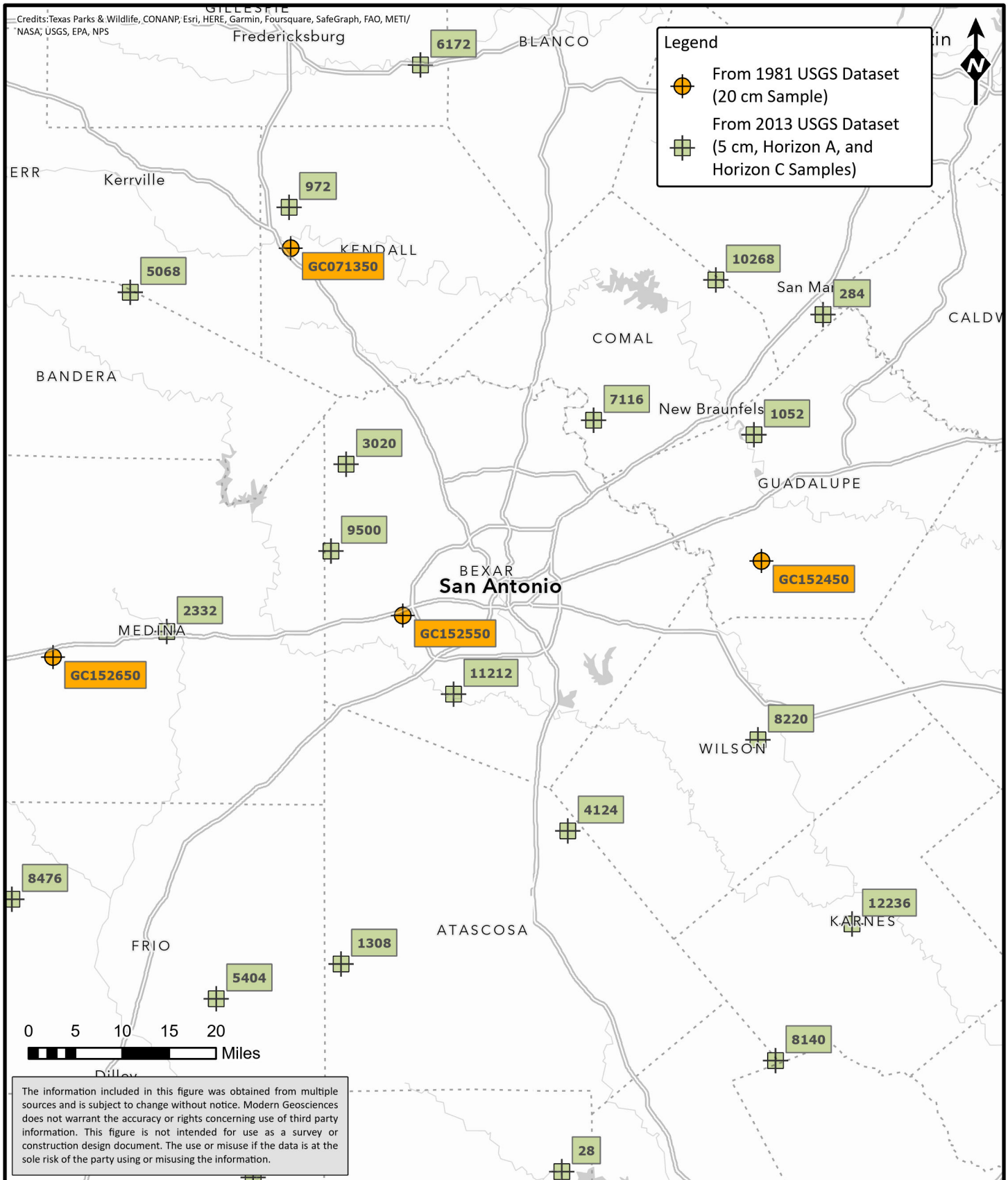
0

1

2

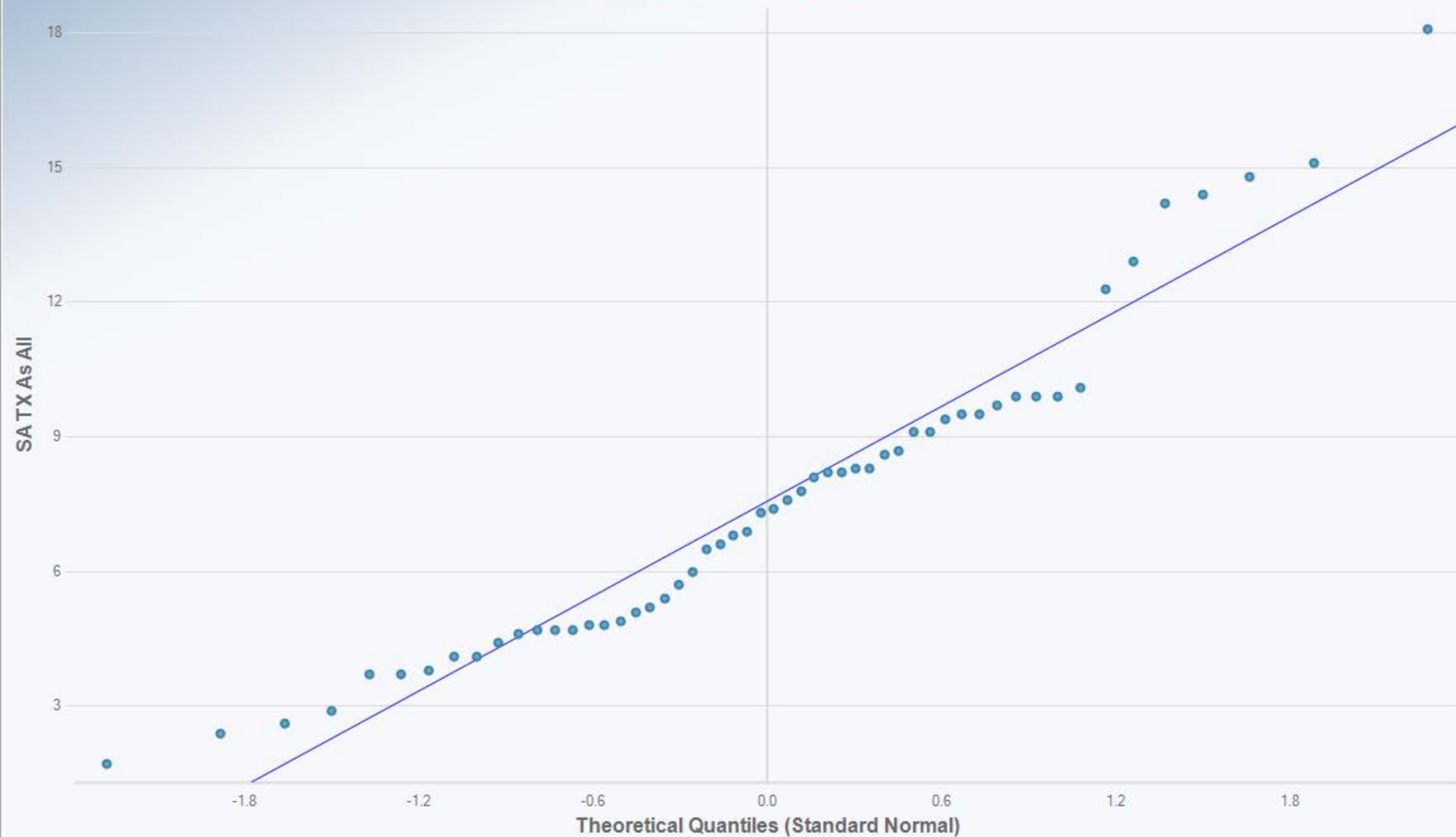
Theoretical Quantiles (Standard Normal)

ProUCL Output Files – San Antonio Area



 MODERN GEOSCIENCES TRUSTED ENVIRONMENTAL ADVISORS®	Project No.: TBD	SOUTH CENTRAL TEXAS USGS SAMPLE POINTS	FIGURE A
	Drawn: 07.27.23		
	Drawn By: CS	South Central Texas	
	Checked By: KT		
	File Name: USGS Sample Locations SCTX		

Q-Q Plot for SA TX As All



SA TX As All

N = 54

Mean = 7.541

Sd = 3.572

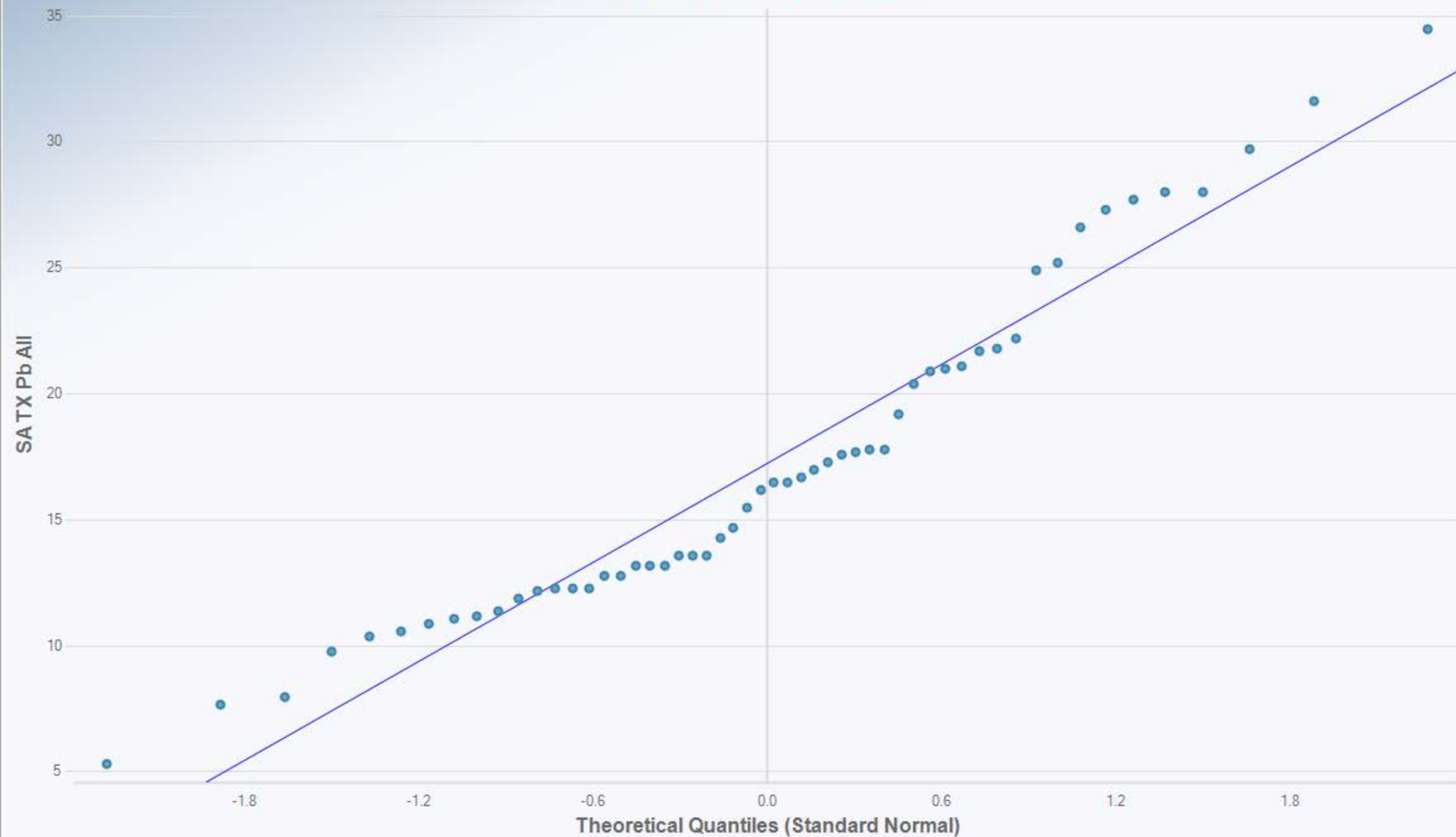
Slope = 3.531

Intercept = 7.541

Correlation, R = 0.971

Best Fit Line

Q-Q Plot for SA TX Pb All



SA TX Pb All

N = 54

Mean = 17.24

Sd = 6.621

Slope = 6.558

Intercept = 17.24

Correlation, R = 0.973

Best Fit Line

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.2 1/27/2024 2:38:48 PM								
4	From File			D:\Tramm\BACKGROUND EVAL\AEEG Article - Estimators\San Antonio\SCTX USGS As Pb - kt.xlsx								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	SA TX Pb All											
12												
13	General Statistics											
14				Total Number of Observations	54				Number of Distinct Observations	44		
15				Minimum	5.3				First Quartile	12.3		
16				Second Largest	31.6				Median	16.35		
17				Maximum	34.5				Third Quartile	21.08		
18				Mean	17.24				SD	6.621		
19				Coefficient of Variation	0.384				Skewness	0.708		
20				Mean of logged Data	2.775				SD of logged Data	0.389		
21												
22	Critical Values for Background Threshold Values (BTVs)											
23				Tolerance Factor K (For UTL)	2.04				d2max (for USL)	2.987		
24												
25	Normal GOF Test											
26				Shapiro Wilk Test Statistic	0.939				Normal GOF Test			
27				1% Shapiro Wilk P Value	0.0132				Data appear Normal at 1% Significance Level			
28				Lilliefors Test Statistic	0.135				Lilliefors GOF Test			
29				1% Lilliefors Critical Value	0.139				Data appear Normal at 1% Significance Level			
30	Data appear Normal at 1% Significance Level											
31												
32	Background Statistics Assuming Normal Distribution											
33				95% UTL with 95% Coverage	30.75				90% Percentile (z)	25.72		
34				95% UPL (t)	28.42				95% Percentile (z)	28.13		
35				95% USL	37.01				99% Percentile (z)	32.64		
36												
37	Gamma GOF Test											
38				A-D Test Statistic	0.498				Anderson-Darling Gamma GOF Test			
39				5% A-D Critical Value	0.752				Detected data appear Gamma Distributed at 5% Significance Level			
40				K-S Test Statistic	0.11				Kolmogorov-Smirnov Gamma GOF Test			
41				5% K-S Critical Value	0.121				Detected data appear Gamma Distributed at 5% Significance Level			
42	Detected data appear Gamma Distributed at 5% Significance Level											
43												
44	Gamma Statistics											
45				k hat (MLE)	7.082				k star (bias corrected MLE)	6.7		
46				Theta hat (MLE)	2.434				Theta star (bias corrected MLE)	2.573		
47				nu hat (MLE)	764.8				nu star (bias corrected)	723.6		
48				MLE Mean (bias corrected)	17.24				MLE Sd (bias corrected)	6.659		
49												
50	Background Statistics Assuming Gamma Distribution											
51				95% Wilson Hilferty (WH) Approx. Gamma UPL	29.62				90% Percentile	26.13		
52				95% Hawkins Wixley (HW) Approx. Gamma UPL	29.89				95% Percentile	29.45		
53				95% WH Approx. Gamma UTL with 95% Coverage	33.04				99% Percentile	36.37		
54				95% HW Approx. Gamma UTL with 95% Coverage	33.52							
55				95% WH USL	43.54				95% HW USL	44.98		
56												
57	Lognormal GOF Test											
58				Shapiro Wilk Test Statistic	0.977				Shapiro Wilk Lognormal GOF Test			
59				10% Shapiro Wilk P Value	0.578				Data appear Lognormal at 10% Significance Level			
60				Lilliefors Test Statistic	0.0901				Lilliefors Lognormal GOF Test			
61				10% Lilliefors Critical Value	0.11				Data appear Lognormal at 10% Significance Level			
62	Data appear Lognormal at 10% Significance Level											
63												
64	Background Statistics assuming Lognormal Distribution											
65				95% UTL with 95% Coverage	35.44				90% Percentile (z)	26.39		
66				95% UPL (t)	30.93				95% Percentile (z)	30.39		
67				95% USL	51.21				99% Percentile (z)	39.61		
68												
69	Nonparametric Distribution Free Background Statistics											
70	Data appear Normal at 1% Significance Level											

	A	B	C	D	E	F	G	H	I	J	K	L	
71													
72	Nonparametric Upper Limits for Background Threshold Values												
73	Order of Statistic, order					54	95% UTL with 95% Coverage					34.5	
74	Approx, f used to compute achieved CC					2.842	Approximate Actual Confidence Coefficient achieved by UTL					0.937	
75							Approximate Sample Size needed to achieve specified CC					59	
76	95% Percentile Bootstrap UTL with 95% Coverage					32.62	95% BCA Bootstrap UTL with 95% Coverage					31.6	
77	95% UPL					30.18	90% Percentile					27.58	
78	90% Chebyshev UPL					37.28	95% Percentile					28.6	
79	95% Chebyshev UPL					46.36	99% Percentile					32.96	
80	95% USL					34.5							
81													
82	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
83	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
84	and consists of observations collected from clean unimpacted locations.												
85	The use of USL tends to provide a balance between false positives and false negatives provided the data												
86	represents a background data set and when many onsite observations need to be compared with the BTV.												
87													
88	SA TX As All												
89													
90	General Statistics												
91	Total Number of Observations					54	Number of Distinct Observations					43	
92	Minimum					1.7	First Quartile					4.725	
93	Second Largest					15.1	Median					7.35	
94	Maximum					18.1	Third Quartile					9.475	
95	Mean					7.541	SD					3.572	
96	Coefficient of Variation					0.474	Skewness					0.832	
97	Mean of logged Data					1.906	SD of logged Data					0.499	
98													
99	Critical Values for Background Threshold Values (BTVs)												
100	Tolerance Factor K (For UTL)					2.04	d2max (for USL)					2.987	
101													
102	Normal GOF Test												
103	Shapiro Wilk Test Statistic					0.939	Normal GOF Test						
104	1% Shapiro Wilk P Value					0.0126	Data appear Normal at 1% Significance Level						
105	Lilliefors Test Statistic					0.107	Lilliefors GOF Test						
106	1% Lilliefors Critical Value					0.139	Data appear Normal at 1% Significance Level						
107	Data appear Normal at 1% Significance Level												
108													
109	Background Statistics Assuming Normal Distribution												
110	95% UTL with 95% Coverage					14.83	90% Percentile (z)					12.12	
111	95% UPL (t)					13.57	95% Percentile (z)					13.42	
112	95% USL					18.21	99% Percentile (z)					15.85	
113													
114	Gamma GOF Test												
115	A-D Test Statistic					0.342	Anderson-Darling Gamma GOF Test						
116	5% A-D Critical Value					0.754	Detected data appear Gamma Distributed at 5% Significance Level						
117	K-S Test Statistic					0.0802	Kolmogorov-Smirnov Gamma GOF Test						
118	5% K-S Critical Value					0.121	Detected data appear Gamma Distributed at 5% Significance Level						
119	Detected data appear Gamma Distributed at 5% Significance Level												
120													
121	Gamma Statistics												
122	k hat (MLE)					4.527	k star (bias corrected MLE)					4.288	
123	Theta hat (MLE)					1.666	Theta star (bias corrected MLE)					1.759	
124	nu hat (MLE)					488.9	nu star (bias corrected)					463.1	
125	MLE Mean (bias corrected)					7.541	MLE Sd (bias corrected)					3.642	
126													
127	Background Statistics Assuming Gamma Distribution												
128	95% Wilson Hilferty (WH) Approx. Gamma UPL					14.46	90% Percentile					12.42	
129	95% Hawkins Wixley (HW) Approx. Gamma UPL					14.68	95% Percentile					14.35	
130	95% WH Approx. Gamma UTL with 95% Coverage					16.49	99% Percentile					18.47	
131	95% HW Approx. Gamma UTL with 95% Coverage					16.88							
132	95% WH USL					22.87	95% HW USL					24.06	
133													
134	Lognormal GOF Test												
135	Shapiro Wilk Test Statistic					0.974	Shapiro Wilk Lognormal GOF Test						
136	10% Shapiro Wilk P Value					0.494	Data appear Lognormal at 10% Significance Level						
137	Lilliefors Test Statistic					0.0897	Lilliefors Lognormal GOF Test						
138	10% Lilliefors Critical Value					0.11	Data appear Lognormal at 10% Significance Level						
139	Data appear Lognormal at 10% Significance Level												
140													

	A	B	C	D	E	F	G	H	I	J	K	L	
141	Background Statistics assuming Lognormal Distribution												
142	95% UTL with				95% Coverage	18.62					90% Percentile (z)	12.75	
143					95% UPL (t)	15.63					95% Percentile (z)	15.29	
144					95% USL	29.87					99% Percentile (z)	21.48	
145													
146	Nonparametric Distribution Free Background Statistics												
147	Data appear Normal at 1% Significance Level												
148													
149	Nonparametric Upper Limits for Background Threshold Values												
150	Order of Statistic, order					54	95% UTL with					95% Coverage	18.1
151	Approx, f used to compute achieved CC					2.842	Approximate Actual Confidence Coefficient achieved by UTL					0.937	
152							Approximate Sample Size needed to achieve specified CC					59	
153	95% Percentile Bootstrap UTL with				95% Coverage	16.15	95% BCA Bootstrap UTL with				95% Coverage	16.15	
154					95% UPL	14.88					90% Percentile	12.72	
155					90% Chebyshev UPL	18.35					95% Percentile	14.54	
156					95% Chebyshev UPL	23.25					99% Percentile	16.51	
157					95% USL	18.1							
158													
159	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
160	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
161	and consists of observations collected from clean unimpacted locations.												
162	The use of USL tends to provide a balance between false positives and false negatives provided the data												
163	represents a background data set and when many onsite observations need to be compared with the BTV.												

BTV Evaluation -Full Conterminous United States

Florida													
Arsenic (Detections Only)							Lead						
Censoring		Not Evaluated (>15% ND)					None	<23	<15	<10			
n	132						267	265	253	237			
Min	0.6						0.25	0.25	0.25	0.25			
Max	8.4						29	22.6	14.9	9.8			
Mean	1.96						5.04	4.87	4.22	3.642			
Median	1.40						3.30	3.30	3.10	2.9			
RPD	33.08	#####	#####	#####	#####	#####	41.80	38.49	30.53	22.68	#####	#####	
std d	1.545						4.850	4.446	3.296	2.494			
CV	0.790	#####	#####	#####	#####	#####	0.962	0.912	0.782	0.6848	#####	#####	
R	0.887						0.886	0.902	0.938	0.955			
BTV Estimators													
95%UPL	4.87						13.06	12.22	9.67	7.77			
95%UTL	4.52						13.81	12.92	10.19	8.18			
95%USL	7.06						22.11	20.51	15.76	12.33			

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

Page 1 of 1

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.2 2/27/2024 8:41:02 AM								
4	From File			D:\Tramm\BACKGROUND EVAL\2013 USGS National Review\USGS_2013_Compiled_State_Data_FL Only.xls								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	FL_As - No NDs											
12												
13	General Statistics											
14	Total Number of Observations					132	Number of Distinct Observations					41
15	Minimum					0.6	First Quartile					0.8
16	Second Largest					6.7	Median					1.4
17	Maximum					8.4	Third Quartile					2.425
18	Mean					1.955	SD					1.545
19	Coefficient of Variation					0.791	Skewness					1.808
20	Mean of logged Data					0.426	SD of logged Data					0.676
21												
22	Critical Values for Background Threshold Values (BTVs)											
23	Tolerance Factor K (For UTL)					1.884	d2max (for USL)					3.302
24												
25	Normal GOF Test											
26	Shapiro Wilk Test Statistic					0.783	Normal GOF Test					
27	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
28	Lilliefors Test Statistic					0.194	Lilliefors GOF Test					
29	1% Lilliefors Critical Value					0.0896	Data Not Normal at 1% Significance Level					
30	Data Not Normal at 1% Significance Level											
31												
32	Background Statistics Assuming Normal Distribution											
33	95% UTL with		95% Coverage		4.866	90% Percentile (z)					3.935	
34			95% UPL (t)		4.524	95% Percentile (z)					4.496	
35			95% USL		7.057	99% Percentile (z)					5.549	
36												
37	Gamma GOF Test											
38	A-D Test Statistic					3.318	Anderson-Darling Gamma GOF Test					
39	5% A-D Critical Value					0.764	Data Not Gamma Distributed at 5% Significance Level					
40	K-S Test Statistic					0.118	Kolmogorov-Smirnov Gamma GOF Test					
41	5% K-S Critical Value					0.0822	Data Not Gamma Distributed at 5% Significance Level					
42	Data Not Gamma Distributed at 5% Significance Level											
43												
44	Gamma Statistics											
45	k hat (MLE)					2.201	k star (bias corrected MLE)					2.156
46	Theta hat (MLE)					0.888	Theta star (bias corrected MLE)					0.907
47	nu hat (MLE)					581.1	nu star (bias corrected)					569.2
48	MLE Mean (bias corrected)					1.955	MLE Sd (bias corrected)					1.331
49												
50	Background Statistics Assuming Gamma Distribution											
51	95% Wilson Hilferty (WH) Approx. Gamma UPL					4.502	90% Percentile					3.735
52	95% Hawkins Wixley (HW) Approx. Gamma UPL					4.533	95% Percentile					4.528
53	95% WH Approx. Gamma UTL with		95% Coverage		5.031	99% Percentile					6.279	
54	95% HW Approx. Gamma UTL with		95% Coverage		5.104							
55	95% WH USL					9.43	95% HW USL					10.15
56												

	A	B	C	D	E	F	G	H	I	J	K	L
57	Lognormal GOF Test											
58	Shapiro Wilk Test Statistic					0.924	Shapiro Wilk Lognormal GOF Test					
59	10% Shapiro Wilk P Value					2.7099E-8	Data Not Lognormal at 10% Significance Level					
60	Lilliefors Test Statistic					0.11	Lilliefors Lognormal GOF Test					
61	10% Lilliefors Critical Value					0.0709	Data Not Lognormal at 10% Significance Level					
62	Data Not Lognormal at 10% Significance Level											
63												
64	Background Statistics assuming Lognormal Distribution											
65	95% UTL with 95% Coverage					5.469	90% Percentile (z)					3.64
66	95% UPL (t)					4.71	95% Percentile (z)					4.653
67	95% USL					14.26	99% Percentile (z)					7.374
68												
69	Nonparametric Distribution Free Background Statistics											
70	Data do not follow a Discernible Distribution											
71												
72	Nonparametric Upper Limits for Background Threshold Values											
73	Order of Statistic, order					130	95% UTL with 95% Coverage					6.3
74	Approx, f used to compute achieved CC					1.697	Approximate Actual Confidence Coefficient achieved by UTL					0.901
75							Approximate Sample Size needed to achieve specified CC					124
76	95% Percentile Bootstrap UTL with 95% Coverage					6.245	95% BCA Bootstrap UTL with 95% Coverage					6.245
77	95% UPL					6.035	90% Percentile					3.89
78	90% Chebyshev UPL					6.608	95% Percentile					5.67
79	95% Chebyshev UPL					8.716	99% Percentile					6.576
80	95% USL					8.4						
81												
82	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
83	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
84	and consists of observations collected from clean unimpacted locations.											
85	The use of USL tends to provide a balance between false positives and false negatives provided the data											
86	represents a background data set and when many onsite observations need to be compared with the BTV.											
87												

Q-Q Plot for FL_As - No NDs

FL_As - No NDs

N = 132

Mean = 1.955

Sd = 1.545

Slope = 1.382

Intercept = 1.955

Correlation, R = 0.887

Best Fit Line

FL_As - No NDs

8

6

4

2

-2

-1

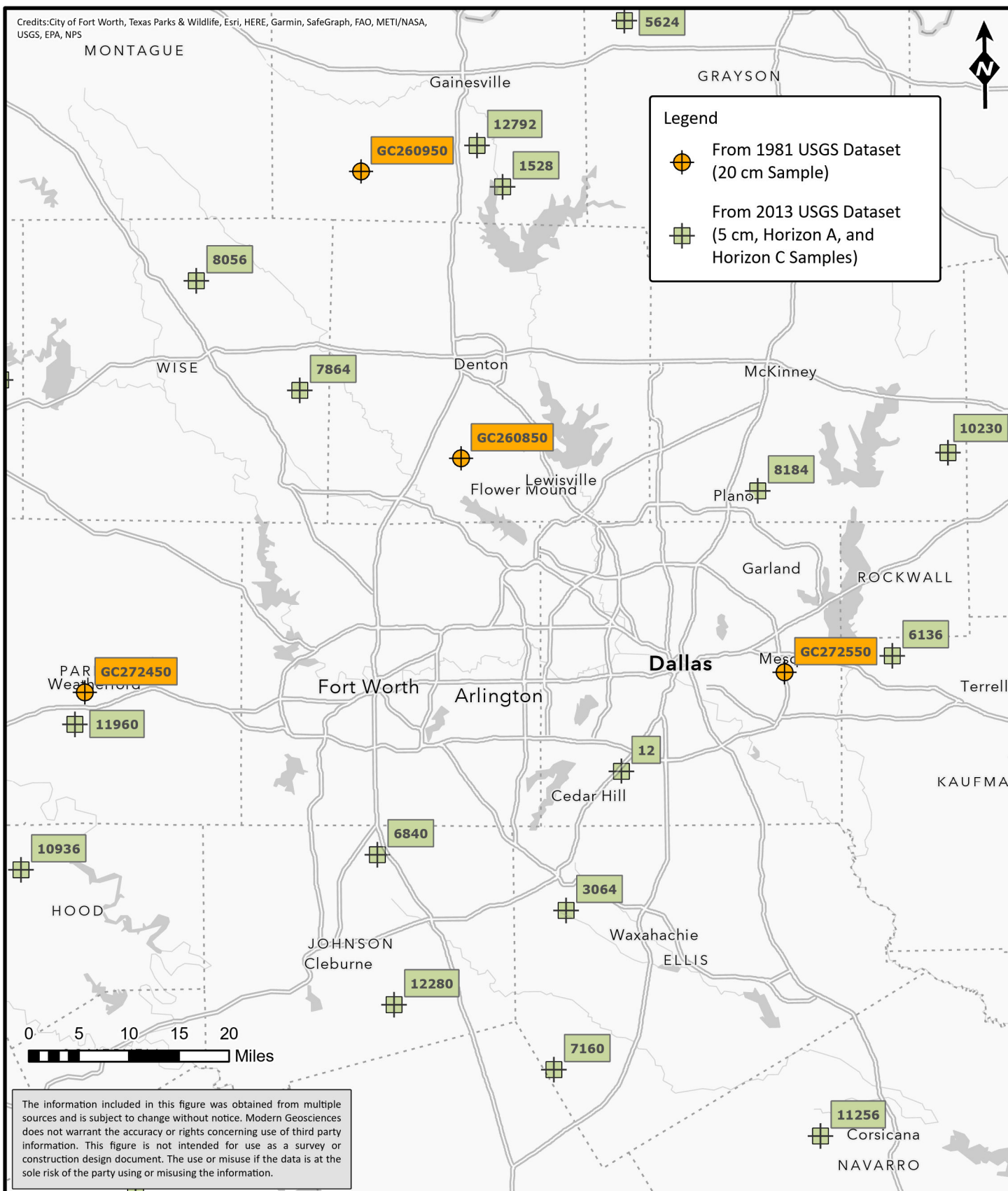
0

1

2

Theoretical Quantiles (Standard Normal)

ProUCL Output Files – Dallas-Fort Worth Area



MODERN GEOSCIENCES
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Project No.: TBD
 Drawn: 07.26.23
 Drawn By: CS
 Checked By: KT
 File Name:
 USGS Sample Locations

NORTH TEXAS USGS SAMPLE POINTS

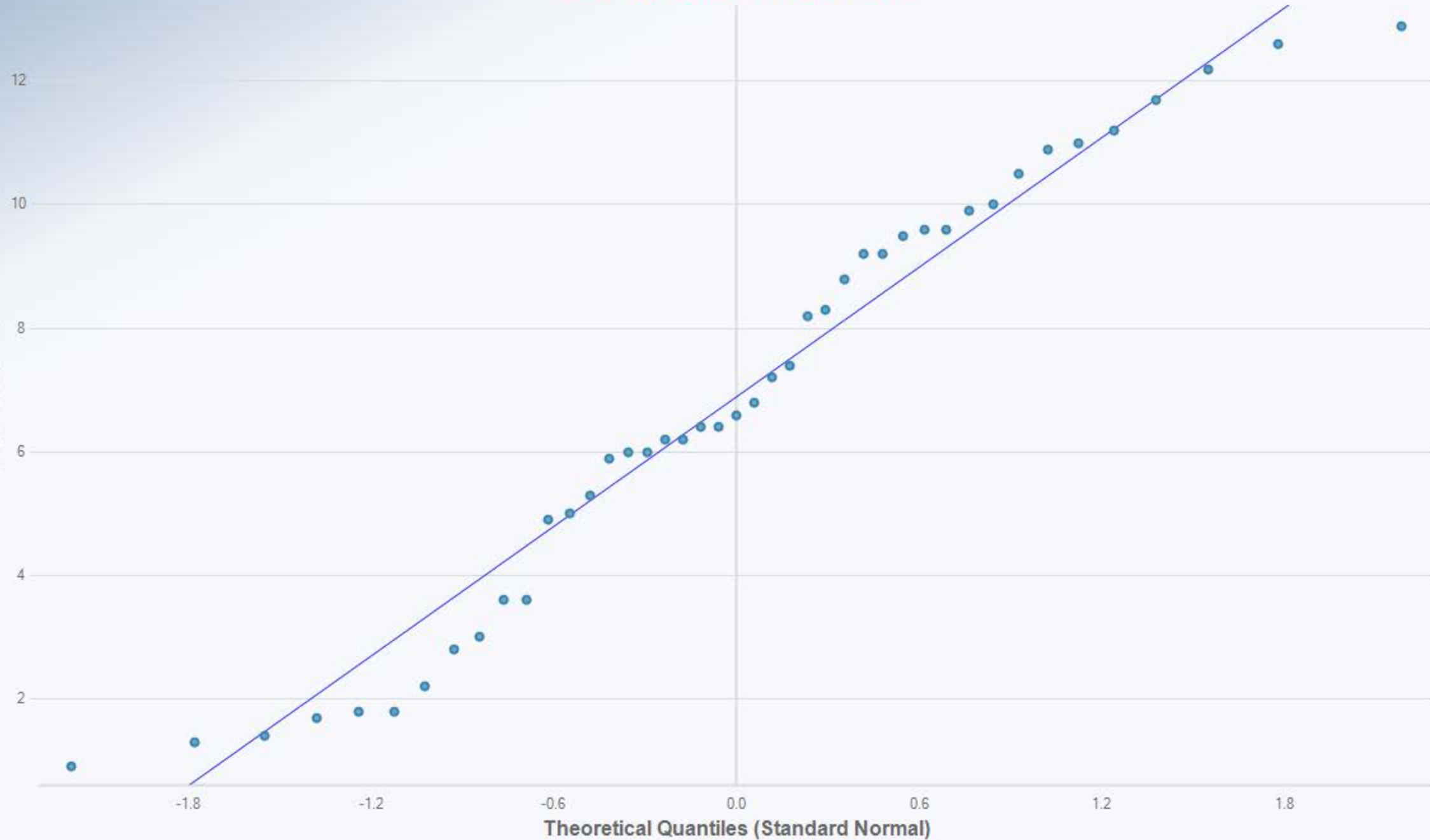
North Central Texas

FIGURE

A

Q-Q Plot for DFW TX As <13

DFW TX As <13



DFW TX As <13

N = 43

Mean = 6.877

Sd = 3.481

Slope = 3.498

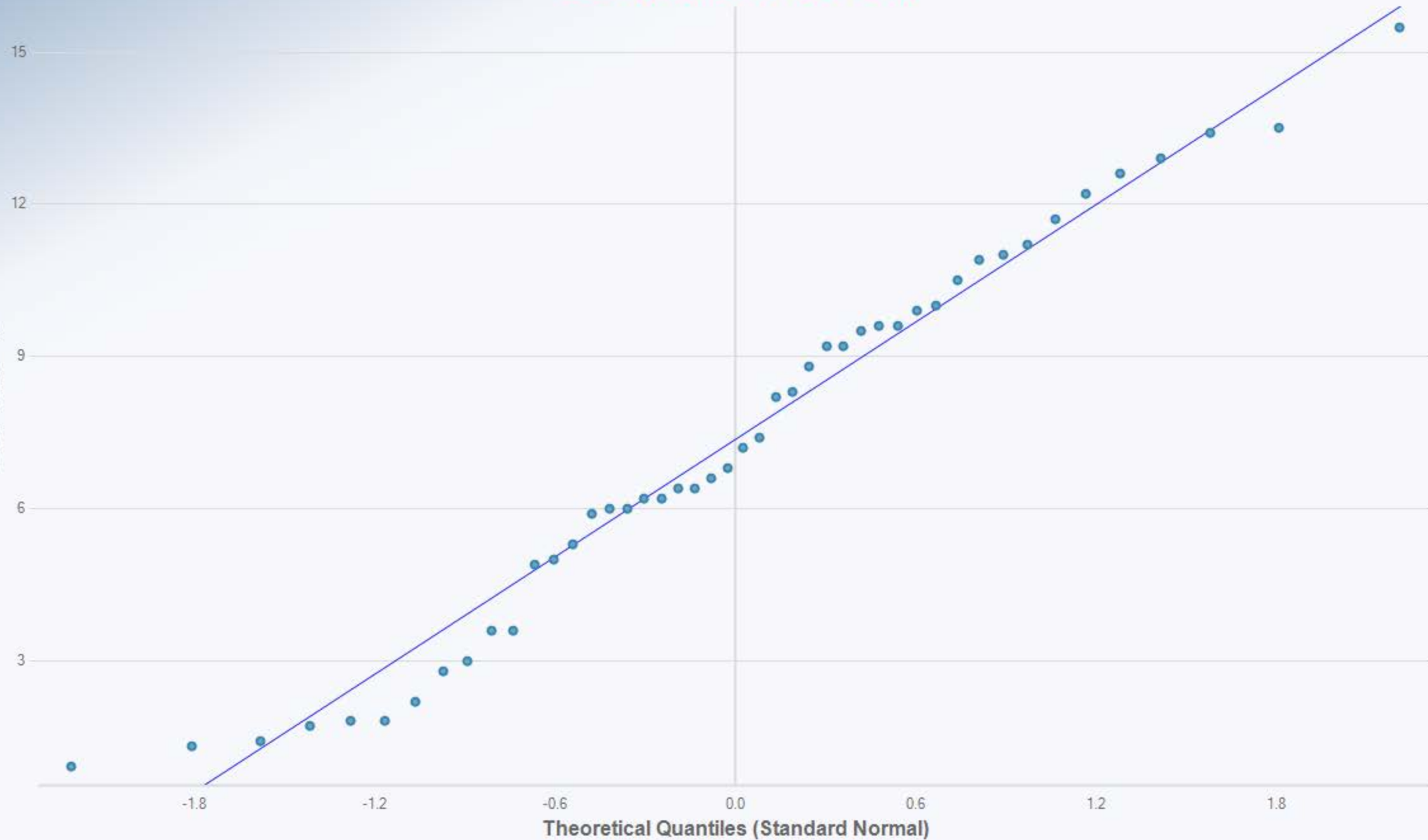
Intercept = 6.877

Correlation, R = 0.984

Best Fit Line

Q-Q Plot for DFW TX As <16

DFW TX As <16



DFW TX As <16

N = 46

Mean = 7.35

Sd = 3.828

Slope = 3.862

Intercept = 7.35

Correlation, R = 0.989

Best Fit Line

Q-Q Plot for DFW TX As <18

DFW TX As <18

15

12

9

6

3

-1.8

-1.2

-0.6

0.0

0.6

1.2

1.8

Theoretical Quantiles (Standard Normal)

DFW TX As <18

N = 47

Mean = 7.566

Sd = 4.065

Slope = 4.103

Intercept = 7.566

Correlation, R = 0.99

Best Fit Line

Q-Q Plot for DFW TX As All

DFW TX As All

24

21

18

15

12

9

6

3

-1.8

-1.2

-0.6

0.0

0.6

1.2

1.8

Theoretical Quantiles (Standard Normal)

DFW TXAs All

N = 48

Mean = 7.915

Sd = 4.691

Slope = 4.636

Intercept = 7.915

Correlation, R = 0.969

Best Fit Line



Q-Q Plot for DFW TX Pb All

DFW TX Pb All

28
24
20
16
12
8
4

-1.8

-1.2

-0.6

0.0

0.6

1.2

1.8

Theoretical Quantiles (Standard Normal)

DFW TX Pb All

N = 48

Mean = 17.1

Sd = 6.452

Slope = 6.495

Intercept = 17.1

Correlation, R = 0.987

Best Fit Line

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.2 1/27/2024 2:34:27 PM								
4	From File			D:\Tramm\BACKGROUND EVAL\AEEG Article - Estimators\DFWNTX USGS As Pb.xlsx								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	DFW TX Pb All											
12												
13	General Statistics											
14	Total Number of Observations				48		Number of Distinct Observations				46	
15	Minimum				2.8		First Quartile				12.65	
16	Second Largest				27.8		Median				18.55	
17	Maximum				28.2		Third Quartile				21.4	
18	Mean				17.1		SD				6.452	
19	Coefficient of Variation				0.377		Skewness				-0.33	
20	Mean of logged Data				2.744		SD of logged Data				0.488	
21												
22	Critical Values for Background Threshold Values (BTVs)											
23	Tolerance Factor K (For UTL)				2.069		d2max (for USL)				2.941	
24												
25	Normal GOF Test											
26	Shapiro Wilk Test Statistic				0.959		Shapiro Wilk GOF Test					
27	1% Shapiro Wilk Critical Value				0.929		Data appear Normal at 1% Significance Level					
28	Lilliefors Test Statistic				0.1		Lilliefors GOF Test					
29	1% Lilliefors Critical Value				0.148		Data appear Normal at 1% Significance Level					
30	Data appear Normal at 1% Significance Level											
31												
32	Background Statistics Assuming Normal Distribution											
33	95% UTL with 95% Coverage				30.45		90% Percentile (z)				25.37	
34	95% UPL (t)				28.04		95% Percentile (z)				27.72	
35	95% USL				36.08		99% Percentile (z)				32.11	
36												
37	Gamma GOF Test											
38	A-D Test Statistic				1.279		Anderson-Darling Gamma GOF Test					
39	5% A-D Critical Value				0.753		Data Not Gamma Distributed at 5% Significance Level					
40	K-S Test Statistic				0.145		Kolmogorov-Smirnov Gamma GOF Test					
41	5% K-S Critical Value				0.128		Data Not Gamma Distributed at 5% Significance Level					
42	Data Not Gamma Distributed at 5% Significance Level											
43												
44	Gamma Statistics											
45	k hat (MLE)				5.39		k star (bias corrected MLE)				5.067	
46	Theta hat (MLE)				3.173		Theta star (bias corrected MLE)				3.375	

	A	B	C	D	E	F	G	H	I	J	K	L
47	nu hat (MLE)					517.5	nu star (bias corrected)					486.5
48	MLE Mean (bias corrected)					17.1	MLE Sd (bias corrected)					7.598
49												
50	Background Statistics Assuming Gamma Distribution											
51	95% Wilson Hilferty (WH) Approx. Gamma UPL					31.49	90% Percentile					27.28
52	95% Hawkins Wixley (HW) Approx. Gamma UPL					32.26	95% Percentile					31.21
53	95% WH Approx. Gamma UTL with 95% Coverage					35.84	99% Percentile					39.52
54	95% HW Approx. Gamma UTL with 95% Coverage					37.09						
55	95% WH USL					47.52	95% HW USL					50.47
56												
57	Lognormal GOF Test											
58	Shapiro Wilk Test Statistic					0.879	Shapiro Wilk Lognormal GOF Test					
59	10% Shapiro Wilk Critical Value					0.954	Data Not Lognormal at 10% Significance Level					
60	Lilliefors Test Statistic					0.167	Lilliefors Lognormal GOF Test					
61	10% Lilliefors Critical Value					0.117	Data Not Lognormal at 10% Significance Level					
62	Data Not Lognormal at 10% Significance Level											
63												
64	Background Statistics assuming Lognormal Distribution											
65	95% UTL with 95% Coverage					42.7	90% Percentile (z)					29.07
66	95% UPL (t)					35.58	95% Percentile (z)					34.72
67	95% USL					65.38	99% Percentile (z)					48.43
68												
69	Nonparametric Distribution Free Background Statistics											
70	Data appear Normal at 1% Significance Level											
71												
72	Nonparametric Upper Limits for Background Threshold Values											
73	Order of Statistic, order					48	95% UTL with 95% Coverage					28.2
74	Approx, f used to compute achieved CC					2.526	Approximate Actual Confidence Coefficient achieved by UTL					0.915
75							Approximate Sample Size needed to achieve specified CC					59
76	95% Percentile Bootstrap UTL with 95% Coverage					28.06	95% BCA Bootstrap UTL with 95% Coverage					27.8
77	95% UPL					27.35	90% Percentile					25
78	90% Chebyshev UPL					36.66	95% Percentile					26.73
79	95% Chebyshev UPL					45.52	99% Percentile					28.01
80	95% USL					28.2						
81												
82	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
83	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
84	and consists of observations collected from clean unimpacted locations.											
85	The use of USL tends to provide a balance between false positives and false negatives provided the data											
86	represents a background data set and when many onsite observations need to be compared with the BTV.											
87												
88	DFW TX As All											
89												
90	General Statistics											
91	Total Number of Observations					48	Number of Distinct Observations					41
92	Minimum					0.9	First Quartile					4.975

	A	B	C	D	E	F	G	H	I	J	K	L
93	Second Largest					17.5	Median					7.3
94	Maximum					24.3	Third Quartile					10.6
95	Mean					7.915	SD					4.691
96	Coefficient of Variation					0.593	Skewness					0.911
97	Mean of logged Data					1.851	SD of logged Data					0.742
98												
99	Critical Values for Background Threshold Values (BTVs)											
100	Tolerance Factor K (For UTL)					2.069	d2max (for USL)					2.941
101												
102	Normal GOF Test											
103	Shapiro Wilk Test Statistic					0.944	Shapiro Wilk GOF Test					
104	1% Shapiro Wilk Critical Value					0.929	Data appear Normal at 1% Significance Level					
105	Lilliefors Test Statistic					0.0731	Lilliefors GOF Test					
106	1% Lilliefors Critical Value					0.148	Data appear Normal at 1% Significance Level					
107	Data appear Normal at 1% Significance Level											
108												
109	Background Statistics Assuming Normal Distribution											
110	95% UTL with 95% Coverage					17.62	90% Percentile (z)					13.93
111	95% UPL (t)					15.87	95% Percentile (z)					15.63
112	95% USL					21.71	99% Percentile (z)					18.83
113												
114	Gamma GOF Test											
115	A-D Test Statistic					0.705	Anderson-Darling Gamma GOF Test					
116	5% A-D Critical Value					0.759	Detected data appear Gamma Distributed at 5% Significance Level					
117	K-S Test Statistic					0.122	Kolmogorov-Smirnov Gamma GOF Test					
118	5% K-S Critical Value					0.129	Detected data appear Gamma Distributed at 5% Significance Level					
119	Detected data appear Gamma Distributed at 5% Significance Level											
120												
121	Gamma Statistics											
122	k hat (MLE)					2.45	k star (bias corrected MLE)					2.311
123	Theta hat (MLE)					3.231	Theta star (bias corrected MLE)					3.425
124	nu hat (MLE)					235.2	nu star (bias corrected)					221.8
125	MLE Mean (bias corrected)					7.915	MLE Sd (bias corrected)					5.207
126												
127	Background Statistics Assuming Gamma Distribution											
128	95% Wilson Hilferty (WH) Approx. Gamma UPL					18.18	90% Percentile					14.89
129	95% Hawkins Wixley (HW) Approx. Gamma UPL					18.87	95% Percentile					17.95
130	95% WH Approx. Gamma UTL with 95% Coverage					21.69	99% Percentile					24.68
131	95% HW Approx. Gamma UTL with 95% Coverage					22.91						
132	95% WH USL					31.59	95% HW USL					34.87
133												
134	Lognormal GOF Test											
135	Shapiro Wilk Test Statistic					0.92	Shapiro Wilk Lognormal GOF Test					
136	10% Shapiro Wilk Critical Value					0.954	Data Not Lognormal at 10% Significance Level					
137	Lilliefors Test Statistic					0.168	Lilliefors Lognormal GOF Test					
138	10% Lilliefors Critical Value					0.117	Data Not Lognormal at 10% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L
139	Data Not Lognormal at 10% Significance Level											
140												
141	Background Statistics assuming Lognormal Distribution											
142	95% UTL with 95% Coverage				29.53					90% Percentile (z)		16.47
143	95% UPL (t)				22.39					95% Percentile (z)		21.57
144	95% USL				56.42					99% Percentile (z)		35.76
145												
146	Nonparametric Distribution Free Background Statistics											
147	Data appear Normal at 1% Significance Level											
148												
149	Nonparametric Upper Limits for Background Threshold Values											
150	Order of Statistic, order				48					95% UTL with 95% Coverage		24.3
151	Approx, f used to compute achieved CC				2.526					Approximate Actual Confidence Coefficient achieved by UTL		0.915
152										Approximate Sample Size needed to achieve specified CC		59
153	95% Percentile Bootstrap UTL with 95% Coverage				21.92					95% BCA Bootstrap UTL with 95% Coverage		17.5
154	95% UPL				16.6					90% Percentile		13.05
155	90% Chebyshev UPL				22.13					95% Percentile		14.8
156	95% Chebyshev UPL				28.58					99% Percentile		21.1
157	95% USL				24.3							
158												
159	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
160	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
161	and consists of observations collected from clean unimpacted locations.											
162	The use of USL tends to provide a balance between false positives and false negatives provided the data											
163	represents a background data set and when many onsite observations need to be compared with the BTV.											
164												
165	DFW TX As <18											
166												
167	General Statistics											
168	Total Number of Observations				47					Number of Distinct Observations		40
169	Minimum				0.9					First Quartile		4.95
170	Second Largest				15.5					Median		7.2
171	Maximum				17.5					Third Quartile		10.25
172	Mean				7.566					SD		4.065
173	Coefficient of Variation				0.537					Skewness		0.215
174	Mean of logged Data				1.822					SD of logged Data		0.723
175												
176	Critical Values for Background Threshold Values (BTVs)											
177	Tolerance Factor K (For UTL)				2.074					d2max (for USL)		2.933
178												
179	Normal GOF Test											
180	Shapiro Wilk Test Statistic				0.967					Shapiro Wilk GOF Test		
181	1% Shapiro Wilk Critical Value				0.928					Data appear Normal at 1% Significance Level		
182	Lilliefors Test Statistic				0.0694					Lilliefors GOF Test		
183	1% Lilliefors Critical Value				0.15					Data appear Normal at 1% Significance Level		
184	Data appear Normal at 1% Significance Level											

	A	B	C	D	E	F	G	H	I	J	K	L
185												
186	Background Statistics Assuming Normal Distribution											
187	95% UTL with 95% Coverage				16	90% Percentile (z)						12.78
188	95% UPL (t)				14.46	95% Percentile (z)						14.25
189	95% USL				19.49	99% Percentile (z)						17.02
190												
191	Gamma GOF Test											
192	A-D Test Statistic				0.93	Anderson-Darling Gamma GOF Test						
193	5% A-D Critical Value				0.758	Data Not Gamma Distributed at 5% Significance Level						
194	K-S Test Statistic				0.132	Kolmogorov-Smirnov Gamma GOF Test						
195	5% K-S Critical Value				0.13	Data Not Gamma Distributed at 5% Significance Level						
196	Data Not Gamma Distributed at 5% Significance Level											
197												
198	Gamma Statistics											
199	k hat (MLE)				2.64	k star (bias corrected MLE)						2.485
200	Theta hat (MLE)				2.866	Theta star (bias corrected MLE)						3.044
201	nu hat (MLE)				248.1	nu star (bias corrected)						233.6
202	MLE Mean (bias corrected)				7.566	MLE Sd (bias corrected)						4.799
203												
204	Background Statistics Assuming Gamma Distribution											
205	95% Wilson Hilferty (WH) Approx. Gamma UPL				17.02	90% Percentile						13.99
206	95% Hawkins Wixley (HW) Approx. Gamma UPL				17.71	95% Percentile						16.78
207	95% WH Approx. Gamma UTL with 95% Coverage				20.25	99% Percentile						22.88
208	95% HW Approx. Gamma UTL with 95% Coverage				21.44							
209	95% WH USL				29.04							
210												
211	Lognormal GOF Test											
212	Shapiro Wilk Test Statistic				0.896	Shapiro Wilk Lognormal GOF Test						
213	10% Shapiro Wilk Critical Value				0.954	Data Not Lognormal at 10% Significance Level						
214	Lilliefors Test Statistic				0.176	Lilliefors Lognormal GOF Test						
215	10% Lilliefors Critical Value				0.118	Data Not Lognormal at 10% Significance Level						
216	Data Not Lognormal at 10% Significance Level											
217												
218	Background Statistics assuming Lognormal Distribution											
219	95% UTL with 95% Coverage				27.7	90% Percentile (z)						15.62
220	95% UPL (t)				21.09	95% Percentile (z)						20.32
221	95% USL				51.54	99% Percentile (z)						33.25
222												
223	Nonparametric Distribution Free Background Statistics											
224	Data appear Normal at 1% Significance Level											
225												
226	Nonparametric Upper Limits for Background Threshold Values											
227	Order of Statistic, order				47	95% UTL with 95% Coverage						17.5
228	Approx, f used to compute achieved CC				2.474	Approximate Actual Confidence Coefficient achieved by UTL						0.91
229						Approximate Sample Size needed to achieve specified CC						59
230	95% Percentile Bootstrap UTL with 95% Coverage				16.9	95% BCA Bootstrap UTL with 95% Coverage						16.27

	A	B	C	D	E	F	G	H	I	J	K	L
231	95% UPL					14.7	90% Percentile					12.72
232	90% Chebyshev UPL					19.89	95% Percentile					13.47
233	95% Chebyshev UPL					25.47	99% Percentile					16.58
234	95% USL					17.5						
235												
236	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
237	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
238	and consists of observations collected from clean unimpacted locations.											
239	The use of USL tends to provide a balance between false positives and false negatives provided the data											
240	represents a background data set and when many onsite observations need to be compared with the BTV.											
241												
242	DFW TX As <16											
243												
244	General Statistics											
245	Total Number of Observations					46	Number of Distinct Observations					39
246	Minimum					0.9	First Quartile					4.925
247	Second Largest					13.5	Median					7
248	Maximum					15.5	Third Quartile					9.975
249	Mean					7.35	SD					3.828
250	Coefficient of Variation					0.521	Skewness					0.0345
251	Mean of logged Data					1.8	SD of logged Data					0.714
252												
253	Critical Values for Background Threshold Values (BTVs)											
254	Tolerance Factor K (For UTL)					2.079	d2max (for USL)					2.924
255												
256	Normal GOF Test											
257	Shapiro Wilk Test Statistic					0.96	Shapiro Wilk GOF Test					
258	1% Shapiro Wilk Critical Value					0.927	Data appear Normal at 1% Significance Level					
259	Lilliefors Test Statistic					0.0769	Lilliefors GOF Test					
260	1% Lilliefors Critical Value					0.151	Data appear Normal at 1% Significance Level					
261	Data appear Normal at 1% Significance Level											
262												
263	Background Statistics Assuming Normal Distribution											
264	95% UTL with 95% Coverage					15.31	90% Percentile (z)					12.26
265	95% UPL (t)					13.85	95% Percentile (z)					13.65
266	95% USL					18.54	99% Percentile (z)					16.26
267												
268	Gamma GOF Test											
269	A-D Test Statistic					1.079	Anderson-Darling Gamma GOF Test					
270	5% A-D Critical Value					0.757	Data Not Gamma Distributed at 5% Significance Level					
271	K-S Test Statistic					0.139	Kolmogorov-Smirnov Gamma GOF Test					
272	5% K-S Critical Value					0.132	Data Not Gamma Distributed at 5% Significance Level					
273	Data Not Gamma Distributed at 5% Significance Level											
274												
275	Gamma Statistics											
276	k hat (MLE)					2.721	k star (bias corrected MLE)					2.558

	A	B	C	D	E	F	G	H	I	J	K	L
277	Theta hat (MLE)					2.701	Theta star (bias corrected MLE)					2.873
278	nu hat (MLE)					250.3	nu star (bias corrected)					235.3
279	MLE Mean (bias corrected)					7.35	MLE Sd (bias corrected)					4.595
280												
281	Background Statistics Assuming Gamma Distribution											
282	95% Wilson Hilferty (WH) Approx. Gamma UPL					16.4	90% Percentile					13.51
283	95% Hawkins Wixley (HW) Approx. Gamma UPL					17.07	95% Percentile					16.16
284	95% WH Approx. Gamma UTL with 95% Coverage					19.51	99% Percentile					21.97
285	95% HW Approx. Gamma UTL with 95% Coverage					20.66						
286	95% WH USL					27.71	95% HW USL					30.58
287												
288	Lognormal GOF Test											
289	Shapiro Wilk Test Statistic					0.884	Shapiro Wilk Lognormal GOF Test					
290	10% Shapiro Wilk Critical Value					0.953	Data Not Lognormal at 10% Significance Level					
291	Lilliefors Test Statistic					0.182	Lilliefors Lognormal GOF Test					
292	10% Lilliefors Critical Value					0.119	Data Not Lognormal at 10% Significance Level					
293	Data Not Lognormal at 10% Significance Level											
294												
295	Background Statistics assuming Lognormal Distribution											
296	95% UTL with 95% Coverage					26.69	90% Percentile (z)					15.1
297	95% UPL (t)					20.32	95% Percentile (z)					19.57
298	95% USL					48.77	99% Percentile (z)					31.83
299												
300	Nonparametric Distribution Free Background Statistics											
301	Data appear Normal at 1% Significance Level											
302												
303	Nonparametric Upper Limits for Background Threshold Values											
304	Order of Statistic, order					46	95% UTL with 95% Coverage					15.5
305	Approx, f used to compute achieved CC					2.421	Approximate Actual Confidence Coefficient achieved by UTL					0.906
306							Approximate Sample Size needed to achieve specified CC					59
307	95% Percentile Bootstrap UTL with 95% Coverage					15	95% BCA Bootstrap UTL with 95% Coverage					14.85
308	95% UPL					13.47	90% Percentile					12.4
309	90% Chebyshev UPL					18.96	95% Percentile					13.28
310	95% Chebyshev UPL					24.22	99% Percentile					14.6
311	95% USL					15.5						
312												
313	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
314	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
315	and consists of observations collected from clean unimpacted locations.											
316	The use of USL tends to provide a balance between false positives and false negatives provided the data											
317	represents a background data set and when many onsite observations need to be compared with the BTV.											
318												
319	DFW TX As <13											
320												
321	General Statistics											
322	Total Number of Observations					43	Number of Distinct Observations					36

	A	B	C	D	E	F	G	H	I	J	K	L
323	Minimum					0.9	First Quartile					4.25
324	Second Largest					12.6	Median					6.6
325	Maximum					12.9	Third Quartile					9.6
326	Mean					6.877	SD					3.481
327	Coefficient of Variation					0.506	Skewness					-0.109
328	Mean of logged Data					1.741	SD of logged Data					0.701
329												
330	Critical Values for Background Threshold Values (BTVs)											
331	Tolerance Factor K (For UTL)					2.097	d2max (for USL)					2.897
332												
333	Normal GOF Test											
334	Shapiro Wilk Test Statistic					0.947	Shapiro Wilk GOF Test					
335	1% Shapiro Wilk Critical Value					0.923	Data appear Normal at 1% Significance Level					
336	Lilliefors Test Statistic					0.0966	Lilliefors GOF Test					
337	1% Lilliefors Critical Value					0.156	Data appear Normal at 1% Significance Level					
338	Data appear Normal at 1% Significance Level											
339												
340	Background Statistics Assuming Normal Distribution											
341	95% UTL with 95% Coverage					14.18	90% Percentile (z)					11.34
342	95% UPL (t)					12.8	95% Percentile (z)					12.6
343	95% USL					16.96	99% Percentile (z)					14.97
344												
345	Gamma GOF Test											
346	A-D Test Statistic					1.237	Anderson-Darling Gamma GOF Test					
347	5% A-D Critical Value					0.756	Data Not Gamma Distributed at 5% Significance Level					
348	K-S Test Statistic					0.155	Kolmogorov-Smirnov Gamma GOF Test					
349	5% K-S Critical Value					0.136	Data Not Gamma Distributed at 5% Significance Level					
350	Data Not Gamma Distributed at 5% Significance Level											
351												
352	Gamma Statistics											
353	k hat (MLE)					2.824	k star (bias corrected MLE)					2.643
354	Theta hat (MLE)					2.435	Theta star (bias corrected MLE)					2.602
355	nu hat (MLE)					242.9	nu star (bias corrected)					227.3
356	MLE Mean (bias corrected)					6.877	MLE Sd (bias corrected)					4.23
357												
358	Background Statistics Assuming Gamma Distribution											
359	95% Wilson Hilferty (WH) Approx. Gamma UPL					15.22	90% Percentile					12.55
360	95% Hawkins Wixley (HW) Approx. Gamma UPL					15.83	95% Percentile					14.98
361	95% WH Approx. Gamma UTL with 95% Coverage					18.16	99% Percentile					20.28
362	95% HW Approx. Gamma UTL with 95% Coverage					19.24						
363	95% WH USL					25.22	95% HW USL					27.75
364												
365	Lognormal GOF Test											
366	Shapiro Wilk Test Statistic					0.872	Shapiro Wilk Lognormal GOF Test					
367	10% Shapiro Wilk Critical Value					0.951	Data Not Lognormal at 10% Significance Level					
368	Lilliefors Test Statistic					0.194	Lilliefors Lognormal GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L	
369	10% Lilliefors Critical Value					0.123	Data Not Lognormal at 10% Significance Level						
370	Data Not Lognormal at 10% Significance Level												
371													
372	Background Statistics assuming Lognormal Distribution												
373	95% UTL with 95% Coverage				24.78	90% Percentile (z)					14		
374	95% UPL (t)				18.78	95% Percentile (z)					18.05		
375	95% USL				43.41	99% Percentile (z)					29.1		
376													
377	Nonparametric Distribution Free Background Statistics												
378	Data appear Normal at 1% Significance Level												
379													
380	Nonparametric Upper Limits for Background Threshold Values												
381	Order of Statistic, order				43	95% UTL with 95% Coverage					12.9		
382	Approx, f used to compute achieved CC				2.263	Approximate Actual Confidence Coefficient achieved by UTL					0.89		
383						Approximate Sample Size needed to achieve specified CC					59		
384	95% Percentile Bootstrap UTL with 95% Coverage				12.87	95% BCA Bootstrap UTL with 95% Coverage					12.83		
385	95% UPL				12.52	90% Percentile					11.16		
386	90% Chebyshev UPL				17.44	95% Percentile					12.15		
387	95% Chebyshev UPL				22.23	99% Percentile					12.77		
388	95% USL				12.9								
389													
390	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
391	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
392	and consists of observations collected from clean unimpacted locations.												
393	The use of USL tends to provide a balance between false positives and false negatives provided the data												
394	represents a background data set and when many onsite observations need to be compared with the BTV.												
395													

ProUCL Output Files – Wisconsin (2012 Dataset)

Q-Q Plot for As - HDL 210 (mg/Kg)

As - HDL 210 (mg/Kg)

35
30
25
20
15
10
5
0

Theoretical Quantiles (Standard Normal)

As - HDL 210 (mg/Kg)

N = 664

Mean = 2.173

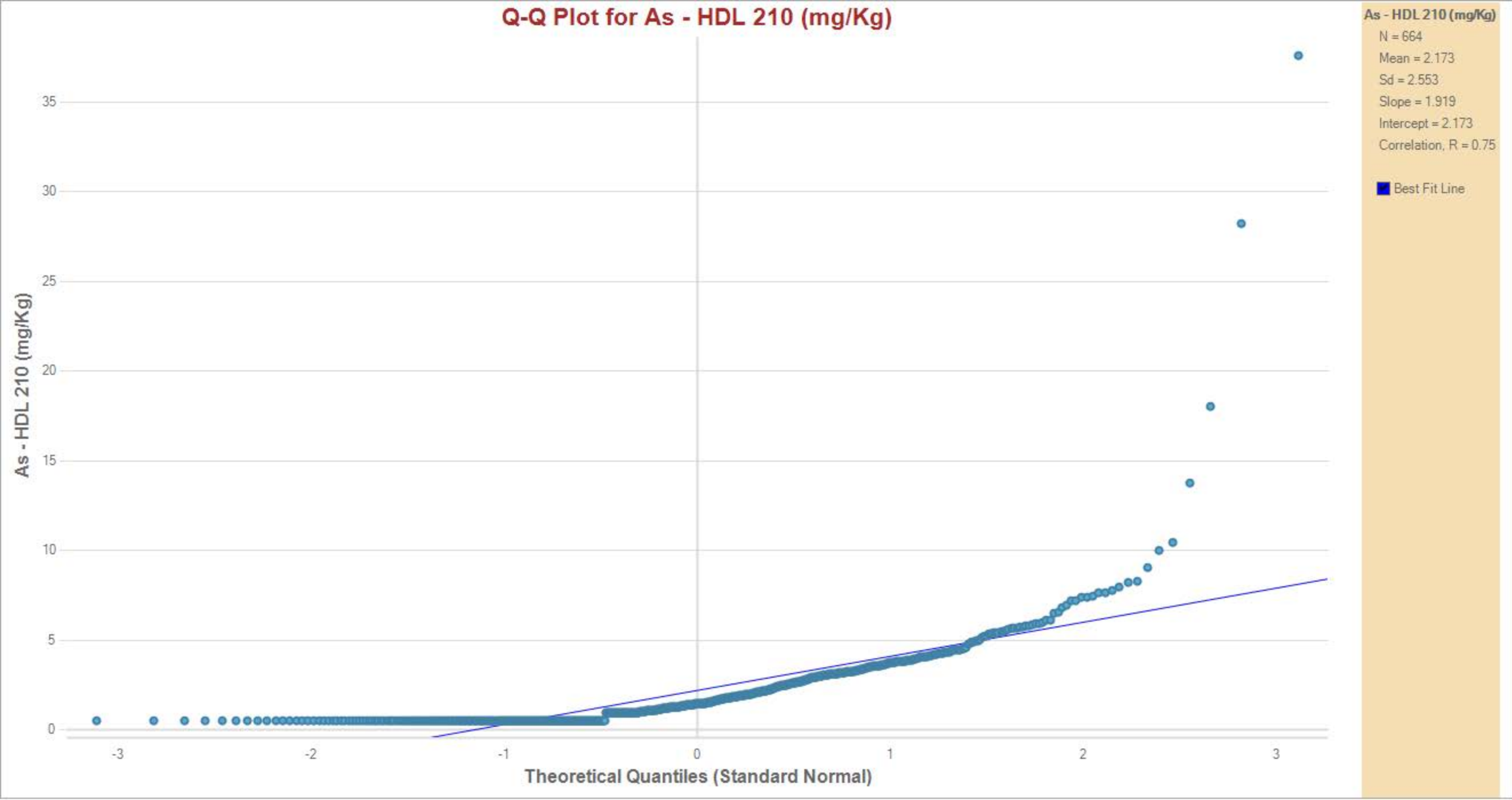
Sd = 2.553

Slope = 1.919

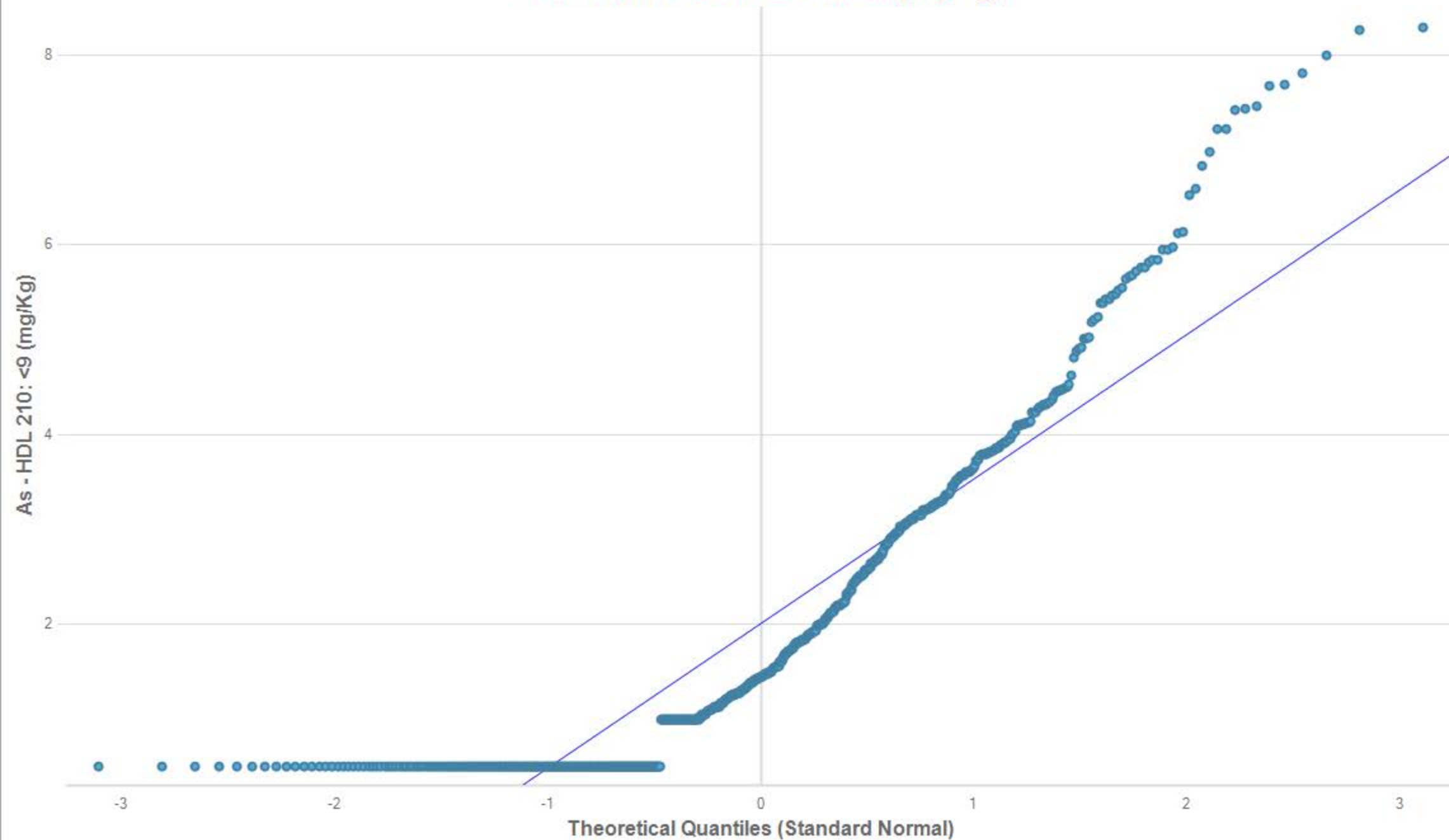
Intercept = 2.173

Correlation, R = 0.75

Best Fit Line



Q-Q Plot for As - HDL 210: <9 (mg/Kg)



As - HDL 210: <9 (mg/Kg)

N = 657

Mean = 2.002

Sd = 1.656

Slope = 1.527

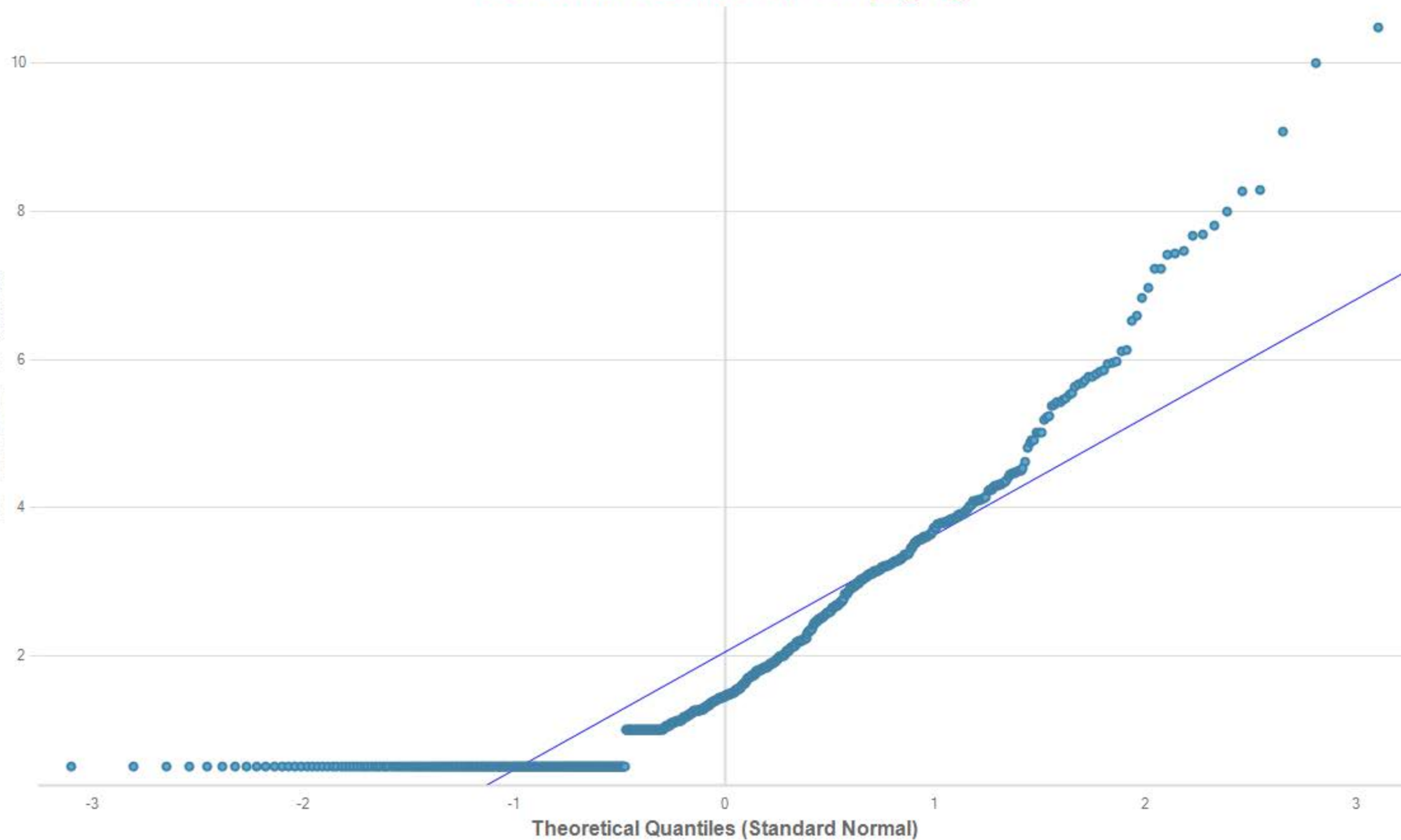
Intercept = 2.002

Correlation, R = 0.92

Best Fit Line

Q-Q Plot for As - HDL 210: <11 (mg/Kg)

As - HDL 210: <11 (mg/Kg)



As - HDL 210: <11 (mg/Kg)

N = 660

Mean = 2.038

Sd = 1.735

Slope = 1.588

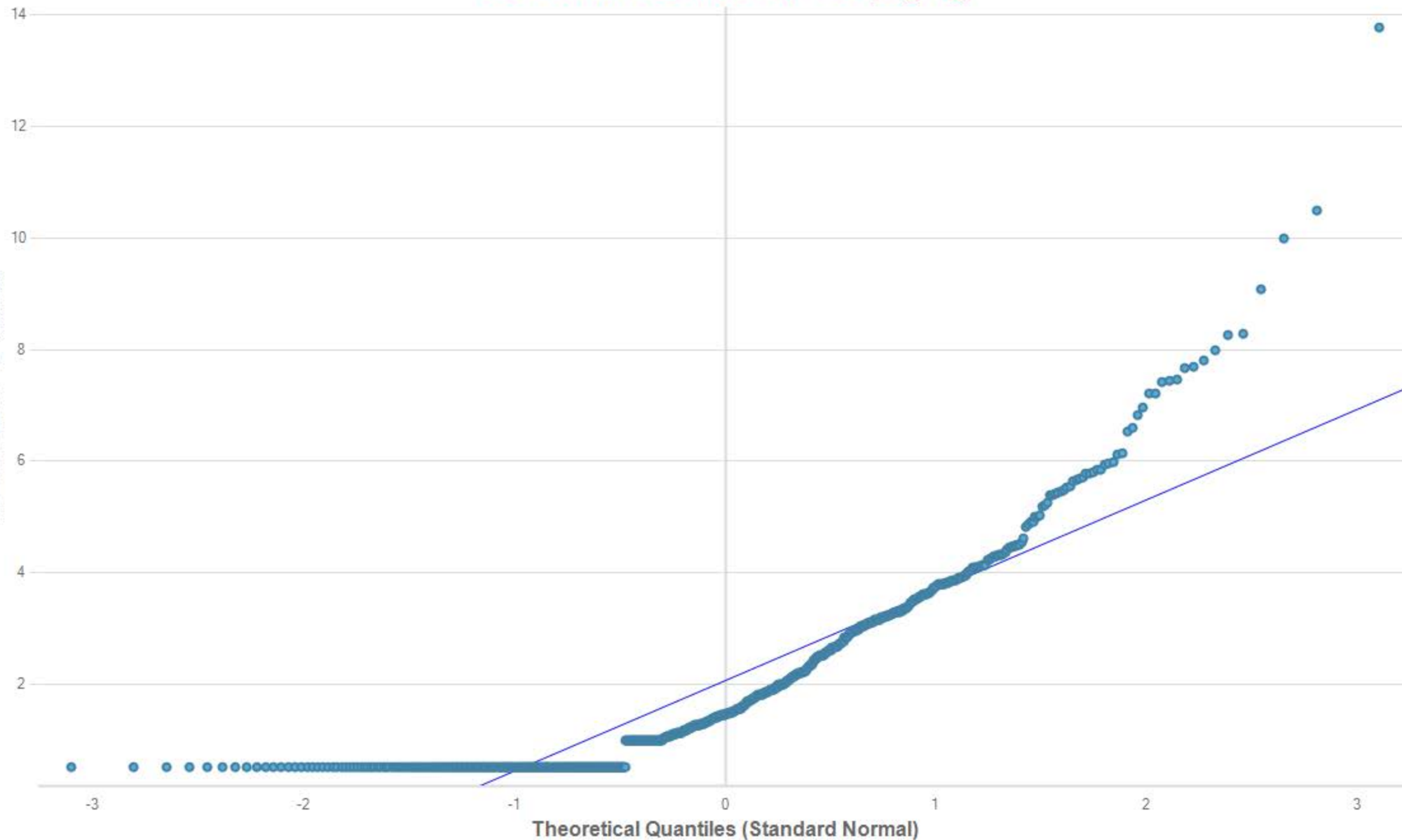
Intercept = 2.038

Correlation, R = 0.913

Best Fit Line

Q-Q Plot for As - HDL 210: <15 (mg/Kg)

As - HDL 210: <15 (mg/Kg)



As - HDL 210: <15 (mg/Kg)

N = 661

Mean = 2.056

Sd = 1.793

Slope = 1.626

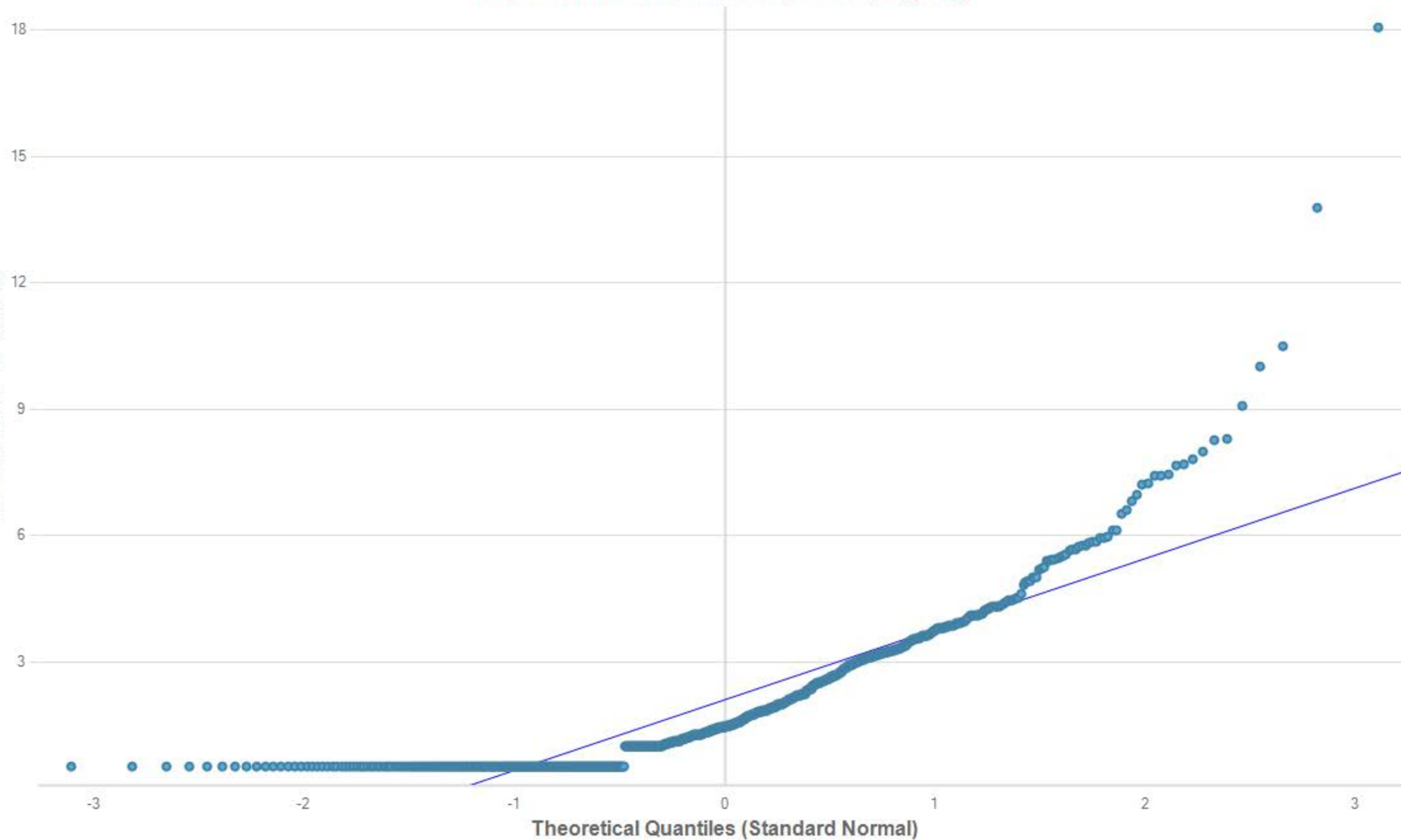
Intercept = 2.056

Correlation, R = 0.904

Best Fit Line

Q-Q Plot for As - HDL 210: <19 (mg/Kg)

As - HDL 210: <19 (mg/Kg)



As - HDL 210: <19 (mg/Kg)

N = 662

Mean = 2.08

Sd = 1.897

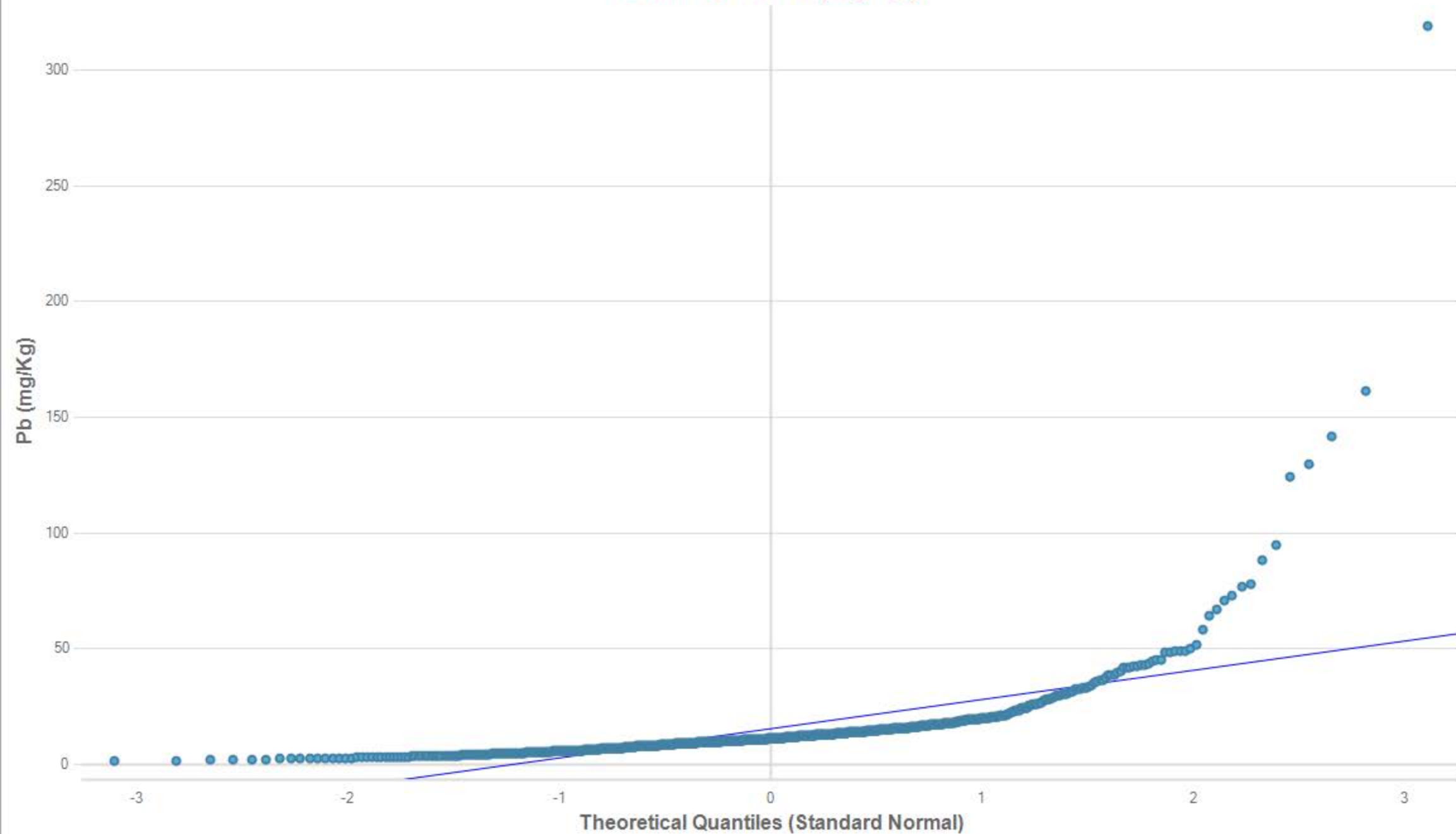
Slope = 1.681

Intercept = 2.08

Correlation, R = 0.884

Best Fit Line

Q-Q Plot for Pb (mg/Kg)



Pb (mg/Kg)

N = 664

Mean = 15.28

Sd = 19.13

Slope = 12.68

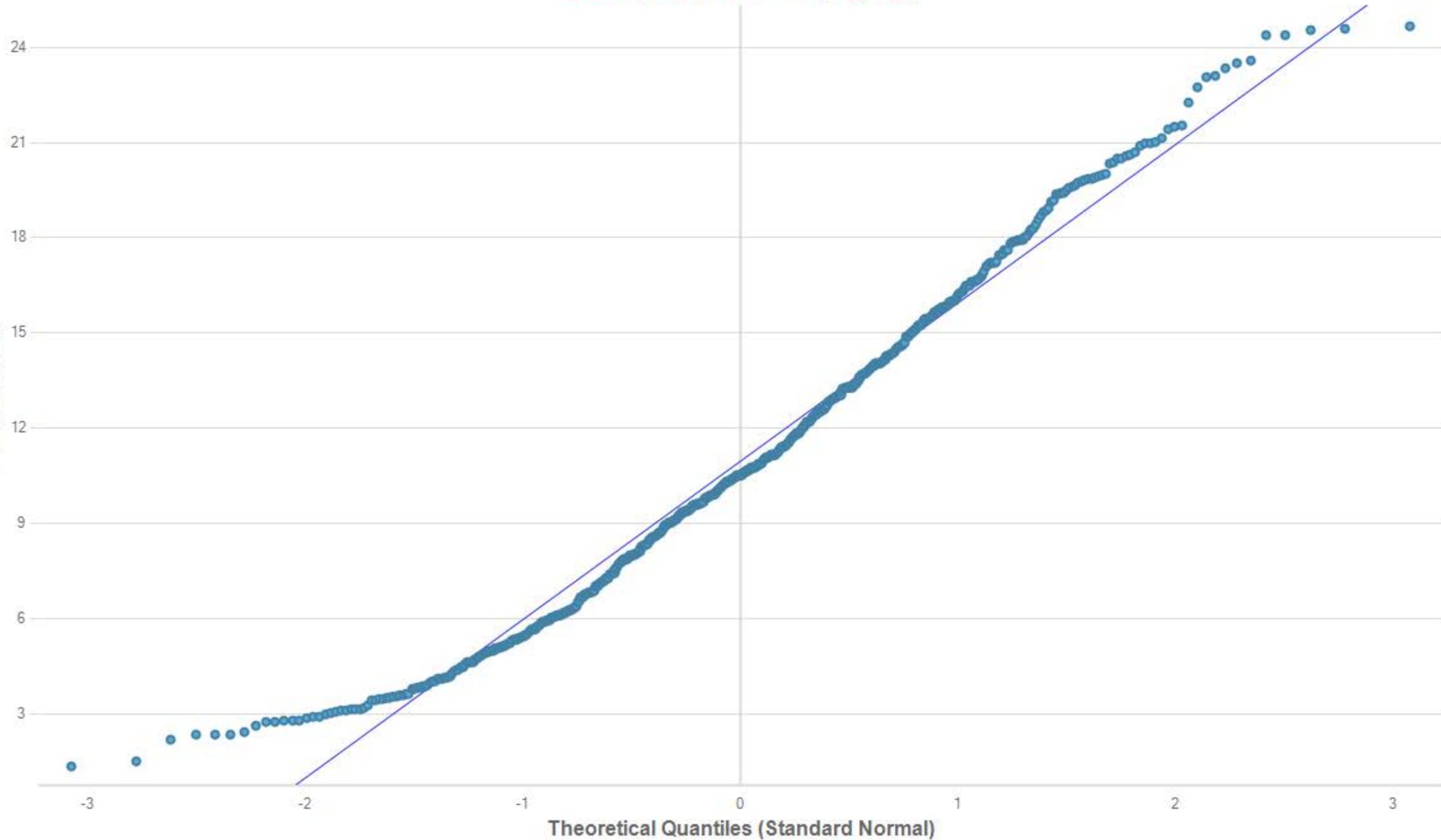
Intercept = 15.28

Correlation, R = 0.661

Best Fit Line

Q-Q Plot for Pb <25 (mg/Kg)

Pb <25 (mg/Kg)



Pb <25 (mg/Kg)

N = 590

Mean = 10.93

Sd = 5.043

Slope = 5.004

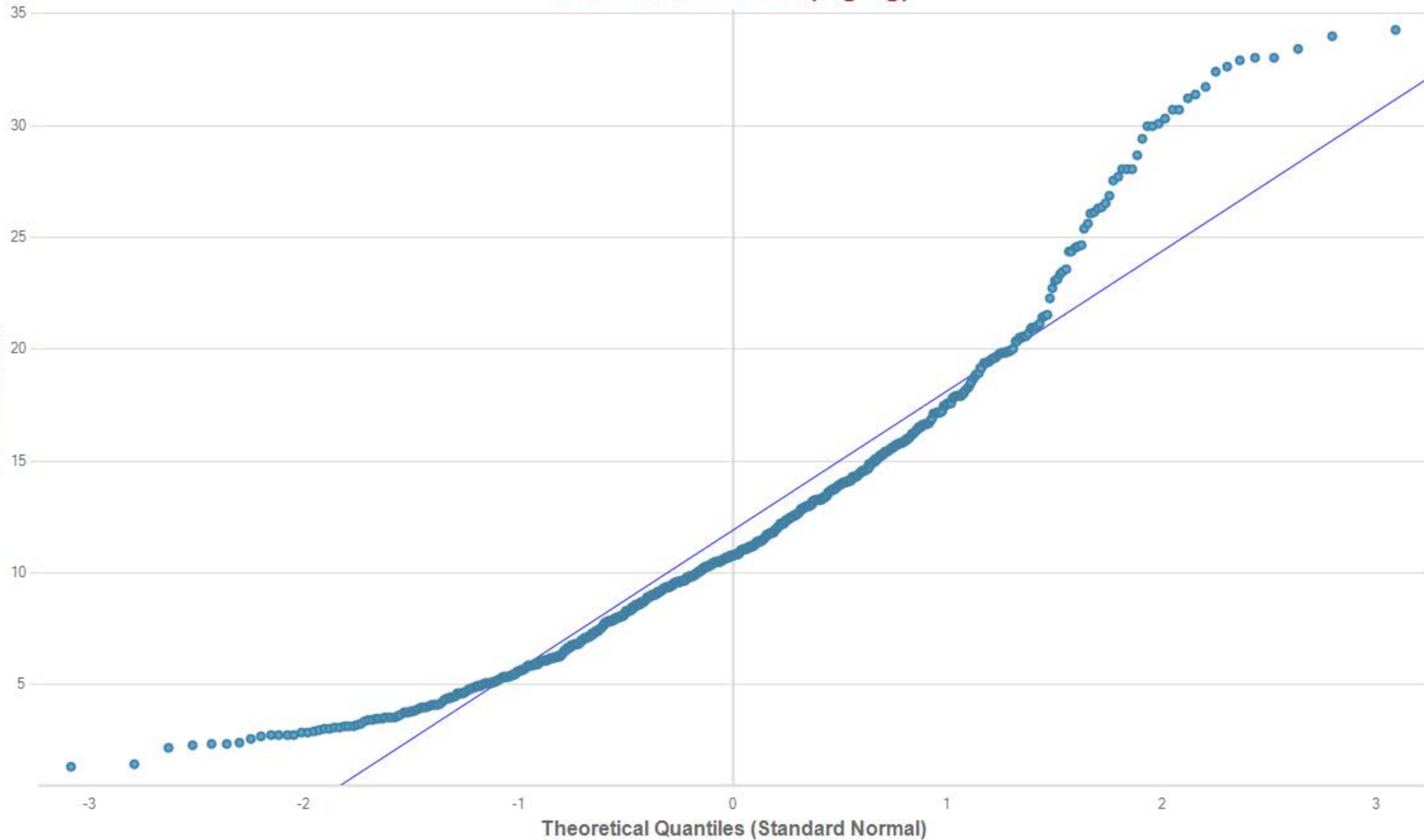
Intercept = 10.93

Correlation, R = 0.99

Best Fit Line

Q-Q Plot for Pb <35 (mg/Kg)

Pb <35 (mg/Kg)



Pb <35 (mg/Kg)

N = 622

Mean = 11.9

Sd = 6.451

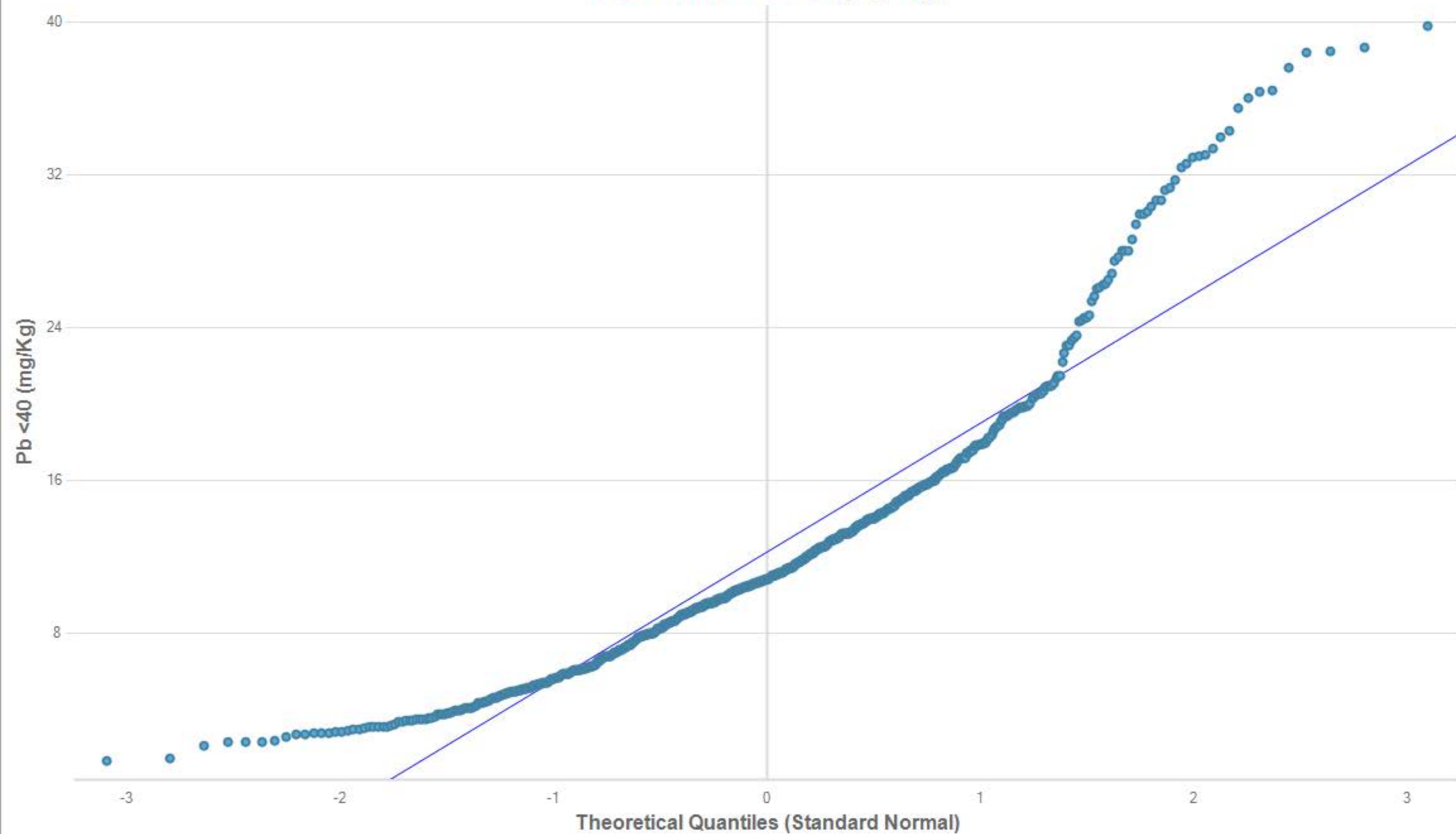
Slope = 6.238

Intercept = 11.9

Correlation, R = 0.965

Best Fit Line

Q-Q Plot for Pb <40 (mg/Kg)



Pb <40 (mg/Kg)

N = 631

Mean = 12.26

Sd = 7.092

Slope = 6.757

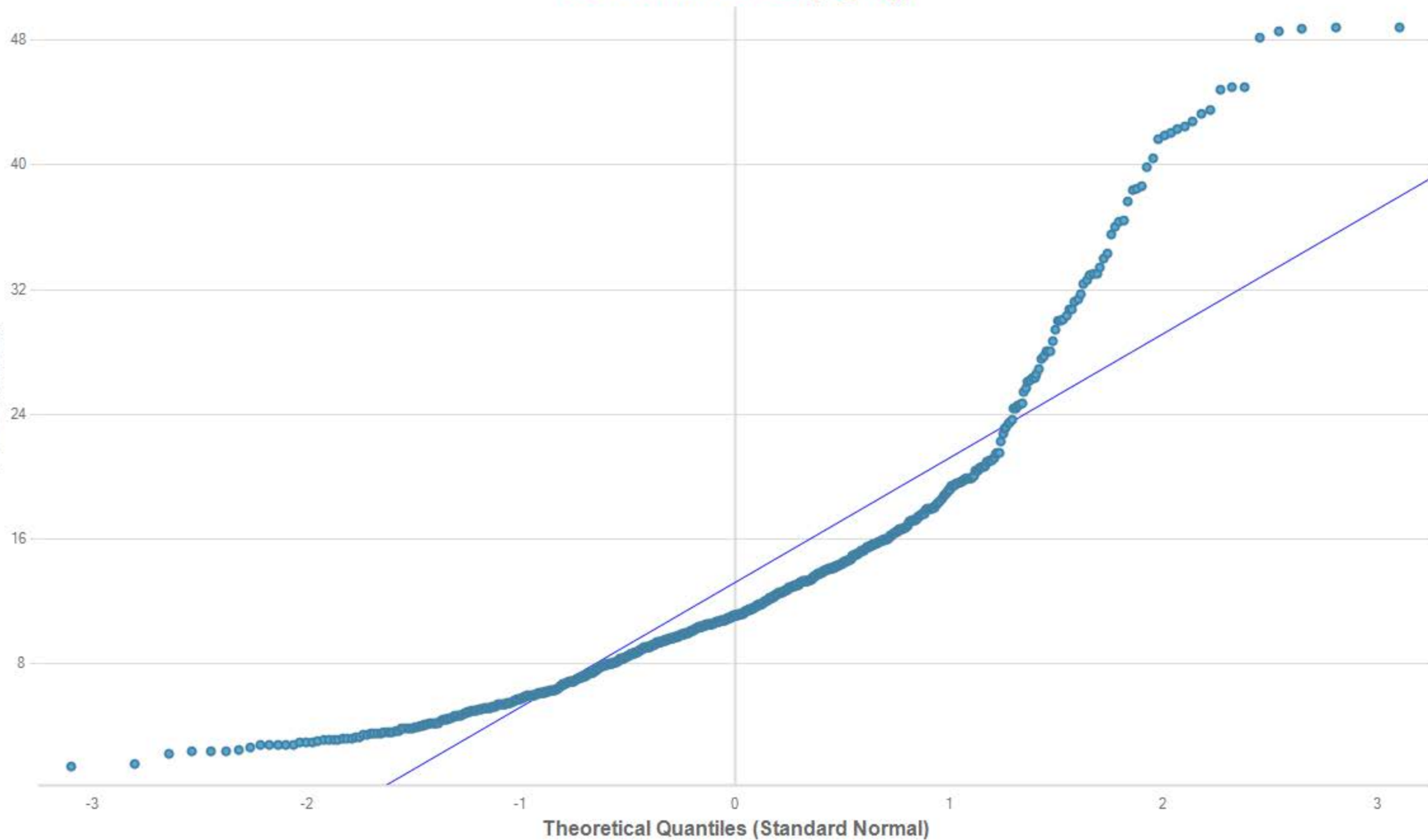
Intercept = 12.26

Correlation, R = 0.951

Best Fit Line

Q-Q Plot for Pb <50 (mg/Kg)

Pb <50 (mg/Kg)



Pb <50 (mg/Kg)

N = 648

Mean = 13.11

Sd = 8.718

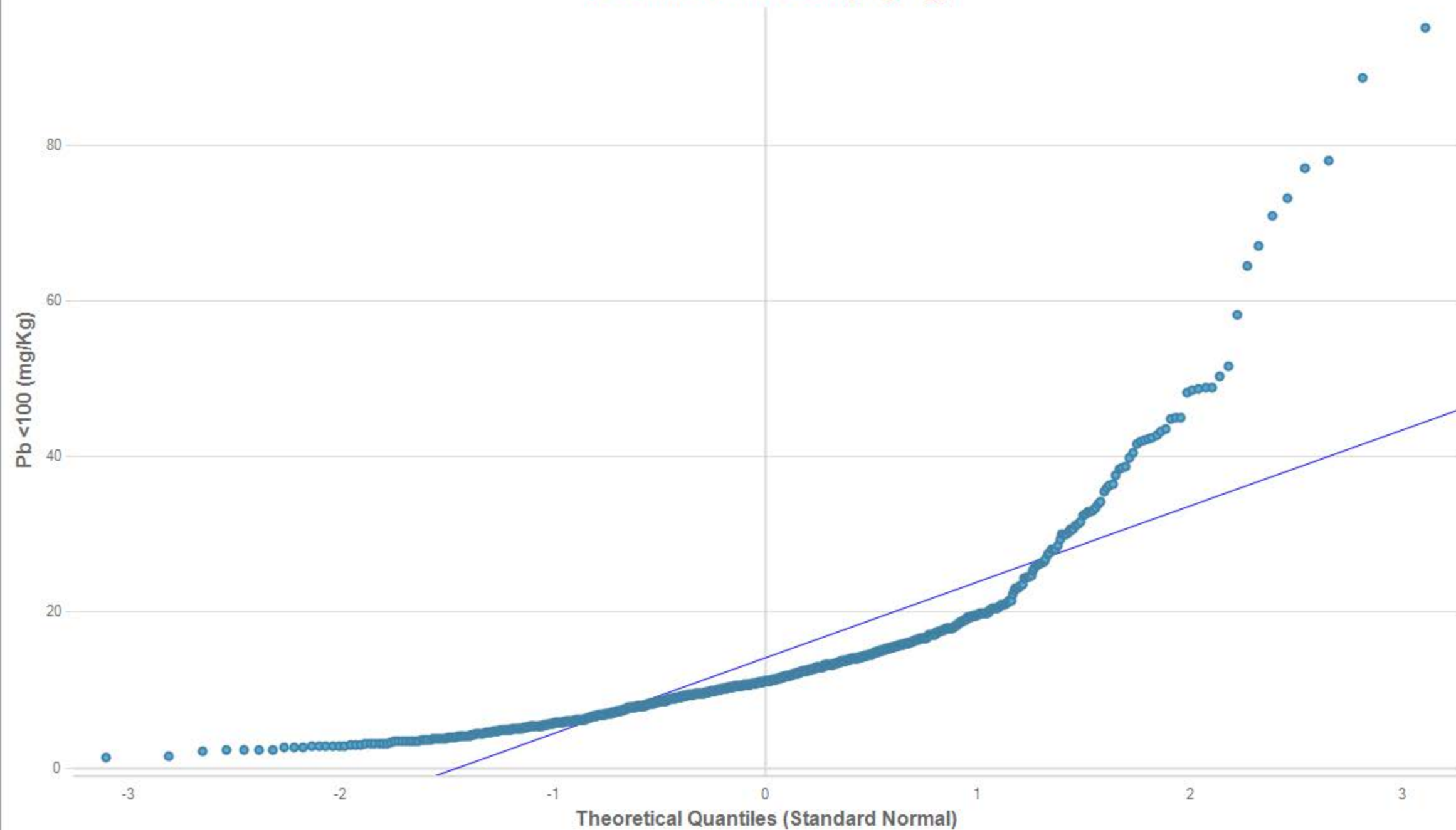
Slope = 8.007

Intercept = 13.11

Correlation, R = 0.916

Best Fit Line

Q-Q Plot for Pb <100 (mg/Kg)



Pb <100 (mg/Kg)

N = 659

Mean = 14.07

Sd = 11.48

Slope = 9.775

Intercept = 14.07

Correlation, R = 0.85

Best Fit Line

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.2 1/21/2024 2:47:14 PM								
4	From File			D:\Tramm\BACKGROUND EVAL\AEEG Article - Estimators\Wisconsin\2012 WI - Edited Set.xls								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	As - HDL 210 (mg/Kg)											
12												
13	General Statistics											
14	Total Number of Observations				664		Number of Distinct Observations				413	
15	Minimum				0.5		First Quartile				0.5	
16	Second Largest				28.26		Median				1.468	
17	Maximum				37.62		Third Quartile				3.096	
18	Mean				2.173		SD				2.553	
19	Coefficient of Variation				1.175		Skewness				6.557	
20	Mean of logged Data				0.374		SD of logged Data				0.885	
21												
22	Critical Values for Background Threshold Values (BTVs)											
23	Tolerance Factor K (For UTL)				1.746		d2max (for USL)				3.771	
24												
25	Normal GOF Test											
26	Shapiro Wilk Test Statistic				0.601		Normal GOF Test					
27	1% Shapiro Wilk P Value				0		Data Not Normal at 1% Significance Level					
28	Lilliefors Test Statistic				0.256		Lilliefors GOF Test					
29	1% Lilliefors Critical Value				0.0401		Data Not Normal at 1% Significance Level					
30	Data Not Normal at 1% Significance Level											
31												
32	Background Statistics Assuming Normal Distribution											
33	95% UTL with		95% Coverage		6.632		90% Percentile (z)				5.445	
34			95% UPL (t)		6.382		95% Percentile (z)				6.373	
35			95% USL		11.8		99% Percentile (z)				8.113	
36												
37	Gamma GOF Test											
38	A-D Test Statistic				18.09		Anderson-Darling Gamma GOF Test					
39	5% A-D Critical Value				0.775		Data Not Gamma Distributed at 5% Significance Level					
40	K-S Test Statistic				0.177		Kolmogorov-Smirnov Gamma GOF Test					
41	5% K-S Critical Value				0.0374		Data Not Gamma Distributed at 5% Significance Level					
42	Data Not Gamma Distributed at 5% Significance Level											
43												
44	Gamma Statistics											
45	k hat (MLE)				1.387		k star (bias corrected MLE)				1.382	
46	Theta hat (MLE)				1.567		Theta star (bias corrected MLE)				1.572	
47	nu hat (MLE)				1842		nu star (bias corrected)				1835	
48	MLE Mean (bias corrected)				2.173		MLE Sd (bias corrected)				1.848	
49												
50	Background Statistics Assuming Gamma Distribution											
51	95% Wilson Hilferty (WH) Approx. Gamma UPL				5.659		90% Percentile				4.62	

	A	B	C	D	E	F	G	H	I	J	K	L
52	95% Hawkins Wixley (HW) Approx. Gamma UPL					5.73	95% Percentile					5.819
53	95% WH Approx. Gamma UTL with 95% Coverage					6.005	99% Percentile					8.541
54	95% HW Approx. Gamma UTL with 95% Coverage					6.11						
55	95% WH USL					16.62	95% HW USL					19.08
56												
57	Lognormal GOF Test											
58	Shapiro Wilk Test Statistic					0.889	Shapiro Wilk Lognormal GOF Test					
59	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
60	Lilliefors Test Statistic					0.202	Lilliefors Lognormal GOF Test					
61	10% Lilliefors Critical Value					0.0318	Data Not Lognormal at 10% Significance Level					
62	Data Not Lognormal at 10% Significance Level											
63												
64	Background Statistics assuming Lognormal Distribution											
65	95% UTL with 95% Coverage					6.813	90% Percentile (z)					4.516
66	95% UPL (t)					6.248	95% Percentile (z)					6.228
67	95% USL					40.84	99% Percentile (z)					11.38
68												
69	Nonparametric Distribution Free Background Statistics											
70	Data do not follow a Discernible Distribution											
71												
72	Nonparametric Upper Limits for Background Threshold Values											
73	Order of Statistic, order					641	95% UTL with 95% Coverage					6.12
74	Approx, f used to compute achieved CC					1.347	Approximate Actual Confidence Coefficient achieved by UTL					0.944
75							Approximate Sample Size needed to achieve specified CC					647
76	95% Percentile Bootstrap UTL with 95% Coverage					5.953	95% BCA Bootstrap UTL with 95% Coverage					5.953
77	95% UPL					5.706	90% Percentile					4.319
78	90% Chebyshev UPL					9.838	95% Percentile					5.675
79	95% Chebyshev UPL					13.31	99% Percentile					8.587
80	95% USL					37.62						
81												
82	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
83	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
84	and consists of observations collected from clean unimpacted locations.											
85	The use of USL tends to provide a balance between false positives and false negatives provided the data											
86	represents a background data set and when many onsite observations need to be compared with the BTV.											
87												
88	As - HDL 210: <19 (mg/Kg)											
89												
90	General Statistics											
91	Total Number of Observations					662	Number of Distinct Observations					411
92	Minimum					0.5	First Quartile					0.5
93	Second Largest					13.79	Median					1.46
94	Maximum					18.07	Third Quartile					3.087
95	Mean					2.08	SD					1.897
96	Coefficient of Variation					0.912	Skewness					2.332
97	Mean of logged Data					0.365	SD of logged Data					0.869
98												
99	Critical Values for Background Threshold Values (BTVs)											
100	Tolerance Factor K (For UTL)					1.746	d2max (for USL)					3.77
101												
102	Normal GOF Test											

	A	B	C	D	E	F	G	H	I	J	K	L	
103	Shapiro Wilk Test Statistic					0.793	Normal GOF Test						
104	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
105	Lilliefors Test Statistic					0.202	Lilliefors GOF Test						
106	1% Lilliefors Critical Value					0.0402	Data Not Normal at 1% Significance Level						
107	Data Not Normal at 1% Significance Level												
108													
109	Background Statistics Assuming Normal Distribution												
110	95% UTL with		95% Coverage		5.393	90% Percentile (z)					4.511		
111			95% UPL (t)		5.207	95% Percentile (z)					5.2		
112			95% USL		9.232	99% Percentile (z)					6.493		
113													
114	Gamma GOF Test												
115	A-D Test Statistic					18.81	Anderson-Darling Gamma GOF Test						
116	5% A-D Critical Value					0.772	Data Not Gamma Distributed at 5% Significance Level						
117	K-S Test Statistic					0.186	Kolmogorov-Smirnov Gamma GOF Test						
118	5% K-S Critical Value					0.0373	Data Not Gamma Distributed at 5% Significance Level						
119	Data Not Gamma Distributed at 5% Significance Level												
120													
121	Gamma Statistics												
122			k hat (MLE)		1.505	k star (bias corrected MLE)					1.499		
123			Theta hat (MLE)		1.382	Theta star (bias corrected MLE)					1.387		
124			nu hat (MLE)		1993	nu star (bias corrected)					1985		
125			MLE Mean (bias corrected)		2.08	MLE Sd (bias corrected)					1.699		
126													
127	Background Statistics Assuming Gamma Distribution												
128	95% Wilson Hilferty (WH) Approx.		Gamma UPL		5.342	90% Percentile					4.335		
129	95% Hawkins Wixley (HW) Approx.		Gamma UPL		5.451	95% Percentile					5.419		
130	95% WH Approx.		Gamma UTL with 95% Coverage		5.659	99% Percentile					7.867		
131	95% HW Approx.		Gamma UTL with 95% Coverage		5.804								
132			95% WH USL		15.29	95% HW USL					17.69		
133													
134	Lognormal GOF Test												
135	Shapiro Wilk Test Statistic					0.883	Shapiro Wilk Lognormal GOF Test						
136	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level						
137	Lilliefors Test Statistic					0.205	Lilliefors Lognormal GOF Test						
138	10% Lilliefors Critical Value					0.0318	Data Not Lognormal at 10% Significance Level						
139	Data Not Lognormal at 10% Significance Level												
140													
141	Background Statistics assuming Lognormal Distribution												
142	95% UTL with		95% Coverage		6.571	90% Percentile (z)					4.387		
143			95% UPL (t)		6.034	95% Percentile (z)					6.015		
144			95% USL		38.15	99% Percentile (z)					10.88		
145													
146	Nonparametric Distribution Free Background Statistics												
147	Data do not follow a Discernible Distribution												
148													
149	Nonparametric Upper Limits for Background Threshold Values												
150	Order of Statistic, order		639		95% UTL with 95% Coverage					5.953			
151	Approx, f used to compute achieved CC		1.343		Approximate Actual Confidence Coefficient achieved by UTL					0.943			
152					Approximate Sample Size needed to achieve specified CC					647			
153	95% Percentile Bootstrap UTL with		95% Coverage		5.941	95% BCA Bootstrap UTL with 95% Coverage					5.848		

	A	B	C	D	E	F	G	H	I	J	K	L
154					95% UPL	5.663					90% Percentile	4.301
155					90% Chebyshev UPL	7.776					95% Percentile	5.632
156					95% Chebyshev UPL	10.36					99% Percentile	8.1
157					95% USL	18.07						
158												
159	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
160	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
161	and consists of observations collected from clean unimpacted locations.											
162	The use of USL tends to provide a balance between false positives and false negatives provided the data											
163	represents a background data set and when many onsite observations need to be compared with the BTV.											
164												
165	As - HDL 210: <15 (mg/Kg)											
166												
167	General Statistics											
168					Total Number of Observations	661					Number of Distinct Observations	410
169					Minimum	0.5					First Quartile	0.5
170					Second Largest	10.49					Median	1.458
171					Maximum	13.79					Third Quartile	3.08
172					Mean	2.056					SD	1.793
173					Coefficient of Variation	0.872					Skewness	1.727
174					Mean of logged Data	0.361					SD of logged Data	0.864
175												
176	Critical Values for Background Threshold Values (BTVs)											
177					Tolerance Factor K (For UTL)	1.747					d2max (for USL)	3.77
178												
179	Normal GOF Test											
180					Shapiro Wilk Test Statistic	0.818					Normal GOF Test	
181					1% Shapiro Wilk P Value	0					Data Not Normal at 1% Significance Level	
182					Lilliefors Test Statistic	0.193					Lilliefors GOF Test	
183					1% Lilliefors Critical Value	0.0402					Data Not Normal at 1% Significance Level	
184	Data Not Normal at 1% Significance Level											
185												
186	Background Statistics Assuming Normal Distribution											
187					95% UTL with 95% Coverage	5.188					90% Percentile (z)	4.354
188					95% UPL (t)	5.012					95% Percentile (z)	5.006
189					95% USL	8.816					99% Percentile (z)	6.228
190												
191	Gamma GOF Test											
192					A-D Test Statistic	19.14					Anderson-Darling Gamma GOF Test	
193					5% A-D Critical Value	0.772					Data Not Gamma Distributed at 5% Significance Level	
194					K-S Test Statistic	0.188					Kolmogorov-Smirnov Gamma GOF Test	
195					5% K-S Critical Value	0.0373					Data Not Gamma Distributed at 5% Significance Level	
196	Data Not Gamma Distributed at 5% Significance Level											
197												
198	Gamma Statistics											
199					k hat (MLE)	1.535					k star (bias corrected MLE)	1.53
200					Theta hat (MLE)	1.339					Theta star (bias corrected MLE)	1.344
201					nu hat (MLE)	2030					nu star (bias corrected)	2022
202					MLE Mean (bias corrected)	2.056					MLE Sd (bias corrected)	1.662
203												
204	Background Statistics Assuming Gamma Distribution											

	A	B	C	D	E	F	G	H	I	J	K	L
205	95% Wilson Hilferty (WH) Approx. Gamma UPL					5.256	90% Percentile					4.264
206	95% Hawkins Wixley (HW) Approx. Gamma UPL					5.371	95% Percentile					5.32
207	95% WH Approx. Gamma UTL with 95% Coverage					5.566	99% Percentile					7.704
208	95% HW Approx. Gamma UTL with 95% Coverage					5.717						
209	95% WH USL					14.95	95% HW USL					17.31
210												
211	Lognormal GOF Test											
212	Shapiro Wilk Test Statistic					0.879	Shapiro Wilk Lognormal GOF Test					
213	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
214	Lilliefors Test Statistic					0.206	Lilliefors Lognormal GOF Test					
215	10% Lilliefors Critical Value					0.0318	Data Not Lognormal at 10% Significance Level					
216	Data Not Lognormal at 10% Significance Level											
217												
218	Background Statistics assuming Lognormal Distribution											
219	95% UTL with 95% Coverage					6.49	90% Percentile (z)					4.342
220	95% UPL (t)					5.962	95% Percentile (z)					5.944
221	95% USL					37.29	99% Percentile (z)					10.71
222												
223	Nonparametric Distribution Free Background Statistics											
224	Data do not follow a Discernible Distribution											
225												
226	Nonparametric Upper Limits for Background Threshold Values											
227	Order of Statistic, order					638	95% UTL with 95% Coverage					5.946
228	Approx, f used to compute achieved CC					1.341	Approximate Actual Confidence Coefficient achieved by UTL					0.942
229							Approximate Sample Size needed to achieve specified CC					647
230	95% Percentile Bootstrap UTL with 95% Coverage					5.844	95% BCA Bootstrap UTL with 95% Coverage					5.844
231	95% UPL					5.628	90% Percentile					4.297
232	90% Chebyshev UPL					7.44	95% Percentile					5.554
233	95% Chebyshev UPL					9.879	99% Percentile					7.882
234	95% USL					13.79						
235												
236	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
237	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
238	and consists of observations collected from clean unimpacted locations.											
239	The use of USL tends to provide a balance between false positives and false negatives provided the data											
240	represents a background data set and when many onsite observations need to be compared with the BTV.											
241												
242	As - HDL 210: <11 (mg/Kg)											
243												
244	General Statistics											
245	Total Number of Observations					660	Number of Distinct Observations					409
246	Minimum					0.5	First Quartile					0.5
247	Second Largest					9.998	Median					1.455
248	Maximum					10.49	Third Quartile					3.072
249	Mean					2.038	SD					1.735
250	Coefficient of Variation					0.852	Skewness					1.469
251	Mean of logged Data					0.358	SD of logged Data					0.86
252												
253	Critical Values for Background Threshold Values (BTVs)											
254	Tolerance Factor K (For UTL)					1.747	d2max (for USL)					3.769
255												

	A	B	C	D	E	F	G	H	I	J	K	L
256	Normal GOF Test											
257	Shapiro Wilk Test Statistic					0.824	Normal GOF Test					
258	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
259	Lilliefors Test Statistic					0.188	Lilliefors GOF Test					
260	1% Lilliefors Critical Value					0.0403	Data Not Normal at 1% Significance Level					
261	Data Not Normal at 1% Significance Level											
262												
263	Background Statistics Assuming Normal Distribution											
264	95% UTL with 95% Coverage				5.069	90% Percentile (z)					4.262	
265	95% UPL (t)				4.899	95% Percentile (z)					4.893	
266	95% USL				8.58	99% Percentile (z)					6.075	
267												
268	Gamma GOF Test											
269	A-D Test Statistic				19.39	Anderson-Darling Gamma GOF Test						
270	5% A-D Critical Value				0.771	Data Not Gamma Distributed at 5% Significance Level						
271	K-S Test Statistic				0.19	Kolmogorov-Smirnov Gamma GOF Test						
272	5% K-S Critical Value				0.0373	Data Not Gamma Distributed at 5% Significance Level						
273	Data Not Gamma Distributed at 5% Significance Level											
274												
275	Gamma Statistics											
276	k hat (MLE)				1.556	k star (bias corrected MLE)					1.55	
277	Theta hat (MLE)				1.309	Theta star (bias corrected MLE)					1.315	
278	nu hat (MLE)				2054	nu star (bias corrected)					2046	
279	MLE Mean (bias corrected)				2.038	MLE Sd (bias corrected)					1.637	
280												
281	Background Statistics Assuming Gamma Distribution											
282	95% Wilson Hilferty (WH) Approx. Gamma UPL				5.194	90% Percentile					4.213	
283	95% Hawkins Wixley (HW) Approx. Gamma UPL				5.311	95% Percentile					5.251	
284	95% WH Approx. Gamma UTL with 95% Coverage				5.499	99% Percentile					7.589	
285	95% HW Approx. Gamma UTL with 95% Coverage				5.652							
286	95% WH USL				14.7	95% HW USL					17.03	
287												
288	Lognormal GOF Test											
289	Shapiro Wilk Test Statistic				0.876	Shapiro Wilk Lognormal GOF Test						
290	10% Shapiro Wilk P Value				0	Data Not Lognormal at 10% Significance Level						
291	Lilliefors Test Statistic				0.207	Lilliefors Lognormal GOF Test						
292	10% Lilliefors Critical Value				0.0319	Data Not Lognormal at 10% Significance Level						
293	Data Not Lognormal at 10% Significance Level											
294												
295	Background Statistics assuming Lognormal Distribution											
296	95% UTL with 95% Coverage				6.425	90% Percentile (z)					4.306	
297	95% UPL (t)				5.904	95% Percentile (z)					5.886	
298	95% USL				36.61	99% Percentile (z)					10.58	
299												
300	Nonparametric Distribution Free Background Statistics											
301	Data do not follow a Discernible Distribution											
302												
303	Nonparametric Upper Limits for Background Threshold Values											
304	Order of Statistic, order				637	95% UTL with 95% Coverage					5.848	
305	Approx, f used to compute achieved CC				1.339	Approximate Actual Confidence Coefficient achieved by UTL					0.941	
306						Approximate Sample Size needed to achieve specified CC					647	

	A	B	C	D	E	F	G	H	I	J	K	L
307	95% Percentile Bootstrap UTL with 95% Coverage					5.812	95% BCA Bootstrap UTL with 95% Coverage					5.812
308	95% UPL					5.552	90% Percentile					4.281
309	90% Chebyshev UPL					7.248	95% Percentile					5.525
310	95% Chebyshev UPL					9.608	99% Percentile					7.737
311	95% USL					10.49						
312												
313	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
314	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
315	and consists of observations collected from clean unimpacted locations.											
316	The use of USL tends to provide a balance between false positives and false negatives provided the data											
317	represents a background data set and when many onsite observations need to be compared with the BTV.											
318												
319	As - HDL 210: <9 (mg/Kg)											
320												
321	General Statistics											
322	Total Number of Observations					657	Number of Distinct Observations					406
323	Minimum					0.5	First Quartile					0.5
324	Second Largest					8.265	Median					1.451
325	Maximum					8.295	Third Quartile					3.046
326	Mean					2.002	SD					1.656
327	Coefficient of Variation					0.827	Skewness					1.272
328	Mean of logged Data					0.349	SD of logged Data					0.852
329												
330	Critical Values for Background Threshold Values (BTVs)											
331	Tolerance Factor K (For UTL)					1.747	d2max (for USL)					3.768
332												
333	Normal GOF Test											
334	Shapiro Wilk Test Statistic					0.83	Normal GOF Test					
335	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
336	Lilliefors Test Statistic					0.182	Lilliefors GOF Test					
337	1% Lilliefors Critical Value					0.0403	Data Not Normal at 1% Significance Level					
338	Data Not Normal at 1% Significance Level											
339												
340	Background Statistics Assuming Normal Distribution											
341	95% UTL with 95% Coverage					4.896	90% Percentile (z)					4.125
342	95% UPL (t)					4.732	95% Percentile (z)					4.727
343	95% USL					8.243	99% Percentile (z)					5.855
344												
345	Gamma GOF Test											
346	A-D Test Statistic					19.85	Anderson-Darling Gamma GOF Test					
347	5% A-D Critical Value					0.771	Data Not Gamma Distributed at 5% Significance Level					
348	K-S Test Statistic					0.192	Kolmogorov-Smirnov Gamma GOF Test					
349	5% K-S Critical Value					0.0374	Data Not Gamma Distributed at 5% Significance Level					
350	Data Not Gamma Distributed at 5% Significance Level											
351												
352	Gamma Statistics											
353	k hat (MLE)					1.593	k star (bias corrected MLE)					1.587
354	Theta hat (MLE)					1.257	Theta star (bias corrected MLE)					1.262
355	nu hat (MLE)					2093	nu star (bias corrected)					2085
356	MLE Mean (bias corrected)					2.002	MLE Sd (bias corrected)					1.589
357												

	A	B	C	D	E	F	G	H	I	J	K	L
358	Background Statistics Assuming Gamma Distribution											
359	95% Wilson Hilferty (WH) Approx. Gamma UPL					5.071	90% Percentile					4.116
360	95% Hawkins Wixley (HW) Approx. Gamma UPL					5.19	95% Percentile					5.119
361	95% WH Approx. Gamma UTL with 95% Coverage					5.367	99% Percentile					7.376
362	95% HW Approx. Gamma UTL with 95% Coverage					5.52						
363	95% WH USL					14.24	95% HW USL					16.48
364												
365	Lognormal GOF Test											
366	Shapiro Wilk Test Statistic					0.872	Shapiro Wilk Lognormal GOF Test					
367	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
368	Lilliefors Test Statistic					0.209	Lilliefors Lognormal GOF Test					
369	10% Lilliefors Critical Value					0.0319	Data Not Lognormal at 10% Significance Level					
370	Data Not Lognormal at 10% Significance Level											
371												
372	Background Statistics assuming Lognormal Distribution											
373	95% UTL with 95% Coverage					6.281	90% Percentile (z)					4.225
374	95% UPL (t)					5.775	95% Percentile (z)					5.758
375	95% USL					35.17	99% Percentile (z)					10.29
376												
377	Nonparametric Distribution Free Background Statistics											
378	Data do not follow a Discernible Distribution											
379												
380	Nonparametric Upper Limits for Background Threshold Values											
381	Order of Statistic, order					634	95% UTL with 95% Coverage					5.768
382	Approx, f used to compute achieved CC					1.333	Approximate Actual Confidence Coefficient achieved by UTL					0.937
383							Approximate Sample Size needed to achieve specified CC					647
384	95% Percentile Bootstrap UTL with 95% Coverage					5.726	95% BCA Bootstrap UTL with 95% Coverage					5.726
385	95% UPL					5.464	90% Percentile					4.235
386	90% Chebyshev UPL					6.975	95% Percentile					5.432
387	95% Chebyshev UPL					9.227	99% Percentile					7.444
388	95% USL					8.295						
389												
390	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
391	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
392	and consists of observations collected from clean unimpacted locations.											
393	The use of USL tends to provide a balance between false positives and false negatives provided the data											
394	represents a background data set and when many onsite observations need to be compared with the BTV.											
395												
396	Pb (mg/Kg)											
397												
398	General Statistics											
399	Total Number of Observations					664	Number of Distinct Observations					664
400	Minimum					1.324	First Quartile					7.515
401	Second Largest					161.4	Median					11.18
402	Maximum					319.5	Third Quartile					16.25
403	Mean					15.28	SD					19.13
404	Coefficient of Variation					1.252	Skewness					8.365
405	Mean of logged Data					2.432	SD of logged Data					0.705
406												
407	Critical Values for Background Threshold Values (BTVs)											
408	Tolerance Factor K (For UTL)					1.746	d2max (for USL)					3.771

	A	B	C	D	E	F	G	H	I	J	K	L
409												
410	Normal GOF Test											
411	Shapiro Wilk Test Statistic					0.484	Normal GOF Test					
412	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
413	Lilliefors Test Statistic					0.25	Lilliefors GOF Test					
414	1% Lilliefors Critical Value					0.0401	Data Not Normal at 1% Significance Level					
415	Data Not Normal at 1% Significance Level											
416												
417	Background Statistics Assuming Normal Distribution											
418	95% UTL with 95% Coverage					48.69	90% Percentile (z)					39.8
419	95% UPL (t)					46.82	95% Percentile (z)					46.75
420	95% USL					87.43	99% Percentile (z)					59.79
421												
422	Gamma GOF Test											
423	A-D Test Statistic					15.95	Anderson-Darling Gamma GOF Test					
424	5% A-D Critical Value					0.769	Data Not Gamma Distributed at 5% Significance Level					
425	K-S Test Statistic					0.124	Kolmogorov-Smirnov Gamma GOF Test					
426	5% K-S Critical Value					0.0371	Data Not Gamma Distributed at 5% Significance Level					
427	Data Not Gamma Distributed at 5% Significance Level											
428												
429	Gamma Statistics											
430	k hat (MLE)					1.848	k star (bias corrected MLE)					1.841
431	Theta hat (MLE)					8.268	Theta star (bias corrected MLE)					8.301
432	nu hat (MLE)					2455	nu star (bias corrected)					2445
433	MLE Mean (bias corrected)					15.28	MLE Sd (bias corrected)					11.26
434												
435	Background Statistics Assuming Gamma Distribution											
436	95% Wilson Hilferty (WH) Approx. Gamma UPL					35.9	90% Percentile					30.31
437	95% Hawkins Wixley (HW) Approx. Gamma UPL					35.62	95% Percentile					37.22
438	95% WH Approx. Gamma UTL with 95% Coverage					37.84	99% Percentile					52.62
439	95% HW Approx. Gamma UTL with 95% Coverage					37.66						
440	95% WH USL					95.14	95% HW USL					102.9
441												
442	Lognormal GOF Test											
443	Shapiro Wilk Test Statistic					0.975	Shapiro Wilk Lognormal GOF Test					
444	10% Shapiro Wilk P Value					1.9343E-4	Data Not Lognormal at 10% Significance Level					
445	Lilliefors Test Statistic					0.0626	Lilliefors Lognormal GOF Test					
446	10% Lilliefors Critical Value					0.0318	Data Not Lognormal at 10% Significance Level					
447	Data Not Lognormal at 10% Significance Level											
448												
449	Background Statistics assuming Lognormal Distribution											
450	95% UTL with 95% Coverage					38.98	90% Percentile (z)					28.09
451	95% UPL (t)					36.38	95% Percentile (z)					36.29
452	95% USL					162.4	99% Percentile (z)					58.66
453												
454	Nonparametric Distribution Free Background Statistics											
455	Data do not follow a Discernible Distribution											
456												
457	Nonparametric Upper Limits for Background Threshold Values											
458	Order of Statistic, order					641	95% UTL with 95% Coverage					44.82
459	Approx, f used to compute achieved CC					1.347	Approximate Actual Confidence Coefficient achieved by UTL					0.944

	A	B	C	D	E	F	G	H	I	J	K	L
460							Approximate Sample Size needed to achieve specified CC					647
461	95% Percentile Bootstrap UTL with 95% Coverage					43.29	95% BCA Bootstrap UTL with 95% Coverage					43.23
462	95% UPL					40.31	90% Percentile					26.79
463	90% Chebyshev UPL					72.72	95% Percentile					39.67
464	95% Chebyshev UPL					98.74	99% Percentile					81.94
465	95% USL					319.5						
466												
467	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
468	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
469	and consists of observations collected from clean unimpacted locations.											
470	The use of USL tends to provide a balance between false positives and false negatives provided the data											
471	represents a background data set and when many onsite observations need to be compared with the BTV.											
472												
473	Pb <100 (mg/Kg)											
474												
475	General Statistics											
476	Total Number of Observations					659	Number of Distinct Observations					659
477	Minimum					1.324	First Quartile					7.438
478	Second Largest					88.61	Median					11.17
479	Maximum					95.16	Third Quartile					16.02
480	Mean					14.07	SD					11.48
481	Coefficient of Variation					0.816	Skewness					2.954
482	Mean of logged Data					2.412	SD of logged Data					0.667
483												
484	Critical Values for Background Threshold Values (BTVs)											
485	Tolerance Factor K (For UTL)					1.747	d2max (for USL)					3.769
486												
487	Normal GOF Test											
488	Shapiro Wilk Test Statistic					0.728	Normal GOF Test					
489	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
490	Lilliefors Test Statistic					0.183	Lilliefors GOF Test					
491	1% Lilliefors Critical Value					0.0403	Data Not Normal at 1% Significance Level					
492	Data Not Normal at 1% Significance Level											
493												
494	Background Statistics Assuming Normal Distribution											
495	95% UTL with 95% Coverage					34.12	90% Percentile (z)					28.78
496	95% UPL (t)					32.99	95% Percentile (z)					32.95
497	95% USL					57.34	99% Percentile (z)					40.77
498												
499	Gamma GOF Test											
500	A-D Test Statistic					7.969	Anderson-Darling Gamma GOF Test					
501	5% A-D Critical Value					0.765	Data Not Gamma Distributed at 5% Significance Level					
502	K-S Test Statistic					0.0876	Kolmogorov-Smirnov Gamma GOF Test					
503	5% K-S Critical Value					0.0371	Data Not Gamma Distributed at 5% Significance Level					
504	Data Not Gamma Distributed at 5% Significance Level											
505												
506	Gamma Statistics											
507	k hat (MLE)					2.311	k star (bias corrected MLE)					2.302
508	Theta hat (MLE)					6.086	Theta star (bias corrected MLE)					6.112
509	nu hat (MLE)					3046	nu star (bias corrected)					3034
510	MLE Mean (bias corrected)					14.07	MLE Sd (bias corrected)					9.272

	A	B	C	D	E	F	G	H	I	J	K	L	
511													
512	Background Statistics Assuming Gamma Distribution												
513	95% Wilson Hilferty (WH) Approx. Gamma UPL					31.51	90% Percentile					26.48	
514	95% Hawkins Wixley (HW) Approx. Gamma UPL					31.75	95% Percentile					31.94	
515	95% WH Approx. Gamma UTL with 95% Coverage					33.09	99% Percentile					43.94	
516	95% HW Approx. Gamma UTL with 95% Coverage					33.44							
517	95% WH USL					78.11	95% HW USL					85.74	
518													
519	Lognormal GOF Test												
520	Shapiro Wilk Test Statistic					0.98	Shapiro Wilk Lognormal GOF Test						
521	10% Shapiro Wilk P Value					0.0292	Data Not Lognormal at 10% Significance Level						
522	Lilliefors Test Statistic					0.0475	Lilliefors Lognormal GOF Test						
523	10% Lilliefors Critical Value					0.0319	Data Not Lognormal at 10% Significance Level						
524	Data Not Lognormal at 10% Significance Level												
525													
526	Background Statistics assuming Lognormal Distribution												
527	95% UTL with 95% Coverage					35.78	90% Percentile (z)					26.24	
528	95% UPL (t)					33.51	95% Percentile (z)					33.43	
529	95% USL					137.9	99% Percentile (z)					52.67	
530													
531	Nonparametric Distribution Free Background Statistics												
532	Data do not follow a Discernible Distribution												
533													
534	Nonparametric Upper Limits for Background Threshold Values												
535	Order of Statistic, order					636	95% UTL with 95% Coverage					42.31	
536	Approx, f used to compute achieved CC					1.337	Approximate Actual Confidence Coefficient achieved by UTL					0.94	
537							Approximate Sample Size needed to achieve specified CC					647	
538	95% Percentile Bootstrap UTL with 95% Coverage					41.96	95% BCA Bootstrap UTL with 95% Coverage					41.96	
539	95% UPL					37.67	90% Percentile					26.1	
540	90% Chebyshev UPL					48.53	95% Percentile					36.57	
541	95% Chebyshev UPL					64.15	99% Percentile					65.61	
542	95% USL					95.16							
543													
544	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
545	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
546	and consists of observations collected from clean unimpacted locations.												
547	The use of USL tends to provide a balance between false positives and false negatives provided the data												
548	represents a background data set and when many onsite observations need to be compared with the BTV.												
549													
550	Pb <50 (mg/Kg)												
551													
552	General Statistics												
553	Total Number of Observations					648	Number of Distinct Observations					648	
554	Minimum					1.324	First Quartile					7.403	
555	Second Largest					48.86	Median					11.09	
556	Maximum					48.89	Third Quartile					15.81	
557	Mean					13.11	SD					8.718	
558	Coefficient of Variation					0.665	Skewness					1.779	
559	Mean of logged Data					2.381	SD of logged Data					0.628	
560													
561	Critical Values for Background Threshold Values (BTVs)												

	A	B	C	D	E	F	G	H	I	J	K	L
562	Tolerance Factor K (For UTL)					1.748	d2max (for USL)					3.765
563												
564	Normal GOF Test											
565	Shapiro Wilk Test Statistic					0.828	Normal GOF Test					
566	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
567	Lilliefors Test Statistic					0.134	Lilliefors GOF Test					
568	1% Lilliefors Critical Value					0.0406	Data Not Normal at 1% Significance Level					
569	Data Not Normal at 1% Significance Level											
570												
571	Background Statistics Assuming Normal Distribution											
572	95% UTL with 95% Coverage					28.35	90% Percentile (z)					24.28
573	95% UPL (t)					27.48	95% Percentile (z)					27.45
574	95% USL					45.93	99% Percentile (z)					33.39
575												
576	Gamma GOF Test											
577	A-D Test Statistic					3.545	Anderson-Darling Gamma GOF Test					
578	5% A-D Critical Value					0.763	Data Not Gamma Distributed at 5% Significance Level					
579	K-S Test Statistic					0.0569	Kolmogorov-Smirnov Gamma GOF Test					
580	5% K-S Critical Value					0.0373	Data Not Gamma Distributed at 5% Significance Level					
581	Data Not Gamma Distributed at 5% Significance Level											
582												
583	Gamma Statistics											
584	k hat (MLE)					2.757	k star (bias corrected MLE)					2.745
585	Theta hat (MLE)					4.755	Theta star (bias corrected MLE)					4.776
586	nu hat (MLE)					3573	nu star (bias corrected)					3558
587	MLE Mean (bias corrected)					13.11	MLE Sd (bias corrected)					7.913
588												
589	Background Statistics Assuming Gamma Distribution											
590	95% Wilson Hilferty (WH) Approx. Gamma UPL					28.06	90% Percentile					23.72
591	95% Hawkins Wixley (HW) Approx. Gamma UPL					28.44	95% Percentile					28.23
592	95% WH Approx. Gamma UTL with 95% Coverage					29.38	99% Percentile					38.07
593	95% HW Approx. Gamma UTL with 95% Coverage					29.87						
594	95% WH USL					65.85	95% HW USL					72.42
595												
596	Lognormal GOF Test											
597	Shapiro Wilk Test Statistic					0.977	Shapiro Wilk Lognormal GOF Test					
598	10% Shapiro Wilk P Value					0.00253	Data Not Lognormal at 10% Significance Level					
599	Lilliefors Test Statistic					0.0496	Lilliefors Lognormal GOF Test					
600	10% Lilliefors Critical Value					0.0321	Data Not Lognormal at 10% Significance Level					
601	Data Not Lognormal at 10% Significance Level											
602												
603	Background Statistics assuming Lognormal Distribution											
604	95% UTL with 95% Coverage					32.42	90% Percentile (z)					24.19
605	95% UPL (t)					30.46	95% Percentile (z)					30.39
606	95% USL					115.1	99% Percentile (z)					46.63
607												
608	Nonparametric Distribution Free Background Statistics											
609	Data do not follow a Discernible Distribution											
610												
611	Nonparametric Upper Limits for Background Threshold Values											
612	Order of Statistic, order					625	95% UTL with 95% Coverage					36.37

	A	B	C	D	E	F	G	H	I	J	K	L	
613	Approx, f used to compute achieved CC					1.314	Approximate Actual Confidence Coefficient achieved by UTL					0.927	
614							Approximate Sample Size needed to achieve specified CC					647	
615	95% Percentile Bootstrap UTL with 95% Coverage					35.89	95% BCA Bootstrap UTL with 95% Coverage					35.89	
616	95% UPL					32.79	90% Percentile					23.4	
617	90% Chebyshev UPL					39.29	95% Percentile					32.55	
618	95% Chebyshev UPL					51.14	99% Percentile					44.91	
619	95% USL					48.89							
620													
621	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
622	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
623	and consists of observations collected from clean unimpacted locations.												
624	The use of USL tends to provide a balance between false positives and false negatives provided the data												
625	represents a background data set and when many onsite observations need to be compared with the BTV.												
626													
627	Pb <40 (mg/Kg)												
628													
629	General Statistics												
630	Total Number of Observations					631	Number of Distinct Observations					631	
631	Minimum					1.324	First Quartile					7.266	
632	Second Largest					38.68	Median					10.87	
633	Maximum					39.85	Third Quartile					15.42	
634	Mean					12.26	SD					7.092	
635	Coefficient of Variation					0.578	Skewness					1.32	
636	Mean of logged Data					2.343	SD of logged Data					0.591	
637													
638	Critical Values for Background Threshold Values (BTVs)												
639	Tolerance Factor K (For UTL)					1.749	d2max (for USL)					3.758	
640													
641	Normal GOF Test												
642	Shapiro Wilk Test Statistic					0.89	Normal GOF Test						
643	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level						
644	Lilliefors Test Statistic					0.0941	Lilliefors GOF Test						
645	1% Lilliefors Critical Value					0.0412	Data Not Normal at 1% Significance Level						
646	Data Not Normal at 1% Significance Level												
647													
648	Background Statistics Assuming Normal Distribution												
649	95% UTL with 95% Coverage					24.67	90% Percentile (z)					21.35	
650	95% UPL (t)					23.95	95% Percentile (z)					23.93	
651	95% USL					38.91	99% Percentile (z)					28.76	
652													
653	Gamma GOF Test												
654	A-D Test Statistic					1.11	Anderson-Darling Gamma GOF Test						
655	5% A-D Critical Value					0.761	Data Not Gamma Distributed at 5% Significance Level						
656	K-S Test Statistic					0.0307	Kolmogorov-Smirnov Gamma GOF Test						
657	5% K-S Critical Value					0.0376	Detected data appear Gamma Distributed at 5% Significance Level						
658	Detected data follow Appr. Gamma Distribution at 5% Significance Level												
659													
660	Gamma Statistics												
661	k hat (MLE)					3.219	k star (bias corrected MLE)					3.204	
662	Theta hat (MLE)					3.81	Theta star (bias corrected MLE)					3.827	
663	nu hat (MLE)					4062	nu star (bias corrected)					4044	

	A	B	C	D	E	F	G	H	I	J	K	L
664	MLE Mean (bias corrected)					12.26	MLE Sd (bias corrected)					6.85
665												
666	Background Statistics Assuming Gamma Distribution											
667	95% Wilson Hilferty (WH) Approx. Gamma UPL					25.18	90% Percentile					21.45
668	95% Hawkins Wixley (HW) Approx. Gamma UPL					25.6	95% Percentile					25.25
669	95% WH Approx. Gamma UTL with 95% Coverage					26.31	99% Percentile					33.48
670	95% HW Approx. Gamma UTL with 95% Coverage					26.82						
671	95% WH USL					56.34	95% HW USL					61.82
672												
673	Lognormal GOF Test											
674	Shapiro Wilk Test Statistic					0.974	Shapiro Wilk Lognormal GOF Test					
675	10% Shapiro Wilk P Value					5.9141E-5	Data Not Lognormal at 10% Significance Level					
676	Lilliefors Test Statistic					0.0594	Lilliefors Lognormal GOF Test					
677	10% Lilliefors Critical Value					0.0326	Data Not Lognormal at 10% Significance Level					
678	Data Not Lognormal at 10% Significance Level											
679												
680	Background Statistics assuming Lognormal Distribution											
681	95% UTL with 95% Coverage					29.28	90% Percentile (z)					22.21
682	95% UPL (t)					27.6	95% Percentile (z)					27.53
683	95% USL					95.99	99% Percentile (z)					41.19
684												
685	Nonparametric Distribution Free Background Statistics											
686	Data appear Approximate Gamma Distribution at 5% Significance Level											
687												
688	Nonparametric Upper Limits for Background Threshold Values											
689	Order of Statistic, order					609	95% UTL with 95% Coverage					30.35
690	Approx, f used to compute achieved CC					1.333	Approximate Actual Confidence Coefficient achieved by UTL					0.934
691							Approximate Sample Size needed to achieve specified CC					624
692	95% Percentile Bootstrap UTL with 95% Coverage					30.04	95% BCA Bootstrap UTL with 95% Coverage					30.04
693	95% UPL					27.84	90% Percentile					20.6
694	90% Chebyshev UPL					33.55	95% Percentile					27.62
695	95% Chebyshev UPL					43.2	99% Percentile					36.28
696	95% USL					39.85						
697												
698	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
699	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
700	and consists of observations collected from clean unimpacted locations.											
701	The use of USL tends to provide a balance between false positives and false negatives provided the data											
702	represents a background data set and when many onsite observations need to be compared with the BTV.											
703												
704	Pb <35 (mg/Kg)											
705												
706	General Statistics											
707	Total Number of Observations					622	Number of Distinct Observations					622
708	Minimum					1.324	First Quartile					7.177
709	Second Largest					33.98	Median					10.78
710	Maximum					34.31	Third Quartile					15.11
711	Mean					11.9	SD					6.451
712	Coefficient of Variation					0.542	Skewness					1.07
713	Mean of logged Data					2.325	SD of logged Data					0.575
714												

	A	B	C	D	E	F	G	H	I	J	K	L
715	Critical Values for Background Threshold Values (BTVs)											
716	Tolerance Factor K (For UTL)					1.75	d2max (for USL)					3.754
717												
718	Normal GOF Test											
719	Shapiro Wilk Test Statistic					0.914	Normal GOF Test					
720	1% Shapiro Wilk P Value					0	Data Not Normal at 1% Significance Level					
721	Lilliefors Test Statistic					0.0803	Lilliefors GOF Test					
722	1% Lilliefors Critical Value					0.0415	Data Not Normal at 1% Significance Level					
723	Data Not Normal at 1% Significance Level											
724												
725	Background Statistics Assuming Normal Distribution											
726	95% UTL with 95% Coverage					23.19	90% Percentile (z)					20.16
727	95% UPL (t)					22.53	95% Percentile (z)					22.51
728	95% USL					36.11	99% Percentile (z)					26.9
729												
730	Gamma GOF Test											
731	A-D Test Statistic					0.701	Anderson-Darling Gamma GOF Test					
732	5% A-D Critical Value					0.76	Detected data appear Gamma Distributed at 5% Significance Level					
733	K-S Test Statistic					0.029	Kolmogorov-Smirnov Gamma GOF Test					
734	5% K-S Critical Value					0.0378	Detected data appear Gamma Distributed at 5% Significance Level					
735	Detected data appear Gamma Distributed at 5% Significance Level											
736												
737	Gamma Statistics											
738	k hat (MLE)					3.456	k star (bias corrected MLE)					3.44
739	Theta hat (MLE)					3.442	Theta star (bias corrected MLE)					3.458
740	nu hat (MLE)					4299	nu star (bias corrected)					4280
741	MLE Mean (bias corrected)					11.9	MLE Sd (bias corrected)					6.414
742												
743	Background Statistics Assuming Gamma Distribution											
744	95% Wilson Hilferty (WH) Approx. Gamma UPL					23.98	90% Percentile					20.5
745	95% Hawkins Wixley (HW) Approx. Gamma UPL					24.4	95% Percentile					24.02
746	95% WH Approx. Gamma UTL with 95% Coverage					25.03	99% Percentile					31.6
747	95% HW Approx. Gamma UTL with 95% Coverage					25.55						
748	95% WH USL					52.51	95% HW USL					57.55
749												
750	Lognormal GOF Test											
751	Shapiro Wilk Test Statistic					0.969	Shapiro Wilk Lognormal GOF Test					
752	10% Shapiro Wilk P Value					3.4959E-8	Data Not Lognormal at 10% Significance Level					
753	Lilliefors Test Statistic					0.0647	Lilliefors Lognormal GOF Test					
754	10% Lilliefors Critical Value					0.0328	Data Not Lognormal at 10% Significance Level					
755	Data Not Lognormal at 10% Significance Level											
756												
757	Background Statistics assuming Lognormal Distribution											
758	95% UTL with 95% Coverage					27.95	90% Percentile (z)					21.35
759	95% UPL (t)					26.37	95% Percentile (z)					26.31
760	95% USL					88.42	99% Percentile (z)					38.93
761												
762	Nonparametric Distribution Free Background Statistics											
763	Data appear Gamma Distributed at 5% Significance Level											
764												
765	Nonparametric Upper Limits for Background Threshold Values											

	A	B	C	D	E	F	G	H	I	J	K	L	
766	Order of Statistic, order					601	95% UTL with 95% Coverage					28.05	
767	Approx, f used to compute achieved CC					1.373	Approximate Actual Confidence Coefficient achieved by UTL					0.949	
768							Approximate Sample Size needed to achieve specified CC					600	
769	95% Percentile Bootstrap UTL with 95% Coverage					27.51	95% BCA Bootstrap UTL with 95% Coverage					27.66	
770	95% UPL					25.62	90% Percentile					19.89	
771	90% Chebyshev UPL					31.27	95% Percentile					25.38	
772	95% Chebyshev UPL					40.04	99% Percentile					32.58	
773	95% USL					34.31	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations. The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.						
774													
775													
776													
777													
778													
779													
780													
781	Pb <25 (mg/Kg)												
782													
783	General Statistics												
784	Total Number of Observations				590	Number of Distinct Observations				590			
785	Minimum				1.324	First Quartile				6.908			
786	Second Largest				24.58	Median				10.52			
787	Maximum				24.69	Third Quartile				14.27			
788	Mean				10.93	SD				5.043			
789	Coefficient of Variation				0.461	Skewness				0.4			
790	Mean of logged Data				2.267	SD of logged Data				0.532			
791													
792	Critical Values for Background Threshold Values (BTVs)												
793	Tolerance Factor K (For UTL)				1.753	d2max (for USL)				3.74			
794													
795	Normal GOF Test												
796	Shapiro Wilk Test Statistic				0.958	Normal GOF Test							
797	1% Shapiro Wilk P Value				0	Data Not Normal at 1% Significance Level							
798	Lilliefors Test Statistic				0.045	Lilliefors GOF Test							
799	1% Lilliefors Critical Value				0.0426	Data Not Normal at 1% Significance Level							
800	Data Not Normal at 1% Significance Level												
801													
802	Background Statistics Assuming Normal Distribution												
803	95% UTL with 95% Coverage				19.77	90% Percentile (z)				17.4			
804	95% UPL (t)				19.25	95% Percentile (z)				19.23			
805	95% USL				29.79	99% Percentile (z)				22.66			
806													
807	Gamma GOF Test												
808	A-D Test Statistic				2.147	Anderson-Darling Gamma GOF Test							
809	5% A-D Critical Value				0.759	Data Not Gamma Distributed at 5% Significance Level							
810	K-S Test Statistic				0.0483	Kolmogorov-Smirnov Gamma GOF Test							
811	5% K-S Critical Value				0.0385	Data Not Gamma Distributed at 5% Significance Level							
812	Data Not Gamma Distributed at 5% Significance Level												
813													
814	Gamma Statistics												
815	k hat (MLE)				4.168	k star (bias corrected MLE)				4.148			
816	Theta hat (MLE)				2.623	Theta star (bias corrected MLE)				2.636			

	A	B	C	D	E	F	G	H	I	J	K	L
817	nu hat (MLE)					4919	nu star (bias corrected)					4895
818	MLE Mean (bias corrected)					10.93	MLE Sd (bias corrected)					5.368
819												
820	Background Statistics Assuming Gamma Distribution											
821	95% Wilson Hilferty (WH) Approx. Gamma UPL					21	90% Percentile					18.13
822	95% Hawkins Wixley (HW) Approx. Gamma UPL					21.41	95% Percentile					20.99
823	95% WH Approx. Gamma UTL with 95% Coverage					21.87	99% Percentile					27.1
824	95% HW Approx. Gamma UTL with 95% Coverage					22.37						
825	95% WH USL					43.47	95% HW USL					47.46
826												
827	Lognormal GOF Test											
828	Shapiro Wilk Test Statistic					0.947	Shapiro Wilk Lognormal GOF Test					
829	10% Shapiro Wilk P Value					0	Data Not Lognormal at 10% Significance Level					
830	Lilliefors Test Statistic					0.0823	Lilliefors Lognormal GOF Test					
831	10% Lilliefors Critical Value					0.0337	Data Not Lognormal at 10% Significance Level					
832	Data Not Lognormal at 10% Significance Level											
833												
834	Background Statistics assuming Lognormal Distribution											
835	95% UTL with 95% Coverage					24.54	90% Percentile (z)					19.09
836	95% UPL (t)					23.22	95% Percentile (z)					23.17
837	95% USL					70.66	99% Percentile (z)					33.3
838												
839	Nonparametric Distribution Free Background Statistics											
840	Data do not follow a Discernible Distribution											
841												
842	Nonparametric Upper Limits for Background Threshold Values											
843	Order of Statistic, order					570	95% UTL with 95% Coverage					20.69
844	Approx, f used to compute achieved CC					1.361	Approximate Actual Confidence Coefficient achieved by UTL					0.94
845							Approximate Sample Size needed to achieve specified CC					577
846	95% Percentile Bootstrap UTL with 95% Coverage					20.61	95% BCA Bootstrap UTL with 95% Coverage					20.6
847	95% UPL					19.95	90% Percentile					17.93
848	90% Chebyshev UPL					26.07	95% Percentile					19.91
849	95% Chebyshev UPL					32.93	99% Percentile					23.51
850	95% USL					24.69						
851												
852	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
853	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
854	and consists of observations collected from clean unimpacted locations.											
855	The use of USL tends to provide a balance between false positives and false negatives provided the data											
856	represents a background data set and when many onsite observations need to be compared with the BTV.											
857												

BTV Evaluation -Full Conterminous United States

Delaware												
	Arsenic	+1	adds sample MD-2548				Lead	+1	adds sample MD-2548			
Censoring	None	None					None	None				
n	6	9					6	9				
Min	1.3	1.3					9.7	8.8				
Max	5	5					22.6	22.6				
Mean	2.88	3.03					16.47	15.74				
Median	2.20	2.36					15.30	15.70				
RPD	26.87	24.83	#####	#####	#####	#####	7.37	0.25	#####	#####	#####	#####
std d	1.638	1.377					5.006	4.759				
CV	0.568	0.455	#####	#####	#####	#####	0.304	0.302	#####	#####	#####	#####
R	0.912	0.960					0.961	0.978				
BTV Estimators												
95%UPL	6.45	5.73					27.36	25.07				
95%UTL	8.95	7.20					35.03	30.17				
95%USL	5.87	5.93					25.59	25.78				

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

Page 1 of 1

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.2 5/8/2024 2:20:46 PM								
4	From File			D:\Tramm\BACKGROUND EVAL\AEEG Article - Estimators\DRAFT ARTICLE\USGS_2013_Compiled_State_D								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	DE+1_As											
12												
13	General Statistics											
14				Total Number of Observations	9				Number of Distinct Observations	8		
15				Minimum	1.3				First Quartile	2.1		
16				Second Largest	4.9				Median	2.36		
17				Maximum	5				Third Quartile	3.8		
18				Mean	3.029				SD	1.377		
19				Coefficient of Variation	0.455				Skewness	0.377		
20				Mean of logged Data	1.011				SD of logged Data	0.477		
21												
22												
23	Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,											
24	refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.											
25	Critical Values for Background Threshold Values (BTVs)											
26				Tolerance Factor K (For UTL)	3.031				d2max (for USL)	2.11		
27												
28	Normal GOF Test											
29				Shapiro Wilk Test Statistic	0.9				Shapiro Wilk GOF Test			
30				1% Shapiro Wilk Critical Value	0.764				Data appear Normal at 1% Significance Level			
31				Lilliefors Test Statistic	0.242				Lilliefors GOF Test			
32				1% Lilliefors Critical Value	0.316				Data appear Normal at 1% Significance Level			
33	Data appear Normal at 1% Significance Level											
34	Note GOF tests may be unreliable for small sample sizes											
35												
36	Background Statistics Assuming Normal Distribution											
37				95% UTL with 95% Coverage	7.203				90% Percentile (z)	4.794		
38				95% UPL (t)	5.728				95% Percentile (z)	5.294		
39				95% USL	5.934				99% Percentile (z)	6.233		
40												
41	Gamma GOF Test											
42				A-D Test Statistic	0.382				Anderson-Darling Gamma GOF Test			
43				5% A-D Critical Value	0.723				Detected data appear Gamma Distributed at 5% Significance Level			
44				K-S Test Statistic	0.212				Kolmogorov-Smirnov Gamma GOF Test			
45				5% K-S Critical Value	0.28				Detected data appear Gamma Distributed at 5% Significance Level			
46	Detected data appear Gamma Distributed at 5% Significance Level											
47	Note GOF tests may be unreliable for small sample sizes											
48												
49	Gamma Statistics											
50				k hat (MLE)	5.283				k star (bias corrected MLE)	3.596		
51				Theta hat (MLE)	0.573				Theta star (bias corrected MLE)	0.842		
52				nu hat (MLE)	95.09				nu star (bias corrected)	64.73		
53				MLE Mean (bias corrected)	3.029				MLE Sd (bias corrected)	1.597		
54												
55	Background Statistics Assuming Gamma Distribution											
56				95% Wilson Hilferty (WH) Approx. Gamma UPL	6.365				90% Percentile	5.17		
57				95% Hawkins Wixley (HW) Approx. Gamma UPL	6.493				95% Percentile	6.042		
58				95% WH Approx. Gamma UTL with 95% Coverage	9.155				99% Percentile	7.913		
59				95% HW Approx. Gamma UTL with 95% Coverage	9.608							
60				95% WH USL	6.714				95% HW USL	6.874		
61												
62	Lognormal GOF Test											
63				Shapiro Wilk Test Statistic	0.93				Shapiro Wilk Lognormal GOF Test			
64				10% Shapiro Wilk Critical Value	0.859				Data appear Lognormal at 10% Significance Level			
65				Lilliefors Test Statistic	0.196				Lilliefors Lognormal GOF Test			
66				10% Lilliefors Critical Value	0.252				Data appear Lognormal at 10% Significance Level			
67	Data appear Lognormal at 10% Significance Level											
68	Note GOF tests may be unreliable for small sample sizes											

	A	B	C	D	E	F	G	H	I	J	K	L
69												
70	Background Statistics assuming Lognormal Distribution											
71	95% UTL with 95% Coverage				11.67		90% Percentile (z)				5.063	
72	95% UPL (t)				6.999		95% Percentile (z)				6.021	
73	95% USL				7.516		99% Percentile (z)				8.335	
74												
75	Nonparametric Distribution Free Background Statistics											
76	Data appear Normal at 1% Significance Level											
77												
78	Nonparametric Upper Limits for Background Threshold Values											
79	Order of Statistic, order				9		95% UTL with 95% Coverage				5	
80	Approx, f used to compute achieved CC				0.474		Approximate Actual Confidence Coefficient achieved by UTL				0.37	
81							Approximate Sample Size needed to achieve specified CC				59	
82	95% Percentile Bootstrap UTL with 95% Coverage				5		95% BCA Bootstrap UTL with 95% Coverage				5	
83	95% UPL				5		90% Percentile				4.92	
84	90% Chebyshev UPL				7.384		95% Percentile				4.96	
85	95% Chebyshev UPL				9.356		99% Percentile				4.992	
86	95% USL				5							
87												
88	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
89	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
90	and consists of observations collected from clean unimpacted locations.											
91	The use of USL tends to provide a balance between false positives and false negatives provided the data											
92	represents a background data set and when many onsite observations need to be compared with the BTV.											
93												
94	DE+1_Pb											
95												
96	General Statistics											
97	Total Number of Observations				9		Number of Distinct Observations				9	
98	Minimum				8.8		First Quartile				13.8	
99	Second Largest				22.1		Median				15.7	
100	Maximum				22.6		Third Quartile				17.8	
101	Mean				15.74		SD				4.759	
102	Coefficient of Variation				0.302		Skewness				0.0359	
103	Mean of logged Data				2.712		SD of logged Data				0.324	
104												
105												
106	Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,											
107	refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.											
108	Critical Values for Background Threshold Values (BTVs)											
109	Tolerance Factor K (For UTL)				3.031		d2max (for USL)				2.11	
110												
111	Normal GOF Test											
112	Shapiro Wilk Test Statistic				0.943		Shapiro Wilk GOF Test					
113	1% Shapiro Wilk Critical Value				0.764		Data appear Normal at 1% Significance Level					
114	Lilliefors Test Statistic				0.131		Lilliefors GOF Test					
115	1% Lilliefors Critical Value				0.316		Data appear Normal at 1% Significance Level					
116	Data appear Normal at 1% Significance Level											
117	Note GOF tests may be unreliable for small sample sizes											
118												
119	Background Statistics Assuming Normal Distribution											
120	95% UTL with 95% Coverage				30.17		90% Percentile (z)				21.84	
121	95% UPL (t)				25.07		95% Percentile (z)				23.57	
122	95% USL				25.78		99% Percentile (z)				26.82	
123												
124	Gamma GOF Test											
125	A-D Test Statistic				0.3		Anderson-Darling Gamma GOF Test					
126	5% A-D Critical Value				0.722		Detected data appear Gamma Distributed at 5% Significance Level					
127	K-S Test Statistic				0.146		Kolmogorov-Smirnov Gamma GOF Test					
128	5% K-S Critical Value				0.279		Detected data appear Gamma Distributed at 5% Significance Level					
129	Detected data appear Gamma Distributed at 5% Significance Level											
130	Note GOF tests may be unreliable for small sample sizes											
131												
132	Gamma Statistics											
133	k hat (MLE)				11.47		k star (bias corrected MLE)				7.723	
134	Theta hat (MLE)				1.372		Theta star (bias corrected MLE)				2.039	
135	nu hat (MLE)				206.5		nu star (bias corrected)				139	
136	MLE Mean (bias corrected)				15.74		MLE Sd (bias corrected)				5.666	

	A	B	C	D	E	F	G	H	I	J	K	L
137												
138	Background Statistics Assuming Gamma Distribution											
139	95% Wilson Hilferty (WH) Approx. Gamma UPL					26.87	90% Percentile					23.3
140	95% Hawkins Wixley (HW) Approx. Gamma UPL					27.2	95% Percentile					26.07
141	95% WH Approx. Gamma UTL with 95% Coverage					35.15	99% Percentile					31.82
142	95% HW Approx. Gamma UTL with 95% Coverage					36.15						
143	95% WH USL					27.94	95% HW USL					28.34
144												
145	Lognormal GOF Test											
146	Shapiro Wilk Test Statistic					0.927	Shapiro Wilk Lognormal GOF Test					
147	10% Shapiro Wilk Critical Value					0.859	Data appear Lognormal at 10% Significance Level					
148	Lilliefors Test Statistic					0.171	Lilliefors Lognormal GOF Test					
149	10% Lilliefors Critical Value					0.252	Data appear Lognormal at 10% Significance Level					
150	Data appear Lognormal at 10% Significance Level											
151	Note GOF tests may be unreliable for small sample sizes											
152												
153	Background Statistics assuming Lognormal Distribution											
154	95% UTL with 95% Coverage					40.17	90% Percentile (z)					22.81
155	95% UPL (t)					28.41	95% Percentile (z)					25.65
156	95% USL					29.81	99% Percentile (z)					31.98
157												
158	Nonparametric Distribution Free Background Statistics											
159	Data appear Normal at 1% Significance Level											
160												
161	Nonparametric Upper Limits for Background Threshold Values											
162	Order of Statistic, order					9	95% UTL with 95% Coverage					22.6
163	Approx, f used to compute achieved CC					0.474	Approximate Actual Confidence Coefficient achieved by UTL					0.37
164							Approximate Sample Size needed to achieve specified CC					59
165	95% Percentile Bootstrap UTL with 95% Coverage					22.6	95% BCA Bootstrap UTL with 95% Coverage					22.6
166	95% UPL					22.6	90% Percentile					22.2
167	90% Chebyshev UPL					30.79	95% Percentile					22.4
168	95% Chebyshev UPL					37.61	99% Percentile					22.56
169	95% USL					22.6						
170												
171	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
172	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
173	and consists of observations collected from clean unimpacted locations.											
174	The use of USL tends to provide a balance between false positives and false negatives provided the data											
175	represents a background data set and when many onsite observations need to be compared with the BTV.											

Normal Q-Q Plot

DE+1_As

N = 9

Mean = 3.029

Sd = 1.377

Slope = 1.412

Intercept = 3.029

Correlation, R = 0.96

DE+1_Pb

N = 9

Mean = 15.74

Sd = 4.759

Slope = 4.974

Intercept = 15.74

Correlation, R = 0.978

■ Best Fit Line

Ordered Observations

21

18

15

12

9

6

3

Theoretical Quantiles (Standard Normal)

● DE+1_As ● DE+1_Pb

-1.5

-1.0

-0.5

0.0

0.5

1.0

1.5

BTV Evaluation -Full Conterminous United States

Rhode Island												
	Arsenic	+1	adds sample CT3433				Lead	+1	adds sample CT3433			
Censoring	None	None					None	None				
n	6	9					6	9				
Min	2.8	1.3					21.3	14.6				
Max	4.3	4.3					68.2	68.2				
Mean	3.63	3.34					46.32	42.06				
Median	3.75	3.70					49.25	44.40				
RPD	-3.17	-10.11	#####	#####	#####	#####	-6.13	-5.41	#####	#####	#####	#####
std d	0.579	0.961					20.500	19.510				
CV	0.159	0.287	#####	#####	#####	#####	0.443	0.464	#####	#####	#####	#####
R	0.976	0.935					0.706	0.980				
BTV Estimators												
95%UPL	4.89	5.23					90.94	80.30				
95%UTL	5.78	6.26					122.30	101.20				
95%USL	4.69	5.37					83.67	83.22				

All concentrations in mg/kg

Data Source: USGS Data Series No. 801 (2013)

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	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.2 5/8/2024 2:22:22 PM								
4	From File			D:\Tramm\BACKGROUND EVALVAEEG Article - Estimators\DRAFT ARTICLE\USGS_2013_Compiled_State_D								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	RI_As+1											
12												
13	General Statistics											
14	Total Number of Observations				9		Number of Distinct Observations				8	
15	Minimum				1.3		First Quartile				2.8	
16	Second Largest				4.2		Median				3.7	
17	Maximum				4.3		Third Quartile				4.1	
18	Mean				3.344		SD				0.961	
19	Coefficient of Variation				0.287		Skewness				-1.235	
20	Mean of logged Data				1.156		SD of logged Data				0.374	
21												
22												
23	Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,											
24	refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.											
25	Critical Values for Background Threshold Values (BTVs)											
26	Tolerance Factor K (For UTL)				3.031		d2max (for USL)				2.11	
27												
28	Normal GOF Test											
29	Shapiro Wilk Test Statistic				0.877		Shapiro Wilk GOF Test					
30	1% Shapiro Wilk Critical Value				0.764		Data appear Normal at 1% Significance Level					
31	Lilliefors Test Statistic				0.2		Lilliefors GOF Test					
32	1% Lilliefors Critical Value				0.316		Data appear Normal at 1% Significance Level					
33	Data appear Normal at 1% Significance Level											
34	Note GOF tests may be unreliable for small sample sizes											
35												
36	Background Statistics Assuming Normal Distribution											
37	95% UTL with 95% Coverage				6.256		90% Percentile (z)				4.576	
38	95% UPL (t)				5.227		95% Percentile (z)				4.925	
39	95% USL				5.371		99% Percentile (z)				5.579	
40												
41	Gamma GOF Test											
42	A-D Test Statistic				0.689		Anderson-Darling Gamma GOF Test					
43	5% A-D Critical Value				0.722		Detected data appear Gamma Distributed at 5% Significance Level					
44	K-S Test Statistic				0.221		Kolmogorov-Smirnov Gamma GOF Test					
45	5% K-S Critical Value				0.279		Detected data appear Gamma Distributed at 5% Significance Level					
46	Detected data appear Gamma Distributed at 5% Significance Level											
47	Note GOF tests may be unreliable for small sample sizes											
48												
49	Gamma Statistics											
50	k hat (MLE)				9.848		k star (bias corrected MLE)				6.639	
51	Theta hat (MLE)				0.34		Theta star (bias corrected MLE)				0.504	
52	nu hat (MLE)				177.3		nu star (bias corrected)				119.5	
53	MLE Mean (bias corrected)				3.344		MLE Sd (bias corrected)				1.298	
54												
55	Background Statistics Assuming Gamma Distribution											
56	95% Wilson Hilferty (WH) Approx. Gamma UPL				5.92		90% Percentile				5.078	
57	95% Hawkins Wixley (HW) Approx. Gamma UPL				6.06		95% Percentile				5.725	
58	95% WH Approx. Gamma UTL with 95% Coverage				7.869		99% Percentile				7.076	
59	95% HW Approx. Gamma UTL with 95% Coverage				8.236							

	A	B	C	D	E	F	G	H	I	J	K	L
60	95% WH USL					6.17	95% HW USL					6.334
61												
62	Lognormal GOF Test											
63	Shapiro Wilk Test Statistic					0.773	Shapiro Wilk Lognormal GOF Test					
64	10% Shapiro Wilk Critical Value					0.859	Data Not Lognormal at 10% Significance Level					
65	Lilliefors Test Statistic					0.257	Lilliefors Lognormal GOF Test					
66	10% Lilliefors Critical Value					0.252	Data Not Lognormal at 10% Significance Level					
67	Data Not Lognormal at 10% Significance Level											
68												
69	Background Statistics assuming Lognormal Distribution											
70	95% UTL with		95% Coverage		9.877	90% Percentile (z)					5.131	
71			95% UPL (t)		6.615	95% Percentile (z)					5.879	
72			95% USL		6.996	99% Percentile (z)					7.587	
73												
74	Nonparametric Distribution Free Background Statistics											
75	Data appear Normal at 1% Significance Level											
76												
77	Nonparametric Upper Limits for Background Threshold Values											
78	Order of Statistic, order					9	95% UTL with 95% Coverage					4.3
79	Approx, f used to compute achieved CC					0.474	Approximate Actual Confidence Coefficient achieved by UTL					0.37
80							Approximate Sample Size needed to achieve specified CC					59
81	95% Percentile Bootstrap UTL with		95% Coverage		4.3	95% BCA Bootstrap UTL with		95% Coverage		4.3		
82			95% UPL		4.3			90% Percentile		4.22		
83			90% Chebyshev UPL		6.382			95% Percentile		4.26		
84			95% Chebyshev UPL		7.758			99% Percentile		4.292		
85			95% USL		4.3							
86												
87	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
88	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
89	and consists of observations collected from clean unimpacted locations.											
90	The use of USL tends to provide a balance between false positives and false negatives provided the data											
91	represents a background data set and when many onsite observations need to be compared with the BTV.											
92												
93	RI_Pb+1											
94												
95	General Statistics											
96	Total Number of Observations					9	Number of Distinct Observations					9
97	Minimum					14.6	First Quartile					23.4
98	Second Largest					66.5	Median					44.4
99	Maximum					68.2	Third Quartile					54.1
100	Mean					42.06	SD					19.51
101	Coefficient of Variation					0.464	Skewness					-0.0361
102	Mean of logged Data					3.622	SD of logged Data					0.543
103												
104												
105	Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,											
106	refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.											
107	Critical Values for Background Threshold Values (BTVs)											
108	Tolerance Factor K (For UTL)					3.031	d2max (for USL)					2.11
109												
110	Normal GOF Test											
111	Shapiro Wilk Test Statistic					0.939	Shapiro Wilk GOF Test					
112	1% Shapiro Wilk Critical Value					0.764	Data appear Normal at 1% Significance Level					
113	Lilliefors Test Statistic					0.164	Lilliefors GOF Test					
114	1% Lilliefors Critical Value					0.316	Data appear Normal at 1% Significance Level					
115	Data appear Normal at 1% Significance Level											
116	Note GOF tests may be unreliable for small sample sizes											
117												
118	Background Statistics Assuming Normal Distribution											

	A	B	C	D	E	F	G	H	I	J	K	L
119	95% UTL with 95% Coverage				101.2					90% Percentile (z)		67.06
120	95% UPL (t)				80.3					95% Percentile (z)		74.15
121	95% USL				83.22					99% Percentile (z)		87.44
122												
123	Gamma GOF Test											
124	A-D Test Statistic				0.325	Anderson-Darling Gamma GOF Test						
125	5% A-D Critical Value				0.724	Detected data appear Gamma Distributed at 5% Significance Level						
126	K-S Test Statistic				0.164	Kolmogorov-Smirnov Gamma GOF Test						
127	5% K-S Critical Value				0.28	Detected data appear Gamma Distributed at 5% Significance Level						
128	Detected data appear Gamma Distributed at 5% Significance Level											
129	Note GOF tests may be unreliable for small sample sizes											
130												
131	Gamma Statistics											
132	k hat (MLE)				4.429	k star (bias corrected MLE)				3.027		
133	Theta hat (MLE)				9.495	Theta star (bias corrected MLE)				13.89		
134	nu hat (MLE)				79.72	nu star (bias corrected)				54.48		
135	MLE Mean (bias corrected)				42.06	MLE Sd (bias corrected)				24.17		
136												
137	Background Statistics Assuming Gamma Distribution											
138	95% Wilson Hilferty (WH) Approx. Gamma UPL				93.46	90% Percentile				74.47		
139	95% Hawkins Wixley (HW) Approx. Gamma UPL				96.33	95% Percentile				88.03		
140	95% WH Approx. Gamma UTL with 95% Coverage				137.7	99% Percentile				117.4		
141	95% HW Approx. Gamma UTL with 95% Coverage				147.1							
142	95% WH USL				98.97	95% HW USL				102.5		
143												
144	Lognormal GOF Test											
145	Shapiro Wilk Test Statistic				0.918	Shapiro Wilk Lognormal GOF Test						
146	10% Shapiro Wilk Critical Value				0.859	Data appear Lognormal at 10% Significance Level						
147	Lilliefors Test Statistic				0.179	Lilliefors Lognormal GOF Test						
148	10% Lilliefors Critical Value				0.252	Data appear Lognormal at 10% Significance Level						
149	Data appear Lognormal at 10% Significance Level											
150	Note GOF tests may be unreliable for small sample sizes											
151												
152	Background Statistics assuming Lognormal Distribution											
153	95% UTL with 95% Coverage				193.8	90% Percentile (z)				74.99		
154	95% UPL (t)				108.4	95% Percentile (z)				91.34		
155	95% USL				117.5	99% Percentile (z)				132.2		
156												
157	Nonparametric Distribution Free Background Statistics											
158	Data appear Normal at 1% Significance Level											
159												
160	Nonparametric Upper Limits for Background Threshold Values											
161	Order of Statistic, order				9	95% UTL with 95% Coverage				68.2		
162	Approx, f used to compute achieved CC				0.474	Approximate Actual Confidence Coefficient achieved by UTL				0.37		
163						Approximate Sample Size needed to achieve specified CC				59		
164	95% Percentile Bootstrap UTL with 95% Coverage				68.2	95% BCA Bootstrap UTL with 95% Coverage				68.2		
165	95% UPL				68.2	90% Percentile				66.84		
166	90% Chebyshev UPL				103.8	95% Percentile				67.52		
167	95% Chebyshev UPL				131.7	99% Percentile				68.06		
168	95% USL				68.2							
169												
170	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
171	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
172	and consists of observations collected from clean unimpacted locations.											
173	The use of USL tends to provide a balance between false positives and false negatives provided the data											
174	represents a background data set and when many onsite observations need to be compared with the BTV.											
175												

Q-Q Plot for RI_As+1

RI_As+1

N = 9

Mean = 3.344

Sd = 0.961

Slope = 0.959

Intercept = 3.344

Correlation, R = 0.935

■ Best Fit Line

RI_As+1

4.0

3.5

3.0

2.5

2.0

1.5

-1.5

-1.0

-0.5

0.0

0.5

1.0

1.5

Theoretical Quantiles (Standard Normal)



Q-Q Plot for RI_Pb+1

RI_Pb+1

N = 9

Mean = 42.06

Sd = 19.51

Slope = 20.44

Intercept = 42.06

Correlation, R = 0.98

Best Fit Line

RI_Pb+1

64

56

48

40

32

24

16

-1.5

-1.0

-0.5

0.0

0.5

1.0

1.5

Theoretical Quantiles (Standard Normal)

Data Treatment Summary – Non-detect Samples (2013 Dataset)

Data Treatment Summary – Non-detect Samples (2013 Dataset)		
State	Arsenic (As)	Lead (Pb)
AL	2 ND samples (0.3)	No ND samples
AR	No ND samples	No ND samples
AZ	No ND samples	No ND samples
CA	3 ND samples (0.3)	No ND samples
CO	1 ND samples (0.3)	No ND samples
CT	No ND samples	No ND samples
DE	No ND samples (Small Dataset)	No ND samples (Small Dataset)
FL	135 ND samples (Exceeds BTV Criteria)	7 ND samples (0.25)
GA	17 ND samples (0.3)	No ND samples
IA	No ND samples	No ND samples
ID	No ND samples	No ND samples
IL	No ND samples	No ND samples
IN	No ND samples	No ND samples
KS	No ND samples	No ND samples
KY	No ND samples	No ND samples
LA	No ND samples	No ND samples
MA	No ND samples	No ND samples
MD	No ND samples	No ND samples
ME	No ND samples	No ND samples
MI	4 ND samples (0.3)	No ND samples
MN	2 ND samples (0.3)	No ND samples
MO	No ND samples	No ND samples
MS	1 ND samples (0.3)	No ND samples
MT	1 ND samples (0.3)	No ND samples
NC	11 ND samples (0.3)	No ND samples
ND	No ND samples	No ND samples
NE	No ND samples	No ND samples
NH	No ND samples	No ND samples
NJ	1 ND samples (0.3)	No ND samples
NM	3 ND samples (0.3)	No ND samples
NV	No ND samples	No ND samples
NY	1 ND samples (0.3)	No ND samples
OH	No ND samples	No ND samples
OK	No ND samples	No ND samples
OR	1 ND samples (0.3)	No ND samples
PA	No ND samples	No ND samples
RI	No ND samples (Small Dataset)	No ND samples (Small Dataset)
SC	6 ND samples (0.3)	No ND samples
SD	No ND samples	No ND samples
TN	No ND samples	No ND samples
TX	No ND samples	No ND samples
UT	No ND samples	No ND samples

Data Treatment Summary – Non-detect Samples (2013 Dataset)		
State	Arsenic (As)	Lead (Pb)
VA	No ND samples	No ND samples
VT	No ND samples	No ND samples
WA	No ND samples	No ND samples
WI	3 ND samples (0.3)	No ND samples
WV	No ND samples	No ND samples
WY	3 ND samples (0.3)	No ND samples

Remarks:

ND = Not Detected above the laboratory method detection limit

(#) = surrogate value in mg/kg used for the ND samples. Represents half of the laboratory method detection limit