APPENDIX C

PROUCL OUTPUTS FOR DISCRETE SAMPLE DEPTH COMPARISON

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 12:24:28 AM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Aluminum(d1)

Sample 2 Data: Aluminum(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	28
Minimum	5858	6561
Maximum	28940	32220
Mean	13669	14717
Median	11990	13236
SD	5723	6672
SE of Mean	1063	1239

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	-0.642	-2.003	2.003	0.523
Welch-Satterthwaite (Unequal Varian	54.7	-0.642	-2.004	2.004	0.523

Pooled SD: 6215.758

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	32758244
Variance of Sample 2	44513054

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	1.359	0.422

Conclusion with Alpha = 0.05

Two variances appear to be equal

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 3:02:31 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Antimony(d1)

Sample 2 Data: Antimony(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	29
Minimum	0.303	0.325
Maximum	18.38	10.47
Mean	2.048	1.688
Median	1.144	1.13
SD	3.383	2.056
SE of Mean	0.628	0.382

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	0.490	-2.003	2.003	0.626
Welch-Satterthwaite (Unequal Varian	46.2	0.490	-2.013	2.013	0.627

Pooled SD: 2.799

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	11.44
Variance of Sample 2	4.228

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	2.706	0.010

Conclusion with Alpha = 0.05

Two variances are not equal

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 3:00:44 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Arsenic(d1)

Sample 2 Data: Arsenic(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	29
Minimum	3.188	3.902
Maximum	90.36	43.25
Mean	12.33	11.59
Median	9.252	10.51
SD	15.73	7.879
SE of Mean	2.922	1.463

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	0.226	-2.003	2.003	0.822
Welch-Satterthwaite (Unequal Varian	41.2	0.226	-2.020	2.020	0.822

Pooled SD: 12.442

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	247.5
Variance of Sample 2	62.08

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	3.988	0.000

Conclusion with Alpha = 0.05

Two variances are not equal

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 3:06:01 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Barium(d1)

Sample 2 Data: Barium(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	29
Minimum	75.01	74.46
Maximum	1041	342.3
Mean	197.9	176.7
Median	154.4	173.9
SD	174.7	68.04
SE of Mean	32.45	12.63

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	0.610	-2.003	2.003	0.544
Welch-Satterthwaite (Unequal Varian	36.3	0.610	-2.028	2.028	0.545

Pooled SD: 132.599

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	30536
Variance of Sample 2	4629

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	6.597	0.000

Conclusion with Alpha = 0.05

Two variances are not equal

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 3:08:22 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Beryllium(d1)

Sample 2 Data: Beryllium(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	29
Minimum	0.256	0.287
Maximum	0.79	0.872
Mean	0.47	0.5
Median	0.454	0.51
SD	0.154	0.172
SE of Mean	0.0286	0.0319

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	-0.690	-2.003	2.003	0.493
Welch-Satterthwaite (Unequal Varian	55.3	-0.690	-2.004	2.004	0.493

Pooled SD: 0.163

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	0.0237
Variance of Sample 2	0.0296

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	1.251	0.557

Conclusion with Alpha = 0.05

Two variances appear to be equal

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 3:12:59 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Cadmium(d1)

Sample 2 Data: Cadmium(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	29
Minimum	0.78	0.728
Maximum	16.08	13.88
Mean	3.274	2.925
Median	2.24	2.399
SD	3.145	2.799
SE of Mean	0.584	0.52

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	0.446	-2.003	2.003	0.658
Welch-Satterthwaite (Unequal Varian	55.3	0.446	-2.004	2.004	0.658

Pooled SD: 2.977

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	9.891
Variance of Sample 2	7.832

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	1.263	0.541

Conclusion with Alpha = 0.05

Two variances appear to be equal

Wilcoxon-Mann-Whitney Sample 1 vs Sample 2 Comparison Test for Uncensor Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 3:35:39 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0.000
Selected Null Hypothesis	Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean/Median <> Sample 2 Mean/Median

Sample 1 Data: Calcium(d1)

Sample 2 Data: Calcium(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	29
Minimum	2943	2662
Maximum	24379	12046
Mean	6396	5521
Median	4702	4134
SD	4728	3084
SE of Mean	878	572.7

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Sample 1 = Mean/Median of Sample 2

Sample 1 Rank Sum W-Stat	915
WMW U-Stat	480
Standardized WMW U-Stat	0.918
Mean (U)	420.5
SD(U) - Adj ties	64.3
Lower Approximate U-Stat Critical Value (0.025)	-1.96
Upper Approximate U-Stat Critical Value (0.975)	1.96
P-Value (Adjusted for Ties)	0.359

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value >= alpha (0.05)

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 3:18:48 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Chromium(d1)

Sample 2 Data: Chromium(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	29
Minimum	10.5	11.02
Maximum	47.76	51.58
Mean	19.05	19.83
Median	17.51	18.27
SD	7.024	7.798
SE of Mean	1.304	1.448

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	-0.400	-2.003	2.003	0.691
Welch-Satterthwaite (Unequal Varian	55.4	-0.400	-2.004	2.004	0.691

Pooled SD: 7.421

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	49.34
Variance of Sample 2	60.81

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	1.232	0.584

Conclusion with Alpha = 0.05

Two variances appear to be equal

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 3:48:25 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Cobalt(d1)

Sample 2 Data: Cobalt(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	28	29
Minimum	3.037	3.346
Maximum	13.14	13.98
Mean	6.146	6.443
Median	5.669	5.958
SD	1.946	2.046
SE of Mean	0.361	0.38

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	-0.566	-2.003	2.003	0.574
Welch-Satterthwaite (Unequal Varian	55.9	-0.566	-2.003	2.003	0.574

Pooled SD: 1.997

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	3.787
Variance of Sample 2	4.187

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	1.106	0.792

Conclusion with Alpha = 0.05

Two variances appear to be equal

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 3:50:19 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Copper(d1)

Sample 2 Data: Copper(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	29
Minimum	9.738	10.08
Maximum	67.05	46.14
Mean	21.14	21.1
Median	17.78	17.71
SD	11.61	9.579
SE of Mean	2.156	1.779

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	0.016	-2.003	2.003	0.987
Welch-Satterthwaite (Unequal Varian	54.0	0.016	-2.005	2.005	0.987

Pooled SD: 10.644

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	134.8
Variance of Sample 2	91.76

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	1.469	0.314

Conclusion with Alpha = 0.05

Two variances appear to be equal

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 3:52:20 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Iron(d1)

Sample 2 Data: Iron(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	28
Minimum	10087	10767
Maximum	28070	29120
Mean	16878	17525
Median	17040	17590
SD	3380	3555
SE of Mean	627.6	660.1

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	-0.710	-2.003	2.003	0.481
Welch-Satterthwaite (Unequal Varian	55.9	-0.710	-2.003	2.003	0.481

Pooled SD: 3468.264

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	11422970
Variance of Sample 2	12634745

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	1.106	0.792

Conclusion with Alpha = 0.05

Two variances appear to be equal

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 12:26:42 AM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Lead(d1)

Sample 2 Data: Lead(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	29
Minimum	26.12	27.68
Maximum	1188	429.2
Mean	156.7	109.1
Median	99.6	94.18
SD	221.2	91.21
SE of Mean	41.08	16.94

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	1.072	-2.003	2.003	0.288
Welch-Satterthwaite (Unequal Varian	37.3	1.072	-2.026	2.026	0.290

Pooled SD: 169.199

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	48937
Variance of Sample 2	8320

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	5.882	0.000

Conclusion with Alpha = 0.05

Two variances are not equal

Wilcoxon-Mann-Whitney Sample 1 vs Sample 2 Comparison Test for Uncensor Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 3:26:40 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0.000
Selected Null Hypothesis	Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean/Median <> Sample 2 Mean/Median

Sample 1 Data: Magnesium(d1)

Sample 2 Data: Magnesium(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	29
Minimum	2196	2257
Maximum	9489	9913
Mean	3907	3969
Median	3623	3630
SD	1341	1428
SE of Mean	249.1	265.1

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Sample 1 = Mean/Median of Sample 2

Sample 1 Rank Sum W-Stat	834
WMW U-Stat	399
Standardized WMW U-Stat	0.327
Mean (U)	420.5
SD(U) - Adj ties	64.3
Lower Approximate U-Stat Critical Value (0.025)	-1.96
Upper Approximate U-Stat Critical Value (0.975)	1.96
P-Value (Adjusted for Ties)	0.744

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value >= alpha (0.05)

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 3:54:49 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Manganese(d1)

Sample 2 Data: Manganese(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	29
Minimum	237.6	231.7
Maximum	988.3	1131
Mean	470.2	507.7
Median	453.8	483.8
SD	168.6	196.6
SE of Mean	31.31	36.51

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	-0.780	-2.003	2.003	0.439
Welch-Satterthwaite (Unequal Varian	54.7	-0.780	-2.004	2.004	0.439

Pooled SD: 183.156

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	28430
Variance of Sample 2	38662

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	1.360	0.421

Conclusion with Alpha = 0.05

Two variances appear to be equal

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 3:57:21 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Nickel(d1)

Sample 2 Data: Nickel(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	29
Minimum	8.132	8.512
Maximum	39.4	41.61
Mean	16.1	16.48
Median	13.83	14.49
SD	6.524	6.829
SE of Mean	1.212	1.268

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	-0.218	-2.003	2.003	0.828
Welch-Satterthwaite (Unequal Varian	55.9	-0.218	-2.003	2.003	0.828

Pooled SD: 6.678

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	42.57
Variance of Sample 2	46.63

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	1.096	0.811

Conclusion with Alpha = 0.05

Two variances appear to be equal

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 3:59:08 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Potassium(d1)

Sample 2 Data: Potassium(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	29
Minimum	986.2	962.6
Maximum	4956	5144
Mean	1972	1897
Median	1957	1894
SD	715.3	745.1
SE of Mean	132.8	138.4

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	0.388	-2.003	2.003	0.699
Welch-Satterthwaite (Unequal Varian	55.9	0.388	-2.003	2.003	0.699

Pooled SD: 730.326

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	511607
Variance of Sample 2	555146

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	1.085	0.830

Conclusion with Alpha = 0.05

Two variances appear to be equal

Wilcoxon-Mann-Whitney Sample 1 vs Sample 2 Comparison Test for Uncensor Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 3:38:05 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0.000
Selected Null Hypothesis	Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean/Median <> Sample 2 Mean/Median

Sample 1 Data: Selenium(d1)

Sample 2 Data: Selenium(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	28
Minimum	0.127	0.119
Maximum	2.103	2.399
Mean	0.382	0.404
Median	0.244	0.264
SD	0.403	0.448
SE of Mean	0.0748	0.0831

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Sample 1 = Mean/Median of Sample 2

Sample 1 Rank Sum W-Stat	830
WMW U-Stat	395
Standardized WMW U-Stat	-0.397
Mean (U)	420.5
SD(U) - Adj ties	64.3
Lower Approximate U-Stat Critical Value (0.025)	-1.96
Upper Approximate U-Stat Critical Value (0.975)	1.96
P-Value (Adjusted for Ties)	0.692

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value >= alpha (0.05)

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 9:29:57 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Silver(d1)

Sample 2 Data: Silver(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	29
Minimum	0.0753	0.0725
Maximum	0.896	0.478
Mean	0.233	0.2
Median	0.168	0.159
SD	0.179	0.114
SE of Mean	0.0333	0.0212

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	0.843	-2.003	2.003	0.403
Welch-Satterthwaite (Unequal Varian	47.4	0.843	-2.012	2.012	0.403

Pooled SD: 0.150

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	0.0322
Variance of Sample 2	0.013

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	2.478	0.019

Conclusion with Alpha = 0.05

Two variances are not equal

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 4:01:57 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Sodium(d1)

Sample 2 Data: Sodium(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	29
Minimum	44.08	45.42
Maximum	330.5	345
Mean	167.3	173.1
Median	151.9	155.1
SD	71.07	73.29
SE of Mean	13.2	13.61

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	-0.309	-2.003	2.003	0.759
Welch-Satterthwaite (Unequal Varian	55.9	-0.309	-2.003	2.003	0.759

Pooled SD: 72.187

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	5051
Variance of Sample 2	5371

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	1.063	0.872

Conclusion with Alpha = 0.05

Two variances appear to be equal

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 4:03:47 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Thallium(d1)

Sample 2 Data: Thallium(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	29
Minimum	0.115	0.11
Maximum	0.917	0.492
Mean	0.242	0.21
Median	0.197	0.18
SD	0.155	0.0863
SE of Mean	0.0288	0.016

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	0.980	-2.003	2.003	0.331
Welch-Satterthwaite (Unequal Varian	43.8	0.980	-2.015	2.015	0.333

Pooled SD: 0.126

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	0.0241
Variance of Sample 2	0.00744

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	3.240	0.003

Conclusion with Alpha = 0.05

Two variances are not equal

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 4:05:44 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Vanadium(d1)

Sample 2 Data: Vanadium(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	29
Minimum	17.37	18.05
Maximum	54.62	57.61
Mean	28.74	29.51
Median	28.35	29.63
SD	7.123	7.694
SE of Mean	1.323	1.429

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	-0.400	-2.003	2.003	0.691
Welch-Satterthwaite (Unequal Varian	55.7	-0.400	-2.003	2.003	0.691

Pooled SD: 7.414

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	50.74
Variance of Sample 2	59.2

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	1.167	0.686

Conclusion with Alpha = 0.05

Two variances appear to be equal

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.11/29/2017 4:07:27 PM
From File	groupby.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean = Sample 2 Mean (Two Sided Alternative)
Alternative Hypothesis	Sample 1 Mean <> Sample 2 Mean

Sample 1 Data: Zinc(d1)

Sample 2 Data: Zinc(d6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	29	29
Number of Distinct Observations	29	29
Minimum	69.99	72.66
Maximum	623.4	497
Mean	187.1	161.4
Median	158.1	139
SD	127.9	100.9
SE of Mean	23.75	18.73

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 = Mean of Sample 2

		t-Test	Lower C.Val	Upper C.Val	
Method	DF	Value	t (0.025)	t (0.975)	P-Value
Pooled (Equal Variance)	56	0.848	-2.003	2.003	0.400
Welch-Satterthwaite (Unequal Varian	53.1	0.848	-2.006	2.006	0.400

Pooled SD: 115.167

Conclusion with Alpha = 0.050

Student t (Pooled): Do Not Reject H0, Conclude Sample 1 = Sample 2

Welch-Satterthwaite: Do Not Reject H0, Conclude Sample 1 = Sample 2

Test of Equality of Variances

Variance of Sample 1	16353
Variance of Sample 2	10173

Numerator DF	Denominator DF	F-Test Value	P-Value
28	28	1.607	0.215

Conclusion with Alpha = 0.05

Two variances appear to be equal

	A	B	C	D	E	F	G	H	I	J	K	L
1				**Goodness-of-Fit Test Statistics for Uncensored Full Data Sets without Non-Detects**								
2			**User Selected Options**									
3			Date/Time of Computation	ProUCL 5.11/29/2017 12:33:08 AM								
4			From File	groupby.xls								
5			Full Precision	OFF								
6			Confidence Coefficient	0.95								
7												
8												
9	**Aluminum (d1)**											
10												
11			**Raw Statistics**									
12			Number of Valid Observations	29								
13			Number of Distinct Observations	29								
14			Minimum	5858								
15			Maximum	28940								
16			Mean of Raw Data	13669								
17			Standard Deviation of Raw Data	5723								
18			Khat	6.925								
19			Theta hat	1974								
20			Kstar	6.231								
21			Theta star	2194								
22			Mean of Log Transformed Data	9.449								
23			Standard Deviation of Log Transformed Data	0.383								
24												
25			**Normal GOF Test Results**									
26												
27			Correlation Coefficient R	0.936								
28			Shapiro Wilk Test Statistic	0.875								
29			Shapiro Wilk Critical (0.05) Value	0.926								
30			Approximate Shapiro Wilk P Value	0.00223								
31			Lilliefors Test Statistic	0.179								
32			Lilliefors Critical (0.05) Value	0.161								
33	**Data not Normal at (0.05) Significance Level**											
34												
35			**Gamma GOF Test Results**									
36												
37			Correlation Coefficient R	0.974								
38			A-D Test Statistic	0.541								
39			A-D Critical (0.05) Value	0.747								
40			K-S Test Statistic	0.141								
41			K-S Critical(0.05) Value	0.163								
42	**Data appear Gamma Distributed at (0.05) Significance Level**											
43												
44			**Lognormal GOF Test Results**									
45												
46			Correlation Coefficient R	0.988								
47			Shapiro Wilk Test Statistic	0.973								
48			Shapiro Wilk Critical (0.05) Value	0.926								
49			Approximate Shapiro Wilk P Value	0.672								
50			Lilliefors Test Statistic	0.117								

	A	B	C	D	E	F	G	H	I	J	K	L
51					Lilliefors Critical (0.05) Value	0.161						
52	**Data appear Lognormal at (0.05) Significance Level**											
53												
54	**Aluminum (d6)**											
55												
56				**Raw Statistics**								
57					Number of Valid Observations	29						
58					Number of Distinct Observations	28						
59					Minimum	6561						
60					Maximum	32220						
61					Mean of Raw Data	14717						
62					Standard Deviation of Raw Data	6672						
63					Khat	6.263						
64					Theta hat	2350						
65					Kstar	5.638						
66					Theta star	2610						
67					Mean of Log Transformed Data	9.515						
68					Standard Deviation of Log Transformed Data	0.398						
69												
70				**Normal GOF Test Results**								
71												
72					Correlation Coefficient R	0.909						
73					Shapiro Wilk Test Statistic	0.824						
74					Shapiro Wilk Critical (0.05) Value	0.926						
75					Approximate Shapiro Wilk P Value	1.4118E-4						
76					Lilliefors Test Statistic	0.194						
77					Lilliefors Critical (0.05) Value	0.161						
78	**Data not Normal at (0.05) Significance Level**											
79												
80				**Gamma GOF Test Results**								
81												
82					Correlation Coefficient R	0.955						
83					A-D Test Statistic	0.788						
84					A-D Critical (0.05) Value	0.747						
85					K-S Test Statistic	0.153						
86					K-S Critical(0.05) Value	0.163						
87	**Data follow Appr. Gamma Distribution at (0.05) Significance Level**											
88												
89				**Lognormal GOF Test Results**								
90												
91					Correlation Coefficient R	0.978						
92					Shapiro Wilk Test Statistic	0.951						
93					Shapiro Wilk Critical (0.05) Value	0.926						
94					Approximate Shapiro Wilk P Value	0.223						
95					Lilliefors Test Statistic	0.127						
96					Lilliefors Critical (0.05) Value	0.161						
97	**Data appear Lognormal at (0.05) Significance Level**											
98												
144	**Antimony (d1)**											
145												

	A	B	C	D	E	F	G	H	I	J	K	L
146	**Raw Statistics**											
147	Number of Valid Observations					29						
148	Number of Distinct Observations					29						
149	Minimum					0.303						
150	Maximum					18.38						
151	Mean of Raw Data					2.048						
152	Standard Deviation of Raw Data					3.383						
153	Khat					1.106						
154	Theta hat					1.852						
155	Kstar					1.014						
156	Theta star					2.019						
157	Mean of Log Transformed Data					0.201						
158	Standard Deviation of Log Transformed Data					0.89						
159												
160	**Normal GOF Test Results**											
161												
162	Correlation Coefficient R					0.656						
163	Shapiro Wilk Test Statistic					0.463						
164	Shapiro Wilk Critical (0.05) Value					0.926						
165	Approximate Shapiro Wilk P Value					6.597E-11						
166	Lilliefors Test Statistic					0.306						
167	Lilliefors Critical (0.05) Value					0.161						
168	**Data not Normal at (0.05) Significance Level**											
169												
170	**Gamma GOF Test Results**											
171												
172	Correlation Coefficient R					0.852						
173	A-D Test Statistic					1.829						
174	A-D Critical (0.05) Value					0.772						
175	K-S Test Statistic					0.241						
176	K-S Critical(0.05) Value					0.167						
177	**Data not Gamma Distributed at (0.05) Significance Level**											
178												
179	**Lognormal GOF Test Results**											
180												
181	Correlation Coefficient R					0.962						
182	Shapiro Wilk Test Statistic					0.933						
183	Shapiro Wilk Critical (0.05) Value					0.926						
184	Approximate Shapiro Wilk P Value					0.0734						
185	Lilliefors Test Statistic					0.17						
186	Lilliefors Critical (0.05) Value					0.161						
187	**Data appear Approximate_Lognormal at (0.05) Significance Level**											
188												
189	**Antimony (d6)**											
190												
191	**Raw Statistics**											
192	Number of Valid Observations					29						
193	Number of Distinct Observations					29						
194	Minimum					0.325						
195	Maximum					10.47						

	A	B	C	D	E	F	G	H	I	J	K	L
196					Mean of Raw Data	1.688						
197					Standard Deviation of Raw Data	2.056						
198					Khat	1.477						
199					Theta hat	1.142						
200					Kstar	1.347						
201					Theta star	1.252						
202					Mean of Log Transformed Data	0.148						
203					Standard Deviation of Log Transformed Data	0.795						
204												
205	**Normal GOF Test Results**											
206												
207					Correlation Coefficient R	0.744						
208					Shapiro Wilk Test Statistic	0.578						
209					Shapiro Wilk Critical (0.05) Value	0.926						
210					Approximate Shapiro Wilk P Value	3.3595E-9						
211					Lilliefors Test Statistic	0.319						
212					Lilliefors Critical (0.05) Value	0.161						
213	**Data not Normal at (0.05) Significance Level**											
214												
215	**Gamma GOF Test Results**											
216												
217					Correlation Coefficient R	0.901						
218					A-D Test Statistic	1.521						
219					A-D Critical (0.05) Value	0.763						
220					K-S Test Statistic	0.19						
221					K-S Critical(0.05) Value	0.166						
222	**Data not Gamma Distributed at (0.05) Significance Level**											
223												
224	**Lognormal GOF Test Results**											
225												
226					Correlation Coefficient R	0.967						
227					Shapiro Wilk Test Statistic	0.938						
228					Shapiro Wilk Critical (0.05) Value	0.926						
229					Approximate Shapiro Wilk P Value	0.0982						
230					Lilliefors Test Statistic	0.125						
231					Lilliefors Critical (0.05) Value	0.161						
232	**Data appear Lognormal at (0.05) Significance Level**											
278												
279	**Arsenic (d1)**											
280												
281	**Raw Statistics**											
282					Number of Valid Observations	29						
283					Number of Distinct Observations	29						
284					Minimum	3.188						
285					Maximum	90.36						
286					Mean of Raw Data	12.33						
287					Standard Deviation of Raw Data	15.73						
288					Khat	1.92						
289					Theta hat	6.423						
290					Kstar	1.744						

	A	B	C	D	E	F	G	H	I	J	K	L
291					Theta star	7.069						
292					Mean of Log Transformed Data	2.229						
293					Standard Deviation of Log Transformed Data	0.634						
294												
295	**Normal GOF Test Results**											
296												
297					Correlation Coefficient R	0.632						
298					Shapiro Wilk Test Statistic	0.434						
299					Shapiro Wilk Critical (0.05) Value	0.926						
300					Approximate Shapiro Wilk P Value	2.627E-11						
301					Lilliefors Test Statistic	0.345						
302					Lilliefors Critical (0.05) Value	0.161						
303	**Data not Normal at (0.05) Significance Level**											
304												
305	**Gamma GOF Test Results**											
306												
307					Correlation Coefficient R	0.782						
308					A-D Test Statistic	2.104						
309					A-D Critical (0.05) Value	0.758						
310					K-S Test Statistic	0.237						
311					K-S Critical(0.05) Value	0.165						
312	**Data not Gamma Distributed at (0.05) Significance Level**											
313												
314	**Lognormal GOF Test Results**											
315												
316					Correlation Coefficient R	0.929						
317					Shapiro Wilk Test Statistic	0.885						
318					Shapiro Wilk Critical (0.05) Value	0.926						
319					Approximate Shapiro Wilk P Value	0.00421						
320					Lilliefors Test Statistic	0.16						
321					Lilliefors Critical (0.05) Value	0.161						
322	**Data appear Approximate_Lognormal at (0.05) Significance Level**											
323												
324	**Arsenic (d6)**											
325												
326	**Raw Statistics**											
327					Number of Valid Observations	29						
328					Number of Distinct Observations	29						
329					Minimum	3.902						
330					Maximum	43.25						
331					Mean of Raw Data	11.59						
332					Standard Deviation of Raw Data	7.879						
333					Khat	3.42						
334					Theta hat	3.389						
335					Kstar	3.09						
336					Theta star	3.752						
337					Mean of Log Transformed Data	2.297						
338					Standard Deviation of Log Transformed Data	0.534						
339												
340	**Normal GOF Test Results**											

	A	B	C	D	E	F	G	H	I	J	K	L
341												
342					Correlation Coefficient R	0.838						
343					Shapiro Wilk Test Statistic	0.725						
344					Shapiro Wilk Critical (0.05) Value	0.926						
345					Approximate Shapiro Wilk P Value	1.1863E-6						
346					Lilliefors Test Statistic	0.269						
347					Lilliefors Critical (0.05) Value	0.161						
348	**Data not Normal at (0.05) Significance Level**											
349												
350				**Gamma GOF Test Results**								
351												
352					Correlation Coefficient R	0.926						
353					A-D Test Statistic	0.971						
354					A-D Critical (0.05) Value	0.752						
355					K-S Test Statistic	0.192						
356					K-S Critical(0.05) Value	0.164						
357	**Data not Gamma Distributed at (0.05) Significance Level**											
358												
359				**Lognormal GOF Test Results**								
360												
361					Correlation Coefficient R	0.97						
362					Shapiro Wilk Test Statistic	0.946						
363					Shapiro Wilk Critical (0.05) Value	0.926						
364					Approximate Shapiro Wilk P Value	0.167						
365					Lilliefors Test Statistic	0.151						
366					Lilliefors Critical (0.05) Value	0.161						
367	**Data appear Lognormal at (0.05) Significance Level**											
368												
418	**Barium (d1)**											
419												
420				**Raw Statistics**								
421					Number of Valid Observations	29						
422					Number of Distinct Observations	29						
423					Minimum	75.01						
424					Maximum	1041						
425					Mean of Raw Data	197.9						
426					Standard Deviation of Raw Data	174.7						
427					Khat	3.024						
428					Theta hat	65.46						
429					Kstar	2.734						
430					Theta star	72.4						
431					Mean of Log Transformed Data	5.114						
432					Standard Deviation of Log Transformed Data	0.525						
433												
434				**Normal GOF Test Results**								
435												
436					Correlation Coefficient R	0.699						
437					Shapiro Wilk Test Statistic	0.524						
438					Shapiro Wilk Critical (0.05) Value	0.926						
439					Approximate Shapiro Wilk P Value	4.967E-10						

	A	B	C	D	E	F	G	H	I	J	K	L
440					Lilliefors Test Statistic	0.272						
441					Lilliefors Critical (0.05) Value	0.161						
442	**Data not Normal at (0.05) Significance Level**											
443												
444				**Gamma GOF Test Results**								
445												
446					Correlation Coefficient R	0.81						
447					A-D Test Statistic	1.328						
448					A-D Critical (0.05) Value	0.753						
449					K-S Test Statistic	0.156						
450					K-S Critical(0.05) Value	0.164						
451	**Data follow Appr. Gamma Distribution at (0.05) Significance Level**											
452												
453				**Lognormal GOF Test Results**								
454												
455					Correlation Coefficient R	0.939						
456					Shapiro Wilk Test Statistic	0.898						
457					Shapiro Wilk Critical (0.05) Value	0.926						
458					Approximate Shapiro Wilk P Value	0.00911						
459					Lilliefors Test Statistic	0.11						
460					Lilliefors Critical (0.05) Value	0.161						
461	**Data appear Approximate_Lognormal at (0.05) Significance Level**											
462												
463	**Barium (d6)**											
464												
465				**Raw Statistics**								
466					Number of Valid Observations	29						
467					Number of Distinct Observations	29						
468					Minimum	74.46						
469					Maximum	342.3						
470					Mean of Raw Data	176.7						
471					Standard Deviation of Raw Data	68.04						
472					Khat	6.801						
473					Theta hat	25.98						
474					Kstar	6.12						
475					Theta star	28.87						
476					Mean of Log Transformed Data	5.099						
477					Standard Deviation of Log Transformed Data	0.403						
478												
479				**Normal GOF Test Results**								
480												
481					Correlation Coefficient R	0.981						
482					Shapiro Wilk Test Statistic	0.957						
483					Shapiro Wilk Critical (0.05) Value	0.926						
484					Approximate Shapiro Wilk P Value	0.306						
485					Lilliefors Test Statistic	0.108						
486					Lilliefors Critical (0.05) Value	0.161						
487	**Data appear Normal at (0.05) Significance Level**											
488												
489				**Gamma GOF Test Results**								

490												
491					Correlation Coefficient R	0.988						
492					A-D Test Statistic	0.361						
493					A-D Critical (0.05) Value	0.747						
494					K-S Test Statistic	0.115						
495					K-S Critical(0.05) Value	0.163						
496	**Data appear Gamma Distributed at (0.05) Significance Level**											
497												
498				**Lognormal GOF Test Results**								
499												
500					Correlation Coefficient R	0.986						
501					Shapiro Wilk Test Statistic	0.963						
502					Shapiro Wilk Critical (0.05) Value	0.926						
503					Approximate Shapiro Wilk P Value	0.418						
504					Lilliefors Test Statistic	0.122						
505					Lilliefors Critical (0.05) Value	0.161						
506	**Data appear Lognormal at (0.05) Significance Level**											
507												
553	**Beryllium (d1)**											
554												
555				**Raw Statistics**								
556					Number of Valid Observations	29						
557					Number of Distinct Observations	29						
558					Minimum	0.256						
559					Maximum	0.79						
560					Mean of Raw Data	0.47						
561					Standard Deviation of Raw Data	0.154						
562					Khat	9.937						
563					Theta hat	0.0473						
564					Kstar	8.932						
565					Theta star	0.0526						
566					Mean of Log Transformed Data	-0.806						
567					Standard Deviation of Log Transformed Data	0.327						
568												
569				**Normal GOF Test Results**								
570												
571					Correlation Coefficient R	0.976						
572					Shapiro Wilk Test Statistic	0.938						
573					Shapiro Wilk Critical (0.05) Value	0.926						
574					Approximate Shapiro Wilk P Value	0.103						
575					Lilliefors Test Statistic	0.106						
576					Lilliefors Critical (0.05) Value	0.161						
577	**Data appear Normal at (0.05) Significance Level**											
578												
579				**Gamma GOF Test Results**								
580												
581					Correlation Coefficient R	0.987						
582					A-D Test Statistic	0.26						
583					A-D Critical (0.05) Value	0.746						
584					K-S Test Statistic	0.0847						

	A	B	C	D	E	F	G	H	I	J	K	L
585					K-S Critical(0.05) Value	0.162						
586	**Data appear Gamma Distributed at (0.05) Significance Level**											
587												
588	**Lognormal GOF Test Results**											
589												
590					Correlation Coefficient R	0.99						
591					Shapiro Wilk Test Statistic	0.963						
592					Shapiro Wilk Critical (0.05) Value	0.926						
593					Approximate Shapiro Wilk P Value	0.435						
594					Lilliefors Test Statistic	0.0677						
595					Lilliefors Critical (0.05) Value	0.161						
596	**Data appear Lognormal at (0.05) Significance Level**											
597												
598	**Beryllium (d6)**											
599												
600	**Raw Statistics**											
601					Number of Valid Observations	29						
602					Number of Distinct Observations	29						
603					Minimum	0.287						
604					Maximum	0.872						
605					Mean of Raw Data	0.5						
606					Standard Deviation of Raw Data	0.172						
607					Khat	9.244						
608					Theta hat	0.0541						
609					Kstar	8.311						
610					Theta star	0.0601						
611					Mean of Log Transformed Data	-0.749						
612					Standard Deviation of Log Transformed Data	0.336						
613												
614	**Normal GOF Test Results**											
615												
616					Correlation Coefficient R	0.963						
617					Shapiro Wilk Test Statistic	0.912						
618					Shapiro Wilk Critical (0.05) Value	0.926						
619					Approximate Shapiro Wilk P Value	0.0208						
620					Lilliefors Test Statistic	0.123						
621					Lilliefors Critical (0.05) Value	0.161						
622	**Data appear Approximate Normal at (0.05) Significance Level**											
623												
624	**Gamma GOF Test Results**											
625												
626					Correlation Coefficient R	0.981						
627					A-D Test Statistic	0.468						
628					A-D Critical (0.05) Value	0.746						
629					K-S Test Statistic	0.108						
630					K-S Critical(0.05) Value	0.163						
631	**Data appear Gamma Distributed at (0.05) Significance Level**											
632												
633	**Lognormal GOF Test Results**											
634												

	A	B	C	D	E	F	G	H	I	J	K	L
635					Correlation Coefficient R	0.982						
636					Shapiro Wilk Test Statistic	0.945						
637					Shapiro Wilk Critical (0.05) Value	0.926						
638					Approximate Shapiro Wilk P Value	0.153						
639					Lilliefors Test Statistic	0.106						
640					Lilliefors Critical (0.05) Value	0.161						
641	**Data appear Lognormal at (0.05) Significance Level**											
642												
688	**Cadmium (d1)**											
689												
690				**Raw Statistics**								
691					Number of Valid Observations	29						
692					Number of Distinct Observations	29						
693					Minimum	0.78						
694					Maximum	16.08						
695					Mean of Raw Data	3.274						
696					Standard Deviation of Raw Data	3.145						
697					Khat	1.777						
698					Theta hat	1.843						
699					Kstar	1.616						
700					Theta star	2.026						
701					Mean of Log Transformed Data	0.879						
702					Standard Deviation of Log Transformed Data	0.764						
703												
704				**Normal GOF Test Results**								
705												
706					Correlation Coefficient R	0.829						
707					Shapiro Wilk Test Statistic	0.708						
708					Shapiro Wilk Critical (0.05) Value	0.926						
709					Approximate Shapiro Wilk P Value	5.8228E-7						
710					Lilliefors Test Statistic	0.254						
711					Lilliefors Critical (0.05) Value	0.161						
712	**Data not Normal at (0.05) Significance Level**											
713												
714				**Gamma GOF Test Results**								
715												
716					Correlation Coefficient R	0.947						
717					A-D Test Statistic	0.749						
718					A-D Critical (0.05) Value	0.76						
719					K-S Test Statistic	0.162						
720					K-S Critical(0.05) Value	0.165						
721	**Data appear Gamma Distributed at (0.05) Significance Level**											
722												
723				**Lognormal GOF Test Results**								
724												
725					Correlation Coefficient R	0.982						
726					Shapiro Wilk Test Statistic	0.958						
727					Shapiro Wilk Critical (0.05) Value	0.926						
728					Approximate Shapiro Wilk P Value	0.335						
729					Lilliefors Test Statistic	0.104						

	A	B	C	D	E	F	G	H	I	J	K	L
730					Lilliefors Critical (0.05) Value	0.161						
731	**Data appear Lognormal at (0.05) Significance Level**											
732												
733	**Cadmium (d6)**											
734												
735				**Raw Statistics**								
736					Number of Valid Observations	29						
737					Number of Distinct Observations	29						
738					Minimum	0.728						
739					Maximum	13.88						
740					Mean of Raw Data	2.925						
741					Standard Deviation of Raw Data	2.799						
742					Khat	1.832						
743					Theta hat	1.597						
744					Kstar	1.665						
745					Theta star	1.756						
746					Mean of Log Transformed Data	0.776						
747					Standard Deviation of Log Transformed Data	0.751						
748												
749				**Normal GOF Test Results**								
750												
751					Correlation Coefficient R	0.819						
752					Shapiro Wilk Test Statistic	0.689						
753					Shapiro Wilk Critical (0.05) Value	0.926						
754					Approximate Shapiro Wilk P Value	2.4862E-7						
755					Lilliefors Test Statistic	0.252						
756					Lilliefors Critical (0.05) Value	0.161						
757	**Data not Normal at (0.05) Significance Level**											
758												
759				**Gamma GOF Test Results**								
760												
761					Correlation Coefficient R	0.939						
762					A-D Test Statistic	0.852						
763					A-D Critical (0.05) Value	0.759						
764					K-S Test Statistic	0.143						
765					K-S Critical(0.05) Value	0.165						
766	**Data follow Appr. Gamma Distribution at (0.05) Significance Level**											
767												
768				**Lognormal GOF Test Results**								
769												
770					Correlation Coefficient R	0.973						
771					Shapiro Wilk Test Statistic	0.941						
772					Shapiro Wilk Critical (0.05) Value	0.926						
773					Approximate Shapiro Wilk P Value	0.124						
774					Lilliefors Test Statistic	0.109						
775					Lilliefors Critical (0.05) Value	0.161						
776	**Data appear Lognormal at (0.05) Significance Level**											
777												
823	**Calcium (d1)**											
824												

	A	B	C	D	E	F	G	H	I	J	K	L
825	**Raw Statistics**											
826					Number of Valid Observations	29						
827					Number of Distinct Observations	29						
828					Minimum	2943						
829					Maximum	24379						
830					Mean of Raw Data	6396						
831					Standard Deviation of Raw Data	4728						
832					Khat	3.107						
833					Theta hat	2059						
834					Kstar	2.808						
835					Theta star	2277						
836					Mean of Log Transformed Data	8.594						
837					Standard Deviation of Log Transformed Data	0.541						
838												
839	**Normal GOF Test Results**											
840												
841					Correlation Coefficient R	0.823						
842					Shapiro Wilk Test Statistic	0.693						
843					Shapiro Wilk Critical (0.05) Value	0.926						
844					Approximate Shapiro Wilk P Value	2.9592E-7						
845					Lilliefors Test Statistic	0.233						
846					Lilliefors Critical (0.05) Value	0.161						
847	**Data not Normal at (0.05) Significance Level**											
848												
849	**Gamma GOF Test Results**											
850												
851					Correlation Coefficient R	0.931						
852					A-D Test Statistic	1.58						
853					A-D Critical (0.05) Value	0.752						
854					K-S Test Statistic	0.156						
855					K-S Critical(0.05) Value	0.164						
856	**Data follow Appr. Gamma Distribution at (0.05) Significance Level**											
857												
858	**Lognormal GOF Test Results**											
859												
860					Correlation Coefficient R	0.941						
861					Shapiro Wilk Test Statistic	0.882						
862					Shapiro Wilk Critical (0.05) Value	0.926						
863					Approximate Shapiro Wilk P Value	0.00343						
864					Lilliefors Test Statistic	0.14						
865					Lilliefors Critical (0.05) Value	0.161						
866	**Data appear Approximate_Lognormal at (0.05) Significance Level**											
867												
868	**Calcium (d6)**											
869												
870	**Raw Statistics**											
871					Number of Valid Observations	29						
872					Number of Distinct Observations	29						
873					Minimum	2662						
874					Maximum	12046						

	A	B	C	D	E	F	G	H	I	J	K	L
875					Mean of Raw Data	5521						
876					Standard Deviation of Raw Data	3084						
877					Khat	4.007						
878					Theta hat	1378						
879					Kstar	3.615						
880					Theta star	1527						
881					Mean of Log Transformed Data	8.486						
882					Standard Deviation of Log Transformed Data	0.5						
883												
884	**Normal GOF Test Results**											
885												
886					Correlation Coefficient R	0.901						
887					Shapiro Wilk Test Statistic	0.797						
888					Shapiro Wilk Critical (0.05) Value	0.926						
889					Approximate Shapiro Wilk P Value	3.4677E-5						
890					Lilliefors Test Statistic	0.225						
891					Lilliefors Critical (0.05) Value	0.161						
892	**Data not Normal at (0.05) Significance Level**											
893												
894	**Gamma GOF Test Results**											
895												
896					Correlation Coefficient R	0.949						
897					A-D Test Statistic	1.577						
898					A-D Critical (0.05) Value	0.75						
899					K-S Test Statistic	0.185						
900					K-S Critical(0.05) Value	0.163						
901	**Data not Gamma Distributed at (0.05) Significance Level**											
902												
903	**Lognormal GOF Test Results**											
904												
905					Correlation Coefficient R	0.947						
906					Shapiro Wilk Test Statistic	0.876						
907					Shapiro Wilk Critical (0.05) Value	0.926						
908					Approximate Shapiro Wilk P Value	0.00248						
909					Lilliefors Test Statistic	0.171						
910					Lilliefors Critical (0.05) Value	0.161						
911	**Data not Lognormal at (0.05) Significance Level**											
912												
913	**Non-parametric GOF Test Results**											
914												
915	**Data do not follow a discernible distribution at (0.05) Level of Significanc**											
916												
962	**Chromium (d1)**											
963												
964	**Raw Statistics**											
965					Number of Valid Observations	29						
966					Number of Distinct Observations	29						
967					Minimum	10.5						
968					Maximum	47.76						
969					Mean of Raw Data	19.05						

	A	B	C	D	E	F	G	H	I	J	K	L
970					Standard Deviation of Raw Data	7.024						
971					Khat	9.921						
972					Theta hat	1.92						
973					Kstar	8.917						
974					Theta star	2.136						
975					Mean of Log Transformed Data	2.896						
976					Standard Deviation of Log Transformed Data	0.313						
977												
978	**Normal GOF Test Results**											
979												
980					Correlation Coefficient R	0.874						
981					Shapiro Wilk Test Statistic	0.789						
982					Shapiro Wilk Critical (0.05) Value	0.926						
983					Approximate Shapiro Wilk P Value	2.4237E-5						
984					Lilliefors Test Statistic	0.154						
985					Lilliefors Critical (0.05) Value	0.161						
986	**Data appear Approximate Normal at (0.05) Significance Level**											
987												
988	**Gamma GOF Test Results**											
989												
990					Correlation Coefficient R	0.914						
991					A-D Test Statistic	0.527						
992					A-D Critical (0.05) Value	0.746						
993					K-S Test Statistic	0.104						
994					K-S Critical(0.05) Value	0.162						
995	**Data appear Gamma Distributed at (0.05) Significance Level**											
996												
997	**Lognormal GOF Test Results**											
998												
999					Correlation Coefficient R	0.966						
1000					Shapiro Wilk Test Statistic	0.945						
1001					Shapiro Wilk Critical (0.05) Value	0.926						
1002					Approximate Shapiro Wilk P Value	0.155						
1003					Lilliefors Test Statistic	0.0883						
1004					Lilliefors Critical (0.05) Value	0.161						
1005	**Data appear Lognormal at (0.05) Significance Level**											
1006												
1007	**Chromium (d6)**											
1008												
1009	**Raw Statistics**											
1010					Number of Valid Observations	29						
1011					Number of Distinct Observations	29						
1012					Minimum	11.02						
1013					Maximum	51.58						
1014					Mean of Raw Data	19.83						
1015					Standard Deviation of Raw Data	7.798						
1016					Khat	8.845						
1017					Theta hat	2.242						
1018					Kstar	7.953						
1019					Theta star	2.493						

	A	B	C	D	E	F	G	H	I	J	K	L
1020					Mean of Log Transformed Data	2.929						
1021					Standard Deviation of Log Transformed Data	0.331						
1022												
1023	**Normal GOF Test Results**											
1024												
1025					Correlation Coefficient R	0.875						
1026					Shapiro Wilk Test Statistic	0.789						
1027					Shapiro Wilk Critical (0.05) Value	0.926						
1028					Approximate Shapiro Wilk P Value	2.4150E-5						
1029					Lilliefors Test Statistic	0.148						
1030					Lilliefors Critical (0.05) Value	0.161						
1031	**Data appear Approximate Normal at (0.05) Significance Level**											
1032												
1033	**Gamma GOF Test Results**											
1034												
1035					Correlation Coefficient R	0.919						
1036					A-D Test Statistic	0.475						
1037					A-D Critical (0.05) Value	0.746						
1038					K-S Test Statistic	0.103						
1039					K-S Critical(0.05) Value	0.163						
1040	**Data appear Gamma Distributed at (0.05) Significance Level**											
1041												
1042	**Lognormal GOF Test Results**											
1043												
1044					Correlation Coefficient R	0.969						
1045					Shapiro Wilk Test Statistic	0.948						
1046					Shapiro Wilk Critical (0.05) Value	0.926						
1047					Approximate Shapiro Wilk P Value	0.181						
1048					Lilliefors Test Statistic	0.093						
1049					Lilliefors Critical (0.05) Value	0.161						
1050	**Data appear Lognormal at (0.05) Significance Level**											
1051												
1101	**Cobalt (d1)**											
1102												
1103	**Raw Statistics**											
1104					Number of Valid Observations	29						
1105					Number of Distinct Observations	28						
1106					Minimum	3.037						
1107					Maximum	13.14						
1108					Mean of Raw Data	6.146						
1109					Standard Deviation of Raw Data	1.946						
1110					Khat	11.99						
1111					Theta hat	0.513						
1112					Kstar	10.77						
1113					Theta star	0.571						
1114					Mean of Log Transformed Data	1.773						
1115					Standard Deviation of Log Transformed Data	0.291						
1116												
1117	**Normal GOF Test Results**											
1118												

	A	B	C	D	E	F	G	H	I	J	K	L
1119					Correlation Coefficient R	0.926						
1120					Shapiro Wilk Test Statistic	0.879						
1121					Shapiro Wilk Critical (0.05) Value	0.926						
1122					Approximate Shapiro Wilk P Value	0.0029						
1123					Lilliefors Test Statistic	0.14						
1124					Lilliefors Critical (0.05) Value	0.161						
1125	**Data appear Approximate Normal at (0.05) Significance Level**											
1126												
1127	**Gamma GOF Test Results**											
1128												
1129					Correlation Coefficient R	0.956						
1130					A-D Test Statistic	0.402						
1131					A-D Critical (0.05) Value	0.745						
1132					K-S Test Statistic	0.111						
1133					K-S Critical(0.05) Value	0.162						
1134	**Data appear Gamma Distributed at (0.05) Significance Level**											
1135												
1136	**Lognormal GOF Test Results**											
1137												
1138					Correlation Coefficient R	0.98						
1139					Shapiro Wilk Test Statistic	0.975						
1140					Shapiro Wilk Critical (0.05) Value	0.926						
1141					Approximate Shapiro Wilk P Value	0.716						
1142					Lilliefors Test Statistic	0.107						
1143					Lilliefors Critical (0.05) Value	0.161						
1144	**Data appear Lognormal at (0.05) Significance Level**											
1145												
1146	**Cobalt (d6)**											
1147												
1148	**Raw Statistics**											
1149					Number of Valid Observations	29						
1150					Number of Distinct Observations	29						
1151					Minimum	3.346						
1152					Maximum	13.98						
1153					Mean of Raw Data	6.443						
1154					Standard Deviation of Raw Data	2.046						
1155					Khat	12.29						
1156					Theta hat	0.524						
1157					Kstar	11.04						
1158					Theta star	0.583						
1159					Mean of Log Transformed Data	1.822						
1160					Standard Deviation of Log Transformed Data	0.285						
1161												
1162	**Normal GOF Test Results**											
1163												
1164					Correlation Coefficient R	0.905						
1165					Shapiro Wilk Test Statistic	0.842						
1166					Shapiro Wilk Critical (0.05) Value	0.926						
1167					Approximate Shapiro Wilk P Value	3.6241E-4						
1168					Lilliefors Test Statistic	0.217						

	A	B	C	D	E	F	G	H	I	J	K	L
1169					Lilliefors Critical (0.05) Value	0.161						
1170	**Data not Normal at (0.05) Significance Level**											
1171												
1172	**Gamma GOF Test Results**											
1173												
1174					Correlation Coefficient R	0.937						
1175					A-D Test Statistic	0.634						
1176					A-D Critical (0.05) Value	0.745						
1177					K-S Test Statistic	0.177						
1178					K-S Critical(0.05) Value	0.162						
1179	**Data follow Appr. Gamma Distribution at (0.05) Significance Level**											
1180												
1181	**Lognormal GOF Test Results**											
1182												
1183					Correlation Coefficient R	0.969						
1184					Shapiro Wilk Test Statistic	0.954						
1185					Shapiro Wilk Critical (0.05) Value	0.926						
1186					Approximate Shapiro Wilk P Value	0.257						
1187					Lilliefors Test Statistic	0.166						
1188					Lilliefors Critical (0.05) Value	0.161						
1189	**Data appear Approximate_Lognormal at (0.05) Significance Level**											
1190												
1236	**Copper (d1)**											
1237												
1238	**Raw Statistics**											
1239					Number of Valid Observations	29						
1240					Number of Distinct Observations	29						
1241					Minimum	9.738						
1242					Maximum	67.05						
1243					Mean of Raw Data	21.14						
1244					Standard Deviation of Raw Data	11.61						
1245					Khat	5.018						
1246					Theta hat	4.213						
1247					Kstar	4.522						
1248					Theta star	4.675						
1249					Mean of Log Transformed Data	2.948						
1250					Standard Deviation of Log Transformed Data	0.433						
1251												
1252	**Normal GOF Test Results**											
1253												
1254					Correlation Coefficient R	0.86						
1255					Shapiro Wilk Test Statistic	0.76						
1256					Shapiro Wilk Critical (0.05) Value	0.926						
1257					Approximate Shapiro Wilk P Value	5.7991E-6						
1258					Lilliefors Test Statistic	0.201						
1259					Lilliefors Critical (0.05) Value	0.161						
1260	**Data not Normal at (0.05) Significance Level**											
1261												
1262	**Gamma GOF Test Results**											
1263												

	A	B	C	D	E	F	G	H	I	J	K	L
1264					Correlation Coefficient R	0.935						
1265					A-D Test Statistic	0.848						
1266					A-D Critical (0.05) Value	0.748						
1267					K-S Test Statistic	0.154						
1268					K-S Critical(0.05) Value	0.163						
1269	**Data follow Appr. Gamma Distribution at (0.05) Significance Level**											
1270												
1271				**Lognormal GOF Test Results**								
1272												
1273					Correlation Coefficient R	0.969						
1274					Shapiro Wilk Test Statistic	0.944						
1275					Shapiro Wilk Critical (0.05) Value	0.926						
1276					Approximate Shapiro Wilk P Value	0.142						
1277					Lilliefors Test Statistic	0.124						
1278					Lilliefors Critical (0.05) Value	0.161						
1279	**Data appear Lognormal at (0.05) Significance Level**											
1280												
1281	**Copper (d6)**											
1282												
1283				**Raw Statistics**								
1284					Number of Valid Observations	29						
1285					Number of Distinct Observations	29						
1286					Minimum	10.08						
1287					Maximum	46.14						
1288					Mean of Raw Data	21.1						
1289					Standard Deviation of Raw Data	9.579						
1290					Khat	5.962						
1291					Theta hat	3.538						
1292					Kstar	5.368						
1293					Theta star	3.93						
1294					Mean of Log Transformed Data	2.963						
1295					Standard Deviation of Log Transformed Data	0.41						
1296												
1297				**Normal GOF Test Results**								
1298												
1299					Correlation Coefficient R	0.932						
1300					Shapiro Wilk Test Statistic	0.864						
1301					Shapiro Wilk Critical (0.05) Value	0.926						
1302					Approximate Shapiro Wilk P Value	0.00123						
1303					Lilliefors Test Statistic	0.201						
1304					Lilliefors Critical (0.05) Value	0.161						
1305	**Data not Normal at (0.05) Significance Level**											
1306												
1307				**Gamma GOF Test Results**								
1308												
1309					Correlation Coefficient R	0.977						
1310					A-D Test Statistic	0.731						
1311					A-D Critical (0.05) Value	0.747						
1312					K-S Test Statistic	0.15						
1313					K-S Critical(0.05) Value	0.163						

	A	B	C	D	E	F	G	H	I	J	K	L
1314	**Data appear Gamma Distributed at (0.05) Significance Level**											
1315												
1316				**Lognormal GOF Test Results**								
1317												
1318						Correlation Coefficient R	0.981					
1319						Shapiro Wilk Test Statistic	0.951					
1320						Shapiro Wilk Critical (0.05) Value	0.926					
1321						Approximate Shapiro Wilk P Value	0.217					
1322						Lilliefors Test Statistic	0.121					
1323						Lilliefors Critical (0.05) Value	0.161					
1324	**Data appear Lognormal at (0.05) Significance Level**											
1325												
1371	**Iron (d1)**											
1372												
1373				**Raw Statistics**								
1374						Number of Valid Observations	29					
1375						Number of Distinct Observations	29					
1376						Minimum	10087					
1377						Maximum	28070					
1378						Mean of Raw Data	16878					
1379						Standard Deviation of Raw Data	3380					
1380						Khat	26.95					
1381						Theta hat	626.2					
1382						Kstar	24.19					
1383						Theta star	697.7					
1384						Mean of Log Transformed Data	9.715					
1385						Standard Deviation of Log Transformed Data	0.196					
1386												
1387				**Normal GOF Test Results**								
1388												
1389						Correlation Coefficient R	0.957					
1390						Shapiro Wilk Test Statistic	0.938					
1391						Shapiro Wilk Critical (0.05) Value	0.926					
1392						Approximate Shapiro Wilk P Value	0.102					
1393						Lilliefors Test Statistic	0.126					
1394						Lilliefors Critical (0.05) Value	0.161					
1395	**Data appear Normal at (0.05) Significance Level**											
1396												
1397				**Gamma GOF Test Results**								
1398												
1399						Correlation Coefficient R	0.967					
1400						A-D Test Statistic	0.34					
1401						A-D Critical (0.05) Value	0.744					
1402						K-S Test Statistic	0.103					
1403						K-S Critical(0.05) Value	0.162					
1404	**Data appear Gamma Distributed at (0.05) Significance Level**											
1405												
1406				**Lognormal GOF Test Results**								
1407												
1408						Correlation Coefficient R	0.977					

	A	B	C	D	E	F	G	H	I	J	K	L
1409					Shapiro Wilk Test Statistic	0.973						
1410					Shapiro Wilk Critical (0.05) Value	0.926						
1411					Approximate Shapiro Wilk P Value	0.676						
1412					Lilliefors Test Statistic	0.099						
1413					Lilliefors Critical (0.05) Value	0.161						
1414	**Data appear Lognormal at (0.05) Significance Level**											
1415												
1416	**Iron (d6)**											
1417												
1418				**Raw Statistics**								
1419					Number of Valid Observations	29						
1420					Number of Distinct Observations	28						
1421					Minimum	10767						
1422					Maximum	29120						
1423					Mean of Raw Data	17525						
1424					Standard Deviation of Raw Data	3555						
1425					Khat	26.34						
1426					Theta hat	665.5						
1427					Kstar	23.63						
1428					Theta star	741.5						
1429					Mean of Log Transformed Data	9.752						
1430					Standard Deviation of Log Transformed Data	0.198						
1431												
1432				**Normal GOF Test Results**								
1433												
1434					Correlation Coefficient R	0.96						
1435					Shapiro Wilk Test Statistic	0.94						
1436					Shapiro Wilk Critical (0.05) Value	0.926						
1437					Approximate Shapiro Wilk P Value	0.118						
1438					Lilliefors Test Statistic	0.087						
1439					Lilliefors Critical (0.05) Value	0.161						
1440	**Data appear Normal at (0.05) Significance Level**											
1441												
1442				**Gamma GOF Test Results**								
1443												
1444					Correlation Coefficient R	0.971						
1445					A-D Test Statistic	0.323						
1446					A-D Critical (0.05) Value	0.744						
1447					K-S Test Statistic	0.0932						
1448					K-S Critical(0.05) Value	0.162						
1449	**Data appear Gamma Distributed at (0.05) Significance Level**											
1450												
1451				**Lognormal GOF Test Results**								
1452												
1453					Correlation Coefficient R	0.98						
1454					Shapiro Wilk Test Statistic	0.975						
1455					Shapiro Wilk Critical (0.05) Value	0.926						
1456					Approximate Shapiro Wilk P Value	0.729						
1457					Lilliefors Test Statistic	0.106						
1458					Lilliefors Critical (0.05) Value	0.161						

	A	B	C	D	E	F	G	H	I	J	K	L
1459	**Data appear Lognormal at (0.05) Significance Level**											
1460												
1506	**Lead (d1)**											
1507												
1508				**Raw Statistics**								
1509					Number of Valid Observations	29						
1510					Number of Distinct Observations	29						
1511					Minimum	26.12						
1512					Maximum	1188						
1513					Mean of Raw Data	156.7						
1514					Standard Deviation of Raw Data	221.2						
1515					Khat	1.219						
1516					Theta hat	128.6						
1517					Kstar	1.116						
1518					Theta star	140.5						
1519					Mean of Log Transformed Data	4.591						
1520					Standard Deviation of Log Transformed Data	0.887						
1521												
1522				**Normal GOF Test Results**								
1523												
1524					Correlation Coefficient R	0.714						
1525					Shapiro Wilk Test Statistic	0.54						
1526					Shapiro Wilk Critical (0.05) Value	0.926						
1527					Approximate Shapiro Wilk P Value	8.695E-10						
1528					Lilliefors Test Statistic	0.279						
1529					Lilliefors Critical (0.05) Value	0.161						
1530	**Data not Normal at (0.05) Significance Level**											
1531												
1532				**Gamma GOF Test Results**								
1533												
1534					Correlation Coefficient R	0.888						
1535					A-D Test Statistic	1.122						
1536					A-D Critical (0.05) Value	0.769						
1537					K-S Test Statistic	0.169						
1538					K-S Critical(0.05) Value	0.167						
1539	**Data not Gamma Distributed at (0.05) Significance Level**											
1540												
1541				**Lognormal GOF Test Results**								
1542												
1543					Correlation Coefficient R	0.977						
1544					Shapiro Wilk Test Statistic	0.955						
1545					Shapiro Wilk Critical (0.05) Value	0.926						
1546					Approximate Shapiro Wilk P Value	0.281						
1547					Lilliefors Test Statistic	0.0888						
1548					Lilliefors Critical (0.05) Value	0.161						
1549	**Data appear Lognormal at (0.05) Significance Level**											
1550												
1551	**Lead (d6)**											
1552												
1553				**Raw Statistics**								

	A	B	C	D	E	F	G	H	I	J	K	L
1554					Number of Valid Observations	29						
1555					Number of Distinct Observations	29						
1556					Minimum	27.68						
1557					Maximum	429.2						
1558					Mean of Raw Data	109.1						
1559					Standard Deviation of Raw Data	91.21						
1560					Khat	2.07						
1561					Theta hat	52.7						
1562					Kstar	1.879						
1563					Theta star	58.06						
1564					Mean of Log Transformed Data	4.431						
1565					Standard Deviation of Log Transformed Data	0.717						
1566												
1567	**Normal GOF Test Results**											
1568												
1569					Correlation Coefficient R	0.867						
1570					Shapiro Wilk Test Statistic	0.762						
1571					Shapiro Wilk Critical (0.05) Value	0.926						
1572					Approximate Shapiro Wilk P Value	6.5131E-6						
1573					Lilliefors Test Statistic	0.188						
1574					Lilliefors Critical (0.05) Value	0.161						
1575	**Data not Normal at (0.05) Significance Level**											
1576												
1577	**Gamma GOF Test Results**											
1578												
1579					Correlation Coefficient R	0.964						
1580					A-D Test Statistic	0.667						
1581					A-D Critical (0.05) Value	0.757						
1582					K-S Test Statistic	0.112						
1583					K-S Critical(0.05) Value	0.165						
1584	**Data appear Gamma Distributed at (0.05) Significance Level**											
1585												
1586	**Lognormal GOF Test Results**											
1587												
1588					Correlation Coefficient R	0.981						
1589					Shapiro Wilk Test Statistic	0.954						
1590					Shapiro Wilk Critical (0.05) Value	0.926						
1591					Approximate Shapiro Wilk P Value	0.268						
1592					Lilliefors Test Statistic	0.103						
1593					Lilliefors Critical (0.05) Value	0.161						
1594	**Data appear Lognormal at (0.05) Significance Level**											
1595												
1641	**Magnesium (d1)**											
1642												
1643	**Raw Statistics**											
1644					Number of Valid Observations	29						
1645					Number of Distinct Observations	29						
1646					Minimum	2196						
1647					Maximum	9489						
1648					Mean of Raw Data	3907						

	A	B	C	D	E	F	G	H	I	J	K	L
1649					Standard Deviation of Raw Data	1341						
1650					Khat	12.31						
1651					Theta hat	317.3						
1652					Kstar	11.06						
1653					Theta star	353.2						
1654					Mean of Log Transformed Data	8.229						
1655					Standard Deviation of Log Transformed Data	0.274						
1656												
1657	**Normal GOF Test Results**											
1658												
1659					Correlation Coefficient R	0.834						
1660					Shapiro Wilk Test Statistic	0.725						
1661					Shapiro Wilk Critical (0.05) Value	0.926						
1662					Approximate Shapiro Wilk P Value	1.2122E-6						
1663					Lilliefors Test Statistic	0.257						
1664					Lilliefors Critical (0.05) Value	0.161						
1665	**Data not Normal at (0.05) Significance Level**											
1666												
1667	**Gamma GOF Test Results**											
1668												
1669					Correlation Coefficient R	0.885						
1670					A-D Test Statistic	1.43						
1671					A-D Critical (0.05) Value	0.745						
1672					K-S Test Statistic	0.219						
1673					K-S Critical(0.05) Value	0.162						
1674	**Data not Gamma Distributed at (0.05) Significance Level**											
1675												
1676	**Lognormal GOF Test Results**											
1677												
1678					Correlation Coefficient R	0.932						
1679					Shapiro Wilk Test Statistic	0.893						
1680					Shapiro Wilk Critical (0.05) Value	0.926						
1681					Approximate Shapiro Wilk P Value	0.0064						
1682					Lilliefors Test Statistic	0.197						
1683					Lilliefors Critical (0.05) Value	0.161						
1684	**Data not Lognormal at (0.05) Significance Level**											
1685												
1686	**Non-parametric GOF Test Results**											
1687												
1688	**Data do not follow a discernible distribution at (0.05) Level of Significanc**											
1689												
1690	**Magnesium (d6)**											
1691												
1692				**Raw Statistics**								
1693					Number of Valid Observations	29						
1694					Number of Distinct Observations	29						
1695					Minimum	2257						
1696					Maximum	9913						
1697					Mean of Raw Data	3969						
1698					Standard Deviation of Raw Data	1428						

	A	B	C	D	E	F	G	H	I	J	K	L
1699					Khat	11.52						
1700					Theta hat	344.4						
1701					Kstar	10.36						
1702					Theta star	383.3						
1703					Mean of Log Transformed Data	8.242						
1704					Standard Deviation of Log Transformed Data	0.281						
1705												
1706	**Normal GOF Test Results**											
1707												
1708					Correlation Coefficient R	0.823						
1709					Shapiro Wilk Test Statistic	0.706						
1710					Shapiro Wilk Critical (0.05) Value	0.926						
1711					Approximate Shapiro Wilk P Value	5.1848E-7						
1712					Lilliefors Test Statistic	0.282						
1713					Lilliefors Critical (0.05) Value	0.161						
1714	**Data not Normal at (0.05) Significance Level**											
1715												
1716	**Gamma GOF Test Results**											
1717												
1718					Correlation Coefficient R	0.877						
1719					A-D Test Statistic	1.523						
1720					A-D Critical (0.05) Value	0.745						
1721					K-S Test Statistic	0.234						
1722					K-S Critical(0.05) Value	0.162						
1723	**Data not Gamma Distributed at (0.05) Significance Level**											
1724												
1725	**Lognormal GOF Test Results**											
1726												
1727					Correlation Coefficient R	0.927						
1728					Shapiro Wilk Test Statistic	0.882						
1729					Shapiro Wilk Critical (0.05) Value	0.926						
1730					Approximate Shapiro Wilk P Value	0.0034						
1731					Lilliefors Test Statistic	0.21						
1732					Lilliefors Critical (0.05) Value	0.161						
1733	**Data not Lognormal at (0.05) Significance Level**											
1734												
1735	**Non-parametric GOF Test Results**											
1736												
1737	**Data do not follow a discernible distribution at (0.05) Level of Significanc**											
1738												
1788	**Manganese (d1)**											
1789												
1790	**Raw Statistics**											
1791					Number of Valid Observations	29						
1792					Number of Distinct Observations	29						
1793					Minimum	237.6						
1794					Maximum	988.3						
1795					Mean of Raw Data	470.2						
1796					Standard Deviation of Raw Data	168.6						
1797					Khat	8.336						

	A	B	C	D	E	F	G	H	I	J	K	L
1798					Theta hat	56.41						
1799					Kstar	7.496						
1800					Theta star	62.72						
1801					Mean of Log Transformed Data	6.092						
1802					Standard Deviation of Log Transformed Data	0.359						
1803												
1804	**Normal GOF Test Results**											
1805												
1806					Correlation Coefficient R	0.965						
1807					Shapiro Wilk Test Statistic	0.935						
1808					Shapiro Wilk Critical (0.05) Value	0.926						
1809					Approximate Shapiro Wilk P Value	0.0861						
1810					Lilliefors Test Statistic	0.106						
1811					Lilliefors Critical (0.05) Value	0.161						
1812	**Data appear Normal at (0.05) Significance Level**											
1813												
1814	**Gamma GOF Test Results**											
1815												
1816					Correlation Coefficient R	0.983						
1817					A-D Test Statistic	0.32						
1818					A-D Critical (0.05) Value	0.746						
1819					K-S Test Statistic	0.11						
1820					K-S Critical(0.05) Value	0.163						
1821	**Data appear Gamma Distributed at (0.05) Significance Level**											
1822												
1823	**Lognormal GOF Test Results**											
1824												
1825					Correlation Coefficient R	0.983						
1826					Shapiro Wilk Test Statistic	0.96						
1827					Shapiro Wilk Critical (0.05) Value	0.926						
1828					Approximate Shapiro Wilk P Value	0.357						
1829					Lilliefors Test Statistic	0.134						
1830					Lilliefors Critical (0.05) Value	0.161						
1831	**Data appear Lognormal at (0.05) Significance Level**											
1832												
1833	**Manganese (d6)**											
1834												
1835	**Raw Statistics**											
1836					Number of Valid Observations	29						
1837					Number of Distinct Observations	29						
1838					Minimum	231.7						
1839					Maximum	1131						
1840					Mean of Raw Data	507.7						
1841					Standard Deviation of Raw Data	196.6						
1842					Khat	7.644						
1843					Theta hat	66.42						
1844					Kstar	6.876						
1845					Theta star	73.83						
1846					Mean of Log Transformed Data	6.163						
1847					Standard Deviation of Log Transformed Data	0.371						

	A	B	C	D	E	F	G	H	I	J	K	L
1848												
1849	**Normal GOF Test Results**											
1850												
1851					Correlation Coefficient R	0.946						
1852					Shapiro Wilk Test Statistic	0.903						
1853					Shapiro Wilk Critical (0.05) Value	0.926						
1854					Approximate Shapiro Wilk P Value	0.012						
1855					Lilliefors Test Statistic	0.165						
1856					Lilliefors Critical (0.05) Value	0.161						
1857	**Data not Normal at (0.05) Significance Level**											
1858												
1859	**Gamma GOF Test Results**											
1860												
1861					Correlation Coefficient R	0.977						
1862					A-D Test Statistic	0.396						
1863					A-D Critical (0.05) Value	0.747						
1864					K-S Test Statistic	0.115						
1865					K-S Critical(0.05) Value	0.163						
1866	**Data appear Gamma Distributed at (0.05) Significance Level**											
1867												
1868	**Lognormal GOF Test Results**											
1869												
1870					Correlation Coefficient R	0.985						
1871					Shapiro Wilk Test Statistic	0.969						
1872					Shapiro Wilk Critical (0.05) Value	0.926						
1873					Approximate Shapiro Wilk P Value	0.577						
1874					Lilliefors Test Statistic	0.12						
1875					Lilliefors Critical (0.05) Value	0.161						
1876	**Data appear Lognormal at (0.05) Significance Level**											
1877												
1923	**Nickel (d1)**											
1924												
1925	**Raw Statistics**											
1926					Number of Valid Observations	29						
1927					Number of Distinct Observations	29						
1928					Minimum	8.132						
1929					Maximum	39.4						
1930					Mean of Raw Data	16.1						
1931					Standard Deviation of Raw Data	6.524						
1932					Khat	8.295						
1933					Theta hat	1.941						
1934					Kstar	7.46						
1935					Theta star	2.158						
1936					Mean of Log Transformed Data	2.717						
1937					Standard Deviation of Log Transformed Data	0.339						
1938												
1939	**Normal GOF Test Results**											
1940												
1941					Correlation Coefficient R	0.889						
1942					Shapiro Wilk Test Statistic	0.807						

1943					Shapiro Wilk Critical (0.05) Value	0.926						
1944					Approximate Shapiro Wilk P Value	5.6481E-5						
1945					Lilliefors Test Statistic	0.217						
1946					Lilliefors Critical (0.05) Value	0.161						
1947	**Data not Normal at (0.05) Significance Level**											
1948												
1949	**Gamma GOF Test Results**											
1950												
1951					Correlation Coefficient R	0.944						
1952					A-D Test Statistic	1.027						
1953					A-D Critical (0.05) Value	0.746						
1954					K-S Test Statistic	0.163						
1955					K-S Critical(0.05) Value	0.163						
1956	**Data not Gamma Distributed at (0.05) Significance Level**											
1957												
1958	**Lognormal GOF Test Results**											
1959												
1960					Correlation Coefficient R	0.964						
1961					Shapiro Wilk Test Statistic	0.939						
1962					Shapiro Wilk Critical (0.05) Value	0.926						
1963					Approximate Shapiro Wilk P Value	0.106						
1964					Lilliefors Test Statistic	0.143						
1965					Lilliefors Critical (0.05) Value	0.161						
1966	**Data appear Lognormal at (0.05) Significance Level**											
1967												
1968	**Nickel (d6)**											
1969												
1970	**Raw Statistics**											
1971					Number of Valid Observations	29						
1972					Number of Distinct Observations	29						
1973					Minimum	8.512						
1974					Maximum	41.61						
1975					Mean of Raw Data	16.48						
1976					Standard Deviation of Raw Data	6.829						
1977					Khat	8.16						
1978					Theta hat	2.02						
1979					Kstar	7.339						
1980					Theta star	2.246						
1981					Mean of Log Transformed Data	2.74						
1982					Standard Deviation of Log Transformed Data	0.34						
1983												
1984	**Normal GOF Test Results**											
1985												
1986					Correlation Coefficient R	0.879						
1987					Shapiro Wilk Test Statistic	0.79						
1988					Shapiro Wilk Critical (0.05) Value	0.926						
1989					Approximate Shapiro Wilk P Value	2.5122E-5						
1990					Lilliefors Test Statistic	0.204						
1991					Lilliefors Critical (0.05) Value	0.161						
1992	**Data not Normal at (0.05) Significance Level**											

	A	B	C	D	E	F	G	H	I	J	K	L
1993												
1994	**Gamma GOF Test Results**											
1995												
1996					Correlation Coefficient R	0.936						
1997					A-D Test Statistic	0.921						
1998					A-D Critical (0.05) Value	0.746						
1999					K-S Test Statistic	0.147						
2000					K-S Critical(0.05) Value	0.163						
2001	**Data follow Appr. Gamma Distribution at (0.05) Significance Level**											
2002												
2003	**Lognormal GOF Test Results**											
2004												
2005					Correlation Coefficient R	0.965						
2006					Shapiro Wilk Test Statistic	0.939						
2007					Shapiro Wilk Critical (0.05) Value	0.926						
2008					Approximate Shapiro Wilk P Value	0.109						
2009					Lilliefors Test Statistic	0.121						
2010					Lilliefors Critical (0.05) Value	0.161						
2011	**Data appear Lognormal at (0.05) Significance Level**											
2012												
2058	**Potassium (d1)**											
2059												
2060				**Raw Statistics**								
2061					Number of Valid Observations	29						
2062					Number of Distinct Observations	29						
2063					Minimum	986.2						
2064					Maximum	4956						
2065					Mean of Raw Data	1972						
2066					Standard Deviation of Raw Data	715.3						
2067					Khat	10.27						
2068					Theta hat	192						
2069					Kstar	9.231						
2070					Theta star	213.6						
2071					Mean of Log Transformed Data	7.537						
2072					Standard Deviation of Log Transformed Data	0.308						
2073												
2074				**Normal GOF Test Results**								
2075												
2076					Correlation Coefficient R	0.865						
2077					Shapiro Wilk Test Statistic	0.779						
2078					Shapiro Wilk Critical (0.05) Value	0.926						
2079					Approximate Shapiro Wilk P Value	1.4534E-5						
2080					Lilliefors Test Statistic	0.169						
2081					Lilliefors Critical (0.05) Value	0.161						
2082	**Data not Normal at (0.05) Significance Level**											
2083												
2084				**Gamma GOF Test Results**								
2085												
2086					Correlation Coefficient R	0.903						
2087					A-D Test Statistic	0.589						

	A	B	C	D	E	F	G	H	I	J	K	L
2088					A-D Critical (0.05) Value	0.746						
2089					K-S Test Statistic	0.12						
2090					K-S Critical(0.05) Value	0.162						
2091	**Data appear Gamma Distributed at (0.05) Significance Level**											
2092												
2093	**Lognormal GOF Test Results**											
2094												
2095					Correlation Coefficient R	0.962						
2096					Shapiro Wilk Test Statistic	0.945						
2097					Shapiro Wilk Critical (0.05) Value	0.926						
2098					Approximate Shapiro Wilk P Value	0.152						
2099					Lilliefors Test Statistic	0.107						
2100					Lilliefors Critical (0.05) Value	0.161						
2101	**Data appear Lognormal at (0.05) Significance Level**											
2102												
2103	**Potassium (d6)**											
2104												
2105	**Raw Statistics**											
2106					Number of Valid Observations	29						
2107					Number of Distinct Observations	29						
2108					Minimum	962.6						
2109					Maximum	5144						
2110					Mean of Raw Data	1897						
2111					Standard Deviation of Raw Data	745.1						
2112					Khat	9.447						
2113					Theta hat	200.9						
2114					Kstar	8.493						
2115					Theta star	223.4						
2116					Mean of Log Transformed Data	7.494						
2117					Standard Deviation of Log Transformed Data	0.317						
2118												
2119	**Normal GOF Test Results**											
2120												
2121					Correlation Coefficient R	0.831						
2122					Shapiro Wilk Test Statistic	0.724						
2123					Shapiro Wilk Critical (0.05) Value	0.926						
2124					Approximate Shapiro Wilk P Value	1.1565E-6						
2125					Lilliefors Test Statistic	0.198						
2126					Lilliefors Critical (0.05) Value	0.161						
2127	**Data not Normal at (0.05) Significance Level**											
2128												
2129	**Gamma GOF Test Results**											
2130												
2131					Correlation Coefficient R	0.876						
2132					A-D Test Statistic	0.799						
2133					A-D Critical (0.05) Value	0.746						
2134					K-S Test Statistic	0.14						
2135					K-S Critical(0.05) Value	0.163						
2136	**Data follow Appr. Gamma Distribution at (0.05) Significance Level**											
2137												

	A	B	C	D	E	F	G	H	I	J	K	L
2138	**Lognormal GOF Test Results**											
2139												
2140					Correlation Coefficient R	0.95						
2141					Shapiro Wilk Test Statistic	0.925						
2142					Shapiro Wilk Critical (0.05) Value	0.926						
2143					Approximate Shapiro Wilk P Value	0.0452						
2144					Lilliefors Test Statistic	0.124						
2145					Lilliefors Critical (0.05) Value	0.161						
2146	**Data appear Approximate_Lognormal at (0.05) Significance Level**											
2147												
2193	**Selenium (d1)**											
2194												
2195				**Raw Statistics**								
2196					Number of Valid Observations	29						
2197					Number of Distinct Observations	29						
2198					Minimum	0.127						
2199					Maximum	2.103						
2200					Mean of Raw Data	0.382						
2201					Standard Deviation of Raw Data	0.403						
2202					Khat	2.028						
2203					Theta hat	0.188						
2204					Kstar	1.841						
2205					Theta star	0.208						
2206					Mean of Log Transformed Data	-1.228						
2207					Standard Deviation of Log Transformed Data	0.642						
2208												
2209				**Normal GOF Test Results**								
2210												
2211					Correlation Coefficient R	0.739						
2212					Shapiro Wilk Test Statistic	0.571						
2213					Shapiro Wilk Critical (0.05) Value	0.926						
2214					Approximate Shapiro Wilk P Value	2.5901E-9						
2215					Lilliefors Test Statistic	0.311						
2216					Lilliefors Critical (0.05) Value	0.161						
2217	**Data not Normal at (0.05) Significance Level**											
2218												
2219				**Gamma GOF Test Results**								
2220												
2221					Correlation Coefficient R	0.887						
2222					A-D Test Statistic	2.243						
2223					A-D Critical (0.05) Value	0.757						
2224					K-S Test Statistic	0.246						
2225					K-S Critical(0.05) Value	0.165						
2226	**Data not Gamma Distributed at (0.05) Significance Level**											
2227												
2228				**Lognormal GOF Test Results**								
2229												
2230					Correlation Coefficient R	0.931						
2231					Shapiro Wilk Test Statistic	0.872						
2232					Shapiro Wilk Critical (0.05) Value	0.926						

	A	F
2233	Approximate Shapiro Wilk P Value	0.00195
2234	Lilliefors Test Statistic	0.187
2235	Lilliefors Critical (0.05) Value	0.161
2236	**Data not Lognormal at (0.05) Significance Level**	
2237		
2238	**Non-parametric GOF Test Results**	
2239		
2240	**Data do not follow a discernible distribution at (0.05) Level of Significanc**	
2241		
2242	**Selenium (d6)**	
2243		
2244	**Raw Statistics**	
2245	Number of Valid Observations	29
2246	Number of Distinct Observations	28
2247	Minimum	0.119
2248	Maximum	2.399
2249	Mean of Raw Data	0.404
2250	Standard Deviation of Raw Data	0.448
2251	Khat	1.888
2252	Theta hat	0.214
2253	Kstar	1.716
2254	Theta star	0.235
2255	Mean of Log Transformed Data	-1.195
2256	Standard Deviation of Log Transformed Data	0.674
2257		
2258	**Normal GOF Test Results**	
2259		
2260	Correlation Coefficient R	0.73
2261	Shapiro Wilk Test Statistic	0.561
2262	Shapiro Wilk Critical (0.05) Value	0.926
2263	Approximate Shapiro Wilk P Value	1.7950E-9
2264	Lilliefors Test Statistic	0.293
2265	Lilliefors Critical (0.05) Value	0.161
2266	**Data not Normal at (0.05) Significance Level**	
2267		
2268	**Gamma GOF Test Results**	
2269		
2270	Correlation Coefficient R	0.881
2271	A-D Test Statistic	1.918
2272	A-D Critical (0.05) Value	0.758
2273	K-S Test Statistic	0.238
2274	K-S Critical(0.05) Value	0.165
2275	**Data not Gamma Distributed at (0.05) Significance Level**	
2276		
2277	**Lognormal GOF Test Results**	
2278		
2279	Correlation Coefficient R	0.945
2280	Shapiro Wilk Test Statistic	0.9
2281	Shapiro Wilk Critical (0.05) Value	0.926
2282	Approximate Shapiro Wilk P Value	0.00988

2283					Lilliefors Test Statistic	0.193						
2284					Lilliefors Critical (0.05) Value	0.161						
2285	**Data not Lognormal at (0.05) Significance Level**											
2286												
2287	**Non-parametric GOF Test Results**											
2288												
2289	**Data do not follow a discernible distribution at (0.05) Level of Significanc**											
2290												
2340	**Silver (d1)**											
2341												
2342				**Raw Statistics**								
2343					Number of Valid Observations	29						
2344					Number of Distinct Observations	29						
2345					Minimum	0.0753						
2346					Maximum	0.896						
2347					Mean of Raw Data	0.233						
2348					Standard Deviation of Raw Data	0.179						
2349					Khat	2.686						
2350					Theta hat	0.0868						
2351					Kstar	2.431						
2352					Theta star	0.0959						
2353					Mean of Log Transformed Data	-1.654						
2354					Standard Deviation of Log Transformed Data	0.596						
2355												
2356				**Normal GOF Test Results**								
2357												
2358					Correlation Coefficient R	0.849						
2359					Shapiro Wilk Test Statistic	0.736						
2360					Shapiro Wilk Critical (0.05) Value	0.926						
2361					Approximate Shapiro Wilk P Value	1.9723E-6						
2362					Lilliefors Test Statistic	0.271						
2363					Lilliefors Critical (0.05) Value	0.161						
2364	**Data not Normal at (0.05) Significance Level**											
2365												
2366				**Gamma GOF Test Results**								
2367												
2368					Correlation Coefficient R	0.952						
2369					A-D Test Statistic	1.308						
2370					A-D Critical (0.05) Value	0.754						
2371					K-S Test Statistic	0.203						
2372					K-S Critical(0.05) Value	0.164						
2373	**Data not Gamma Distributed at (0.05) Significance Level**											
2374												
2375				**Lognormal GOF Test Results**								
2376												
2377					Correlation Coefficient R	0.967						
2378					Shapiro Wilk Test Statistic	0.933						
2379					Shapiro Wilk Critical (0.05) Value	0.926						
2380					Approximate Shapiro Wilk P Value	0.0767						
2381					Lilliefors Test Statistic	0.158						

	A	B	C	D	E	F	G	H	I	J	K	L
2382					Lilliefors Critical (0.05) Value	0.161						
2383	**Data appear Lognormal at (0.05) Significance Level**											
2384												
2385	**Silver (d6)**											
2386												
2387				**Raw Statistics**								
2388					Number of Valid Observations	29						
2389					Number of Distinct Observations	29						
2390					Minimum	0.0725						
2391					Maximum	0.478						
2392					Mean of Raw Data	0.2						
2393					Standard Deviation of Raw Data	0.114						
2394					Khat	3.584						
2395					Theta hat	0.0557						
2396					Kstar	3.236						
2397					Theta star	0.0617						
2398					Mean of Log Transformed Data	-1.756						
2399					Standard Deviation of Log Transformed Data	0.546						
2400												
2401				**Normal GOF Test Results**								
2402												
2403					Correlation Coefficient R	0.942						
2404					Shapiro Wilk Test Statistic	0.878						
2405					Shapiro Wilk Critical (0.05) Value	0.926						
2406					Approximate Shapiro Wilk P Value	0.00268						
2407					Lilliefors Test Statistic	0.175						
2408					Lilliefors Critical (0.05) Value	0.161						
2409	**Data not Normal at (0.05) Significance Level**											
2410												
2411				**Gamma GOF Test Results**								
2412												
2413					Correlation Coefficient R	0.985						
2414					A-D Test Statistic	0.511						
2415					A-D Critical (0.05) Value	0.751						
2416					K-S Test Statistic	0.135						
2417					K-S Critical(0.05) Value	0.164						
2418	**Data appear Gamma Distributed at (0.05) Significance Level**											
2419												
2420				**Lognormal GOF Test Results**								
2421												
2422					Correlation Coefficient R	0.987						
2423					Shapiro Wilk Test Statistic	0.957						
2424					Shapiro Wilk Critical (0.05) Value	0.926						
2425					Approximate Shapiro Wilk P Value	0.31						
2426					Lilliefors Test Statistic	0.107						
2427					Lilliefors Critical (0.05) Value	0.161						
2428	**Data appear Lognormal at (0.05) Significance Level**											
2429												
2479	**Sodium (d1)**											
2480												

	A	B	C	D	E	F	G	H	I	J	K	L
2481	**Raw Statistics**											
2482					Number of Valid Observations	29						
2483					Number of Distinct Observations	29						
2484					Minimum	44.08						
2485					Maximum	330.5						
2486					Mean of Raw Data	167.3						
2487					Standard Deviation of Raw Data	71.07						
2488					Khat	5.449						
2489					Theta hat	30.7						
2490					Kstar	4.908						
2491					Theta star	34.08						
2492					Mean of Log Transformed Data	5.025						
2493					Standard Deviation of Log Transformed Data	0.46						
2494												
2495	**Normal GOF Test Results**											
2496												
2497					Correlation Coefficient R	0.984						
2498					Shapiro Wilk Test Statistic	0.962						
2499					Shapiro Wilk Critical (0.05) Value	0.926						
2500					Approximate Shapiro Wilk P Value	0.413						
2501					Lilliefors Test Statistic	0.137						
2502					Lilliefors Critical (0.05) Value	0.161						
2503	**Data appear Normal at (0.05) Significance Level**											
2504												
2505	**Gamma GOF Test Results**											
2506												
2507					Correlation Coefficient R	0.991						
2508					A-D Test Statistic	0.178						
2509					A-D Critical (0.05) Value	0.747						
2510					K-S Test Statistic	0.0816						
2511					K-S Critical(0.05) Value	0.163						
2512	**Data appear Gamma Distributed at (0.05) Significance Level**											
2513												
2514	**Lognormal GOF Test Results**											
2515												
2516					Correlation Coefficient R	0.985						
2517					Shapiro Wilk Test Statistic	0.972						
2518					Shapiro Wilk Critical (0.05) Value	0.926						
2519					Approximate Shapiro Wilk P Value	0.64						
2520					Lilliefors Test Statistic	0.0765						
2521					Lilliefors Critical (0.05) Value	0.161						
2522	**Data appear Lognormal at (0.05) Significance Level**											
2523												
2524	**Sodium (d6)**											
2525												
2526	**Raw Statistics**											
2527					Number of Valid Observations	29						
2528					Number of Distinct Observations	29						
2529					Minimum	45.42						
2530					Maximum	345						

	A	B	C	D	E	F	G	H	I	J	K	L
2531					Mean of Raw Data	173.1						
2532					Standard Deviation of Raw Data	73.29						
2533					Khat	5.47						
2534					Theta hat	31.66						
2535					Kstar	4.927						
2536					Theta star	35.14						
2537					Mean of Log Transformed Data	5.06						
2538					Standard Deviation of Log Transformed Data	0.46						
2539												
2540	**Normal GOF Test Results**											
2541												
2542					Correlation Coefficient R	0.985						
2543					Shapiro Wilk Test Statistic	0.966						
2544					Shapiro Wilk Critical (0.05) Value	0.926						
2545					Approximate Shapiro Wilk P Value	0.505						
2546					Lilliefors Test Statistic	0.145						
2547					Lilliefors Critical (0.05) Value	0.161						
2548	**Data appear Normal at (0.05) Significance Level**											
2549												
2550	**Gamma GOF Test Results**											
2551												
2552					Correlation Coefficient R	0.993						
2553					A-D Test Statistic	0.162						
2554					A-D Critical (0.05) Value	0.747						
2555					K-S Test Statistic	0.0909						
2556					K-S Critical(0.05) Value	0.163						
2557	**Data appear Gamma Distributed at (0.05) Significance Level**											
2558												
2559	**Lognormal GOF Test Results**											
2560												
2561					Correlation Coefficient R	0.985						
2562					Shapiro Wilk Test Statistic	0.973						
2563					Shapiro Wilk Critical (0.05) Value	0.926						
2564					Approximate Shapiro Wilk P Value	0.667						
2565					Lilliefors Test Statistic	0.071						
2566					Lilliefors Critical (0.05) Value	0.161						
2567	**Data appear Lognormal at (0.05) Significance Level**											
2568												
2614	**Thallium (d1)**											
2615												
2616	**Raw Statistics**											
2617					Number of Valid Observations	29						
2618					Number of Distinct Observations	29						
2619					Minimum	0.115						
2620					Maximum	0.917						
2621					Mean of Raw Data	0.242						
2622					Standard Deviation of Raw Data	0.155						
2623					Khat	4.32						
2624					Theta hat	0.0561						
2625					Kstar	3.896						

	A	B	C	D	E	F	G	H	I	J	K	L
2626					Theta star	0.0621						
2627					Mean of Log Transformed Data	-1.538						
2628					Standard Deviation of Log Transformed Data	0.454						
2629												
2630	**Normal GOF Test Results**											
2631												
2632					Correlation Coefficient R	0.799						
2633					Shapiro Wilk Test Statistic	0.666						
2634					Shapiro Wilk Critical (0.05) Value	0.926						
2635					Approximate Shapiro Wilk P Value	9.7958E-8						
2636					Lilliefors Test Statistic	0.231						
2637					Lilliefors Critical (0.05) Value	0.161						
2638	**Data not Normal at (0.05) Significance Level**											
2639												
2640	**Gamma GOF Test Results**											
2641												
2642					Correlation Coefficient R	0.891						
2643					A-D Test Statistic	1.102						
2644					A-D Critical (0.05) Value	0.749						
2645					K-S Test Statistic	0.144						
2646					K-S Critical(0.05) Value	0.163						
2647	**Data follow Appr. Gamma Distribution at (0.05) Significance Level**											
2648												
2649	**Lognormal GOF Test Results**											
2650												
2651					Correlation Coefficient R	0.952						
2652					Shapiro Wilk Test Statistic	0.914						
2653					Shapiro Wilk Critical (0.05) Value	0.926						
2654					Approximate Shapiro Wilk P Value	0.0241						
2655					Lilliefors Test Statistic	0.106						
2656					Lilliefors Critical (0.05) Value	0.161						
2657	**Data appear Approximate_Lognormal at (0.05) Significance Level**											
2658												
2659	**Thallium (d6)**											
2660												
2661	**Raw Statistics**											
2662					Number of Valid Observations	29						
2663					Number of Distinct Observations	29						
2664					Minimum	0.11						
2665					Maximum	0.492						
2666					Mean of Raw Data	0.21						
2667					Standard Deviation of Raw Data	0.0863						
2668					Khat	7.584						
2669					Theta hat	0.0277						
2670					Kstar	6.823						
2671					Theta star	0.0308						
2672					Mean of Log Transformed Data	-1.629						
2673					Standard Deviation of Log Transformed Data	0.36						
2674												
2675	**Normal GOF Test Results**											

	A	B	C	D	E	F	G	H	I	J	K	L
2676												
2677					Correlation Coefficient R	0.918						
2678					Shapiro Wilk Test Statistic	0.85						
2679					Shapiro Wilk Critical (0.05) Value	0.926						
2680					Approximate Shapiro Wilk P Value	5.6921E-4						
2681					Lilliefors Test Statistic	0.185						
2682					Lilliefors Critical (0.05) Value	0.161						
2683	**Data not Normal at (0.05) Significance Level**											
2684												
2685				**Gamma GOF Test Results**								
2686												
2687					Correlation Coefficient R	0.966						
2688					A-D Test Statistic	0.732						
2689					A-D Critical (0.05) Value	0.747						
2690					K-S Test Statistic	0.154						
2691					K-S Critical(0.05) Value	0.163						
2692	**Data appear Gamma Distributed at (0.05) Significance Level**											
2693												
2694				**Lognormal GOF Test Results**								
2695												
2696					Correlation Coefficient R	0.976						
2697					Shapiro Wilk Test Statistic	0.952						
2698					Shapiro Wilk Critical (0.05) Value	0.926						
2699					Approximate Shapiro Wilk P Value	0.235						
2700					Lilliefors Test Statistic	0.131						
2701					Lilliefors Critical (0.05) Value	0.161						
2702	**Data appear Lognormal at (0.05) Significance Level**											
2703												
2749	**Vanadium (d1)**											
2750												
2751				**Raw Statistics**								
2752					Number of Valid Observations	29						
2753					Number of Distinct Observations	29						
2754					Minimum	17.37						
2755					Maximum	54.62						
2756					Mean of Raw Data	28.74						
2757					Standard Deviation of Raw Data	7.123						
2758					Khat	18.8						
2759					Theta hat	1.528						
2760					Kstar	16.88						
2761					Theta star	1.702						
2762					Mean of Log Transformed Data	3.331						
2763					Standard Deviation of Log Transformed Data	0.233						
2764												
2765				**Normal GOF Test Results**								
2766												
2767					Correlation Coefficient R	0.93						
2768					Shapiro Wilk Test Statistic	0.886						
2769					Shapiro Wilk Critical (0.05) Value	0.926						
2770					Approximate Shapiro Wilk P Value	0.00437						

	A	B	C	D	E	F	G	H	I	J	K	L
2771					Lilliefors Test Statistic	0.149						
2772					Lilliefors Critical (0.05) Value	0.161						
2773	**Data appear Approximate Normal at (0.05) Significance Level**											
2774												
2775	**Gamma GOF Test Results**											
2776												
2777					Correlation Coefficient R	0.95						
2778					A-D Test Statistic	0.484						
2779					A-D Critical (0.05) Value	0.744						
2780					K-S Test Statistic	0.116						
2781					K-S Critical(0.05) Value	0.162						
2782	**Data appear Gamma Distributed at (0.05) Significance Level**											
2783												
2784	**Lognormal GOF Test Results**											
2785												
2786					Correlation Coefficient R	0.971						
2787					Shapiro Wilk Test Statistic	0.957						
2788					Shapiro Wilk Critical (0.05) Value	0.926						
2789					Approximate Shapiro Wilk P Value	0.309						
2790					Lilliefors Test Statistic	0.119						
2791					Lilliefors Critical (0.05) Value	0.161						
2792	**Data appear Lognormal at (0.05) Significance Level**											
2793												
2794	**Vanadium (d6)**											
2795												
2796	**Raw Statistics**											
2797					Number of Valid Observations	29						
2798					Number of Distinct Observations	29						
2799					Minimum	18.05						
2800					Maximum	57.61						
2801					Mean of Raw Data	29.51						
2802					Standard Deviation of Raw Data	7.694						
2803					Khat	17.38						
2804					Theta hat	1.698						
2805					Kstar	15.61						
2806					Theta star	1.891						
2807					Mean of Log Transformed Data	3.356						
2808					Standard Deviation of Log Transformed Data	0.241						
2809												
2810	**Normal GOF Test Results**											
2811												
2812					Correlation Coefficient R	0.93						
2813					Shapiro Wilk Test Statistic	0.885						
2814					Shapiro Wilk Critical (0.05) Value	0.926						
2815					Approximate Shapiro Wilk P Value	0.00414						
2816					Lilliefors Test Statistic	0.132						
2817					Lilliefors Critical (0.05) Value	0.161						
2818	**Data appear Approximate Normal at (0.05) Significance Level**											
2819												
2820	**Gamma GOF Test Results**											

2821												
2822					Correlation Coefficient R	0.953						
2823					A-D Test Statistic	0.327						
2824					A-D Critical (0.05) Value	0.745						
2825					K-S Test Statistic	0.0958						
2826					K-S Critical(0.05) Value	0.162						
2827	**Data appear Gamma Distributed at (0.05) Significance Level**											
2828												
2829				**Lognormal GOF Test Results**								
2830												
2831					Correlation Coefficient R	0.978						
2832					Shapiro Wilk Test Statistic	0.968						
2833					Shapiro Wilk Critical (0.05) Value	0.926						
2834					Approximate Shapiro Wilk P Value	0.542						
2835					Lilliefors Test Statistic	0.0847						
2836					Lilliefors Critical (0.05) Value	0.161						
2837	**Data appear Lognormal at (0.05) Significance Level**											
2838												
2884	**Zinc (d1)**											
2885												
2886				**Raw Statistics**								
2887					Number of Valid Observations	29						
2888					Number of Distinct Observations	29						
2889					Minimum	69.99						
2890					Maximum	623.4						
2891					Mean of Raw Data	187.1						
2892					Standard Deviation of Raw Data	127.9						
2893					Khat	3.089						
2894					Theta hat	60.56						
2895					Kstar	2.792						
2896					Theta star	66.99						
2897					Mean of Log Transformed Data	5.061						
2898					Standard Deviation of Log Transformed Data	0.566						
2899												
2900				**Normal GOF Test Results**								
2901												
2902					Correlation Coefficient R	0.881						
2903					Shapiro Wilk Test Statistic	0.785						
2904					Shapiro Wilk Critical (0.05) Value	0.926						
2905					Approximate Shapiro Wilk P Value	1.9186E-5						
2906					Lilliefors Test Statistic	0.219						
2907					Lilliefors Critical (0.05) Value	0.161						
2908	**Data not Normal at (0.05) Significance Level**											
2909												
2910				**Gamma GOF Test Results**								
2911												
2912					Correlation Coefficient R	0.966						
2913					A-D Test Statistic	0.828						
2914					A-D Critical (0.05) Value	0.752						
2915					K-S Test Statistic	0.142						

2916	K-S Critical(0.05) Value	0.164
2917	**Data follow Appr. Gamma Distribution at (0.05) Significance Level**	
2918		
2919	**Lognormal GOF Test Results**	
2920		
2921	Correlation Coefficient R	0.976
2922	Shapiro Wilk Test Statistic	0.946
2923	Shapiro Wilk Critical (0.05) Value	0.926
2924	Approximate Shapiro Wilk P Value	0.165
2925	Lilliefors Test Statistic	0.0994
2926	Lilliefors Critical (0.05) Value	0.161
2927	**Data appear Lognormal at (0.05) Significance Level**	
2928		
2929	**Zinc (d6)**	
2930		
2931	**Raw Statistics**	
2932	Number of Valid Observations	29
2933	Number of Distinct Observations	29
2934	Minimum	72.66
2935	Maximum	497
2936	Mean of Raw Data	161.4
2937	Standard Deviation of Raw Data	100.9
2938	Khat	3.671
2939	Theta hat	43.96
2940	Kstar	3.315
2941	Theta star	48.69
2942	Mean of Log Transformed Data	4.942
2943	Standard Deviation of Log Transformed Data	0.516
2944		
2945	**Normal GOF Test Results**	
2946		
2947	Correlation Coefficient R	0.881
2948	Shapiro Wilk Test Statistic	0.782
2949	Shapiro Wilk Critical (0.05) Value	0.926
2950	Approximate Shapiro Wilk P Value	1.7112E-5
2951	Lilliefors Test Statistic	0.197
2952	Lilliefors Critical (0.05) Value	0.161
2953	**Data not Normal at (0.05) Significance Level**	
2954		
2955	**Gamma GOF Test Results**	
2956		
2957	Correlation Coefficient R	0.959
2958	A-D Test Statistic	0.827
2959	A-D Critical (0.05) Value	0.751
2960	K-S Test Statistic	0.122
2961	K-S Critical(0.05) Value	0.164
2962	**Data follow Appr. Gamma Distribution at (0.05) Significance Level**	
2963		
2964	**Lognormal GOF Test Results**	
2965		

	A	B	C	D	E	F	G	H	I	J	K	L
2966					Correlation Coefficient R	0.971						
2967					Shapiro Wilk Test Statistic	0.934						
2968					Shapiro Wilk Critical (0.05) Value	0.926						
2969					Approximate Shapiro Wilk P Value	0.0792						
2970					Lilliefors Test Statistic	0.102						
2971					Lilliefors Critical (0.05) Value	0.161						
2972	**Data appear Lognormal at (0.05) Significance Level**											
2973												

APPENDIX D

SOIL SAFETY GUIDELINES

Public Health Soil Safety Guidelines for Metals-Polluted Soil

Pend Oreille, Stevens, and Ferry Counties

Northeast Tri County Health District
Preserve • Promote • Prevent

Although adults do not usually eat soil, or breathe in soil on purpose, you do take in small amounts of soil and dust as you touch, breathe and swallow. Following these guidelines will help keep your family healthier. Dirt and dust can become polluted with metals such as lead and arsenic by past industrial practices, such as metal smelting. Children are particularly at risk from lead and other pollution. So encourage your family to follow soil safety guidelines to reduce the amount of dirt and dust you inhale and ingest.

Inside your home:

- Remove or leave shoes outside your home to avoid tracking in polluted soil.

- Wash hands and face thoroughly after working or playing in the soil, especially before cooking or eating.
- Use soap and water to wash — avoid "waterless" soaps.
- Damp mop and wipe surfaces often to control dust.
- Wash toddler toys and pacifiers often.
- Scrub vegetables and fruits with soap and water.
- After working in areas you know or believe have lead pollution in the soil, wash dirty clothes separately from other clothes.
- Repair painted surfaces in homes. Homes built before 1980 may contain lead-based paint. Older paint flakes may also be a source of lead.
- Eat a balanced diet. Iron and calcium help keep lead from becoming a problem in the body.

Outside your home:

- Keep children from playing in dirt you know is polluted with metals.
- Cover bare patches of dirt with bark, sod, decking, or other materials, or fence off areas if you know they're polluted with metals.
- Dampen dusty soils before gardening or digging so you don't breathe in the dust.
- Wear gardening gloves.
- Do not eat or drink in metals polluted areas.
- Grow your fruit and vegetables in raised beds with clean soil, or mix plenty of compost and other amendments in your garden soil to decrease the amount of pollution in the soil. Avoid railroad ties or pressure treated lumber, they can contain chemicals that pollute soil.
- Do not plant food crops under the roof overhang of your home, where pollution may accumulate.
- Be aware that pets can track polluted dirt into the house on their fur and paws.

Some soils in Pend Oreille, Stevens and Ferry Counties are polluted with metals such as arsenic and lead. Lead and arsenic are harmful and can cause health problems. While not easily absorbed by the skin, these metals can enter the body when small amounts are eaten or breathed. Young children are the most vulnerable. *If you have young children, talk to their pediatrician about a simple blood-lead test.*

For more information on health related questions please contact the Northeast Tri County Health District:

509-684-2262

http://www.netchd.org

Text of this document is sourced from the Seattle and King County public health guidelines. Visit
http://www.ecy.wa.gov/programs/tcp/area_wide/AW/Public%20Health%20S&K.pdf