Appendix C

RAGS D TABLE 3s (Including ProUCL Input and Output Files)

Table 3.1
EXPOSURE POINT CONCENTRATION SUMMARY
RIVERFRONT OU4

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Reasonable Maximum Exposure			Central Tendency Exposure		
						EPC Value	EPC Statistic	EPC Rationale	EPC Value	EPC Statistic	EPC Rationale
210 Tributary	Tetrachloroethene (PCE)	ug/L	13.1	18.1 (N)	35	18.1	UCL-N	(1)	13.1	Mean	(2)
	Trichloroethene (TCE)	ug/L	1.01	1.26 (N)	2.1	1.26	UCL-N	(1)	1.01	Mean	(2)
	Vinyl Chloride	ug/L	0.683	1.06 (NP-C_{95})	0.55 J	0.55	Max	(3)	0.55	Max	(4)

Notes:

EPC = Exposure Point Concentration

J = estimated value

UCL = upper confidence limit

ug/L = micrograms per liter

Statistical methods selected for 95% UCL were as recommended by EPA's ProUCL software. If a constituent was not detected in a sample, one half of the detection limit was used in the calculations.

(1) 95% UCL computed based on normal data using EPA's ProUCL Student's t.
(2) The arithmetic mean concentration was used for the Central Tendency EPC.
(3) In accordance with guidance and ProUCL recommendations, the maximum concentration was used because the calculated UCL exceeds the maximum detected concentration.
(4) In accordance with guidance, the maximum concentration was used because the calculated mean exceeds the maximum detected concentration.

(C_{95}) Recommended UCL was computed using EPA's ProUCL 95% Chebyshev method.
(N) The data are normal at 5% significance level.
(NP) The data are nonparametric. A nonparametric UCL was computed using EPA's ProUCL software.

Table 3.2
EXPOSURE POINT CONCENTRATION SUMMARY
RIVERFRONT OU4

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Reasonable Maximum Exposure			Central Tendency Exposure		
						EPC Value	EPC Statistic	EPC Rationale	EPC Value	EPC Statistic	EPC Rationale
210 Tributary	No COPCs Selected for Sediment										

Notes:

Table 3.3
EXPOSURE POINT CONCENTRATION SUMMARY
RIVERFRONT OU4

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: On-site Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Reasonable Maximum Exposure			Central Tendency Exposure		
						EPC Value	EPC Statistic	EPC Rationale	EPC Value	EPC Statistic	EPC Rationale
On-Site Surface Soil	Tetrachloroethene (PCE)	ug/kg	354	2633 (NP-C_{99})	1500	1500	Max	(1)	354	Mean	(2)
	Trichloroethene (TCE)	ug/kg	52	416 (NP-C_{99})	400	400	Max	(1)	52	Mean	(2)
	Vinyl Chloride	ug/kg	50.6	361 (NP-C_{99})	180 J	180	Max	(1)	50.6	Mean	(2)

Notes:

EPC = Exposure Point Concentration
J = estimated value
UCL = upper confidence limit
ug/kg = micrograms per kilogram

Statistical methods selected for 95% UCL were as recommended by EPA's ProUCL software. If a constituent was not detected in a sample, one half of the detection limit was used in the calculations.

(1) In accordance with guidance and ProUCL recommendations, the maximum concentration was used because the calculated UCL exceeds the maximum detected concentration.
(2) The arithmetic mean concentration was used for the Central Tendency EPC.

(C_{99}) Recommended UCL was computed using EPA's ProUCL 99% Chebyshev method.
(NP) The data are neither normal or lognormal. A nonparametric UCL was computed using EPA's ProUCL software.

Table 3.4
EXPOSURE POINT CONCENTRATION SUMMARY
RIVERFRONT OU4

Scenario Timeframe: Current/Future
Medium: Total Soil (Surface + Subsurface Soil)
Exposure Medium: Toil Soil (Surface + Subsurface Soil)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Reasonable Maximum Exposure			Central Tendency Exposure		
						EPC Value	EPC Statistic	EPC Rationale	EPC Value	EPC Statistic	EPC Rationale
On-Site	Tetrachloroethene (PCE)	ug/kg	444000	2550000 (NP-HB)	6100000	2550000	UCL-HB	(1)	444000	Mean	(2)
	Trichloroethene (TCE)	ug/kg	3750	9507 (NP-HB)	7700	7700	Max	(3)	3750	Mean	(2)
	Vinyl Chloride	ug/kg	6761	15100 (NP-HB)	200	200	Max	(3)	200	Max	(4)

Notes:
EPC = Exposure Point Concentration
UCL = upper confidence limit
ug/kg = micrograms per kilogram

Statistical methods selected for 95% UCL were as recommended by EPA's ProUCL software. If a constituent was not detected in a sample, one half of the detection limit was used in the calculations.

(1) 95% UCL computed based on non-parametric data using EPA's ProUCL 95% Hall's Bootstrap method.
(2) The arithmetic mean concentration was used for the Central Tendency EPC.
(3) In accordance with guidance and ProUCL recommendations, the maximum concentration was used because the calculated UCL exceeds the maximum detected concentration.
(4) In accordance with guidance, the maximum concentration was used because the calculated mean exceeds the maximum detected concentration.

(HB) The UCL was computed using EPA's ProUCL 95% Hall's Bootstrap method.
(NP) The data are neither normal or lognormal. A nonparametric UCL was computed using EPA's ProUCL software.

Table 3.5
EXPOSURE POINT CONCENTRATION SUMMARY
RIVERFRONT OU4

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Reasonable Maximum Exposure			Central Tendency Exposure		
						EPC Value	EPC Statistic	EPC Rationale	EPC Value	EPC Statistic	EPC Rationale
Riverfront OU4	Acetone	ug/L	728	3570 (NP-C_{99})	2100	2100	Max	(1)	728	Mean	(2)
	cis-1,2-Dichloroethene	ug/L	309	1710 (NP-C_{99})	8000	1710	UCL-C_{99}	(3)	309	Mean	(2)
	trans-1,2-Dichloroethene	ug/L	69.4	353 (NP-C_{99})	14 J	14	Max	(1)	14	Max	(4)
	1,2-Dichloroethene (total)	ug/L	273	1560 (NP-C_{99})	4800	1560	UCL-C_{99}	(3)	273	Mean	(2)
	Tetrachloroethene (PCE)	ug/L	3350	36400 (T-$C_{97.5}$)	71000	34600	UCL-$C_{97.5}$	(5)	3350	Mean	(2)
	Trichloroethene (TCE)	ug/L	323	1800 (NP-C_{99})	7900	1800	UCL-C_{99}	(3)	323	Mean	(2)

Notes:
EPC = Exposure Point Concentration
J = estimated value
UCL = upper confidence limit
ug/L = micrograms per liter

Statistical methods selected for 95% UCL were as recommended by EPA's ProUCL software. If a constituent was not detected in a sample, one half of the detection limit was used in the calculations.

(1) In accordance with guidance and ProUCL recommendations, the maximum concentration was used because the calculated UCL exceeds the maximum detected concentration.
(2) The arithmetic mean concentration was used for the Central Tendency EPC.
(3) 95% UCL computed based on nonparametric data using EPA's ProUCL 99% Chebyshev method.
(4) In accordance with guidance, the maximum concentration was used because the calculated mean exceeds the maximum detected concentration.
(5) 95% UCL computed based on lognormal data using EPA's ProUCL 97.5 Chebyshev method.

($C_{97.5}$) Recommended UCL was computed using EPA's ProUCL 97.5% Chebyshev method.
(C_{99}) Recommended UCL was computed using EPA's ProUCL 99% Chebyshev method.
(NP) The data are neither normal or lognormal. A nonparametric UCL was computed using EPA's ProUCL software.
(T) The data follow the Lognormal Distribution.

Table 3.6
EXPOSURE POINT CONCENTRATION SUMMARY
RIVERFRONT OU4

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Sanitary Sewer Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL	Maximum Concentration (Qualifier)	Reasonable Maximum Exposure			Central Tendency Exposure		
						EPC Value	EPC Statistic	EPC Rationale	EPC Value	EPC Statistic	EPC Rationale
Sanitary Sewer System Manhole Inflow	Bromomethane	ug/L	1.7	3.88 (NP-C_{95})	2.2	2.2	Max	(1)	1.7	Mean	(2)
	Chloroform	ug/L	2.09	6.01 (G)	7.5	6.01	UCL-G	(3)	2.09	Mean	(2)
	Tetrachloroethene (PCE)	ug/L	1.98	3.28 (N)	5	3	UCL-N	(4)	1.98	Mean	(2)

Notes:

EPC = Exposure Point Concentration

UCL = upper confidence limit

ug/l = micrograms per liter

Statistical methods selected for 95% UCL were as recommended by EPA's ProUCL software. If a constituent was not detected in a sample, one half of the detection limit was used in the calculations.

(1) In accordance with guidance and ProUCL recommendations, the maximum concentration was used because the calculated UCL exceeds the maximum detected concentration.
(2) The arithmetic mean concentration was used for the Central Tendency EPC.
(3) UCL computed based on gamma distribution using EPA's ProUCL Approximate Gamma.
(4) 95% UCL computed based on normal data using EPA's ProUCL Student's t.

(C_{95}) Recommended UCL was computed using EPA's ProUCL 95% Chebyshev method.
(G) The data follow the gamma distribution. Recommended UCL was computed using EPA's ProUCL Approximate Gamma
(N) The data are normal at 5% significance level.
(NP) The data are neither normal or lognormal. A nonparametric UCL was computed using EPA's ProUCL software.

Table 3.7
EXPOSURE POINT CONCENTRATION SUMMARY
RIVERFRONT OU4

Scenario Timeframe: Current/Future
Medium: Indoor Air (All data for OU4)
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL	Maximum Concentration (Qualifier)	Reasonable Maximum Exposure			Central Tendency Exposure		
						EPC Value	EPC Statistic	EPC Rationale	EPC Value	EPC Statistic	EPC Rationale
Indoor Air	Choroform	ug/m^3	0.27	0.469 (G)	1.2	0.469	UCL-G	(1)	0.27	Mean	(2)
	Tetrachloroethene (PCE)	ug/m^3	1.19	1.96 (G)	11	1.96	UCL-G	(1)	1.19	Mean	(2)
	Trichloroethene (TCE)	ug/m^3	0.665	1.16 (T-H)	7.6	1.16	UCL-H	(3)	0.665	Mean	(2)

Notes:

EPC = Exposure Point Concentration

UCL = upper confidence limit

ug/m^3= micrograms per cubic meter

Statistical methods selected for 95% UCL were as recommended by EPA's ProUCL software. If a constituent was not detected in a sample, one half of the detection limit was used in the calculations.

(1) UCL computed based on gamma distribution using EPA's ProUCL Approximate Gamma.
(2) The arithmetic mean concentration was used for the Central Tendency EPC.
(3) 95% UCL computed based on lognormal data using EPA's ProUCL H statistic

(G) The data follow the gamma distribution. Recommended UCL was computed using EPA's ProUCL Approximate Gamma
(H) Recommended UCL was computed using EPA's ProUCL H statistic.
(T) The data follow the Lognormal Distribution.

Table 3.7a
EXPOSURE POINT CONCENTRATION SUMMARY
RIVERFRONT OU4

Scenario Timeframe: Current/Future
Medium: Indoor Air at Exposure Unit A
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL	Maximum Concentration (Qualifier)	Reasonable Maximum Exposure			Central Tendency Exposure		
						EPC Value	EPC Statistic	EPC Rationale	EPC Value	EPC Statistic	EPC Rationale
Indoor Air at Exposure Unit A	Choroform	ug/m^3	0.165	NC	0.31	0.31	Max	(1)	0.165	Mean	(2)
	Tetrachloroethene (PCE)	ug/m^3	3.395	NC	6.2	6.2	Max	(1)	3.395	Mean	(2)
	Trichloroethene (TCE)	ug/m^3	0.4	NC	0.54	0.54	Max	(1)	0.4	Mean	(2)

Notes:

EPC = Exposure Point Concentration
ug/m^3= micrograms per cubic meter

NC = not calculated. Too few samples.
UCL = upper confidence limit

(1) Maximum concentration selected as RME EPC.
(2) The arithmetic mean concentration was used for the Central Tendency EPC.

Table 3.7b
EXPOSURE POINT CONCENTRATION SUMMARY
RIVERFRONT OU4

Scenario Timeframe: Current/Future
Medium: Indoor Air at Exposure Unit B
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL	Maximum Concentration (Qualifier)	Reasonable Maximum Exposure			Central Tendency Exposure		
						EPC Value	EPC Statistic	EPC Rationale	EPC Value	EPC Statistic	EPC Rationale
Indoor Air at Exposure Unit B	Choroform	ug/m^3	0.247	NC	0.42	0.42	Max	(1)	0.247	Mean	(2)
	Tetrachloroethene (PCE)	ug/m^3	1.39	NC	1.7	1.7	Max	(1)	1.39	Mean	(2)
	Trichloroethene (TCE)	ug/m^3	2.31	NC	7.6	7.6	Max	(1)	2.31	Mean	(2)

Notes:

EPC = Exposure Point Concentration
ug/m^3= micrograms per cubic meter

NC = not calculated. Too few samples.
UCL = upper confidence limit

(1) Maximum concentration selected as RME EPC.
(2) The arithmetic mean concentration was used for the Central Tendency EPC.

Table 3.7c
EXPOSURE POINT CONCENTRATION SUMMARY
RIVERFRONT OU4

Scenario Timeframe: Current/Future
Medium: Indoor Air at Exposure Unit C
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL	Maximum Concentration (Qualifier)	Reasonable Maximum Exposure			Central Tendency Exposure		
						EPC Value	EPC Statistic	EPC Rationale	EPC Value	EPC Statistic	EPC Rationale
Indoor Air at Exposure Unit C	Choroform	ug/m^3	0.6975	NC	1.2	1.2	Max	(1)	0.6975	Mean	(2)
	Tetrachloroethene (PCE)	ug/m^3	0.125	NC	0.17	0.17	Max	(1)	0.125	Mean	(2)
	Trichloroethene (TCE)	ug/m^3	0.1875	NC	0.29	0.29	Max	(1)	0.1875	Mean	(2)

Notes:

EPC = Exposure Point Concentration
ug/m^3= micrograms per cubic meter

NC = not calculated. Too few samples.
UCL = upper confidence limit

(1) Maximum concentration selected as RME EPC.
(2) The arithmetic mean concentration was used for the Central Tendency EPC.

Table 3.7d
EXPOSURE POINT CONCENTRATION SUMMARY
RIVERFRONT OU4

Scenario Timeframe: Current/Future
Medium: Indoor Air at Exposure Unit D
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL	Maximum Concentration (Qualifier)	Reasonable Maximum Exposure			Central Tendency Exposure		
						EPC Value	EPC Statistic	EPC Rationale	EPC Value	EPC Statistic	EPC Rationale
Indoor Air at Exposure Unit D	Choroform	ug/m^3	ND	NC	ND	ND	Max	(1)	ND	Mean	(2)
	Tetrachloroethene (PCE)	ug/m^3	0.1115	NC	0.15	0.15	Max	(1)	0.1115	Mean	(2)
	Trichloroethene (TCE)	ug/m^3	0.528	NC	1.8	1.8	Max	(1)	0.528	Mean	(2)

Notes:

EPC = Exposure Point Concentration
ug/m^3= micrograms per cubic meter

NC = not calculated. Too few samples.
UCL = upper confidence limit

ND = not detected

(1) Maximum concentration selected as RME EPC.
(2) The arithmetic mean concentration was used for the Central Tendency EPC.

Table 3.7e
EXPOSURE POINT CONCENTRATION SUMMARY
RIVERFRONT OU4

Scenario Timeframe: Current/Future
Medium: Indoor Air at Exposure Unit E
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL	Maximum Concentration (Qualifier)	Reasonable Maximum Exposure			Central Tendency Exposure		
						EPC Value	EPC Statistic	EPC Rationale	EPC Value	EPC Statistic	EPC Rationale
Indoor Air at Exposure Unit E	Choroform	ug/m^3	0.22675	NC	0.55	0.55	Max	(1)	0.22675	Mean	(2)
	Tetrachloroethene (PCE)	ug/m^3	0.355	NC	0.48	0.48	Max	(1)	0.355	Mean	(2)
	Trichloroethene (TCE)	ug/m^3	0.315	NC	0.45	0.45	Max	(1)	0.315	Mean	(2)

Notes:

EPC = Exposure Point Concentration
ug/m^3= micrograms per cubic meter

NC = not calculated. Too few samples.
UCL = upper confidence limit

(1) Maximum concentration selected as RME EPC.
(2) The arithmetic mean concentration was used for the Central Tendency EPC.

Table 3.7f
EXPOSURE POINT CONCENTRATION SUMMARY
RIVERFRONT OU4

Scenario Timeframe: Current/Future
Medium: Indoor Air at Exposure Unit F
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL	Maximum Concentration (Qualifier)	Reasonable Maximum Exposure			Central Tendency Exposure		
						EPC Value	EPC Statistic	EPC Rationale	EPC Value	EPC Statistic	EPC Rationale
Indoor Air at Exposure Unit F	Choroform	ug/m^3	0.038	NC	0.038	0.038	Max	(1)	0.038	Mean	(2)
	Tetrachloroethene (PCE)	ug/m^3	3.53	NC	11	11	Max	(1)	3.53	Mean	(2)
	Trichloroethene (TCE)	ug/m^3	0.318	NC	0.765	0.765	Max	(1)	0.318	Mean	(2)

Notes:

EPC = Exposure Point Concentration
ug/m^3= micrograms per cubic meter

NC = not calculated. Too few samples.
UCL = upper confidence limit

(1) Maximum concentration selected as RME EPC.
(2) The arithmetic mean concentration was used for the Central Tendency EPC.

Table 3.8
EXPOSURE POINT CONCENTRATION SUMMARY
RIVERFRONT OU4

Scenario Timeframe:Current/Future Residential
Medium: Outdoor Air
Exposure Medium: Outdoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL	Maximum Concentration (Qualifier)	Reasonable Maximum Exposure			Central Tendency Exposure		
						EPC Value	EPC Statistic	EPC Rationale	EPC Value	EPC Statistic	EPC Rationale
Outdoor Air	Acetone	ug/m^3	3.03E-04	8.74E-04	NA	8.74E-04	UCL	(1)	3.03E-04	Mean	(2)
	cis-1,2-Dichloroethene	ug/m^3	5.09E-03	2.82E-02	NA	2.82E-02	UCL	(1)	5.09E-03	Mean	(2)
	trans-1,2-Dichloroethene	ug/m^3	4.39E-04	4.39E-04	NA	4.39E-04	UCL	(1)	4.39E-04	Mean	(2)
	Tetrachloroethene	ug/m^3	1.34E+02	7.72E+02	NA	7.72E+02	UCL	(1)	1.34E+02	Mean	(2)
	Trichloroethene	ug/m^3	8.88E-01	1.82E+00	NA	1.82E+00	UCL	(1)	8.88E-01	Mean	(2)
	Vinyl Chloride	ug/m^3	1.49E-01	1.49E-01	NA	1.49E-01	UCL	(1)	1.49E-01	Mean	(2)

Notes:

EPC = Exposure Point Concentration
NA = Not Applicable (no measured data)
UCL = upper confidence limit
ug/m^3= micrograms per cubic meter

(1) The RME concentration was based on the highest predicted vapor concentration modeled from the RME/UCL groundwater or soil data (See Appendix D)
(2) The CTE concentration was based on the highest predicted vapor concentration modeled from the CTE groundwater or soil data (See Appendix D).

Table 3.9
EXPOSURE POINT CONCENTRATION SUMMARY
RIVERFRONT OU4

Scenario Timeframe: Current/Future Industrial/Commercial
Medium: Outdoor Air
Exposure Medium: Outdoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL	Maximum Concentration (Qualifier)	Reasonable Maximum Exposure			Central Tendency Exposure		
						EPC Value	EPC Statistic	EPC Rationale	EPC Value	EPC Statistic	EPC Rationale
Outdoor Air	Acetone	ug/m^3	3.03E-04	8.74E-04	NA	8.74E-04	UCL	(1)	3.03E-04	Mean	(2)
	cis-1,2-Dichloroethene	ug/m^3	5.09E-03	2.82E-02	NA	2.82E-02	UCL	(1)	5.09E-03	Mean	(2)
	trans-1,2-Dichloroethene	ug/m^3	4.39E-04	4.39E-04	NA	4.39E-04	UCL	(1)	4.39E-04	Mean	(2)
	Tetrachloroethene	ug/m^3	1.33E+02	7.63E+02	NA	7.63E+02	UCL	(1)	1.33E+02	Mean	(2)
	Trichloroethene	ug/m^3	8.77E-01	1.80E+00	NA	1.80E+00	UCL	(1)	8.77E-01	Mean	(2)
	Vinyl Chloride	ug/m^3	1.47E-01	1.47E-01	NA	1.47E-01	UCL	(1)	1.47E-01	Mean	(2)

Notes:

EPC = Exposure Point Concentration
NA = Not Applicable (no measured data)
UCL = upper confidence limit
ug/m^3= micrograms per cubic meter

(1) The RME concentration was based on the highest predicted vapor concentration modeled from the RME/UCL groundwater or soil data (See Appendix D)
(2) The CTE concentration was based on the highest predicted vapor concentration modeled from the CTE groundwater or soil data (See Appendix D).

Table 3.10
EXPOSURE POINT CONCENTRATION SUMMARY
RIVERFRONT OU4

Scenario Timeframe: Current/Future Construction Worker
Medium: Outdoor Air
Exposure Medium: Outdoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL	Maximum Concentration (Qualifier)	Reasonable Maximum Exposure			Central Tendency Exposure		
						EPC Value	EPC Statistic	EPC Rationale	EPC Value	EPC Statistic	EPC Rationale
Outdoor Air	Acetone	ug/m^3	3.03E-04	8.74E-04	NA	8.74E-04	UCL	(1)	3.03E-04	Mean	(2)
	cis-1,2-Dichloroethene	ug/m^3	5.09E-03	2.82E-02	NA	2.82E-02	UCL	(1)	5.09E-03	Mean	(2)
	trans-1,2-Dichloroethene	ug/m^3	4.39E-04	4.39E-04	NA	4.39E-04	UCL	(1)	4.39E-04	Mean	(2)
	Tetrachloroethene	ug/m^3	1.36E+03	7.80E+03	NA	7.80E+03	UCL	(1)	1.36E+03	Mean	(2)
	Trichloroethene	ug/m^3	8.97E+00	1.84E+01	NA	1.84E+01	UCL	(1)	8.97E+00	Mean	(2)
	Vinyl Chloride	ug/m^3	1.50E+00	1.50E+00	NA	1.50E+00	UCL	(1)	1.50E+00	Mean	(2)

Notes:

EPC = Exposure Point Concentration
NA = Not Applicable (no measured data)
UCL = upper confidence limit
ug/m^3= micrograms per cubic meter

(1) The RME concentration was based on the highest predicted vapor concentration modeled from the RME/UCL groundwater or soil data (See Appendix D)
(2) The CTE concentration was based on the highest predicted vapor concentration modeled from the CTE groundwater or soil data (See Appendix D).

Table 3.11
EXPOSURE POINT CONCENTRATION SUMMARY
RIVERFRONT OU4

Scenario Timeframe: Current/Future
Medium: Sewer Trench Air
Exposure Medium: Sewer Trench Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL	Maximum Concentration (Qualifier)	Reasonable Maximum Exposure			Central Tendency Exposure		
						EPC Value	EPC Statistic	EPC Rationale	EPC Value	EPC Statistic	EPC Rationale
Sewer Trench Air	Acetone	ug/m^3	5.41E-02	1.56E-01	NA	1.56E-01	UCL	(1)	5.41E-02	Mean	(2)
	Bromomethane	ug/m^3	1.45E+01	1.87E+01	NA	1.87E+01	UCL	(1)	1.45E+01	Mean	(2)
	Chloroform	ug/m^3	1.58E+01	4.54E+01	NA	4.54E+01	UCL	(1)	1.58E+01	Mean	(2)
	cis-1,2-Dichloroethene	ug/m^3	1.43E+00	7.92E+00	NA	7.92E+00	UCL	(1)	1.43E+00	Mean	(2)
	trans-1,2-Dichloroethene	ug/m^3	1.44E-01	1.44E-01	NA	1.44E-01	UCL	(1)	1.44E-01	Mean	(2)
	Tetrachloroethene	ug/m^3	6.86E+01	7.08E+02	NA	7.08E+02	UCL	(1)	6.86E+01	Mean	(2)
	Trichloroethene	ug/m^3	4.06E+00	2.26E+01	NA	2.26E+01	UCL	(1)	4.06E+00	Mean	(2)

Notes:

EPC = Exposure Point Concentration
NA = Not Applicable (no measured data)
UCL = upper confidence limit
ug/m^3= micrograms per cubic meter

(1) The RME concentration was based on the highest predicted vapor concentration modeled from the RME/UCL groundwater or sewer water data (See Appendix D)
(2) The CTE concentration was based on the highest predicted vapor or dust concentration modeled from the CTE groundwater or sewer water data (See Appendix D).

SURFACE WATER INPUT

Sample name	Collection date	Tetrachloroethene (PCE) [ug/L or ug/kg]	PCE	Trichloroethene (TCE)	TCE	Vinyl chloride (VC)	VC
OU4-SW-210T	05/04/00	**20.7**	20.7	**1.66**	1.66	<0.2	0.1
OU4-SW-210T	07/26/00	**16.8**	16.8	**1.34**	1.34	<0.2	0.1
OU4-SW-210T	04/17/01	**0.36 J**	0.36	<1	0.5	<1	0.5
OU4-SW-210T	04/17/01	**8.9**	8.9	**0.58 J**	0.58	<1	0.5
OU4-SW-210T	04/17/01	**7.4**	7.4	**0.57 J**	0.57	<1	0.5
OU4-SW-210T	06/01/01	**14**	14	**0.93 J**	0.93	<1	0.5
OU4-SW-210T	08/23/01	**8.4**	8.4	**0.90 J**	0.9	<1	0.5
OUX-SW-EC03	03/13/02	<1	0.5	<1	0.5	**.55 J**	0.55
OUX-SW-EC04	03/13/02	<1	0.5	<1	0.5	<2	1
OU4-SW-210T	03/13/02	**5.**	5	**0.36 J**	0.36	<2	1
OU4-SW-210T	07/22/02	**29.**	29	**2.**	2	<2	1
OU4-SW-210T	08/12/03	**35.**	35	**2.1**	2.1	<2	1
OU4-SW-210T	08/18/04	**29.**	29	**1.2**	1.2	<2	1
OU4-SW-210T	09/21/05	**9.5**	9.5	**0.86 J**	0.86	<2	1
OU4-SW-210T	09/14/06	**11.**	11	**1.1**	1.1	<2	1

General UCL Statistics for Full Data Sets

User Selected Options

From File	S:\Riverfront OU4\RAGS D Tables\Table 3s\SurfaceWater UCL Data.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

PCE

General Statistics

Number of Valid Samples	15	Number of Unique Samples	13

Raw Statistics

Minimum	0.36
Maximum	35
Mean	13.07
Median	9.5
SD	11
Coefficient of Variation	0.841
Skewness	0.754

Log-transformed Statistics

Minimum of Log Data	-1.022
Maximum of Log Data	3.555
Mean of log Data	1.93
SD of log Data	1.519

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.907
Shapiro Wilk Critical Value	0.881

Data appear Normal at 5% Significance Level

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.82
Shapiro Wilk Critical Value	0.881

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	18.07

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	18.33
95% Modified-t UCL	18.16

Assuming Lognormal Distribution

95% H-UCL	95.87
95% Chebyshev (MVUE) UCL	56.03
97.5% Chebyshev (MVUE) UCL	72.06
99% Chebyshev (MVUE) UCL	103.6

Gamma Distribution Test

k star (bias corrected)	0.773
Theta Star	16.9
nu star	23.2
Approximate Chi Square Value (.05)	13.24
Adjusted Level of Significance	0.0324
Adjusted Chi Square Value	12.32
Anderson-Darling Test Statistic	0.592
Anderson-Darling 5% Critical Value	0.767
Kolmogorov-Smirnov Test Statistic	0.181
Kolmogorov-Smirnov 5% Critical Value	0.229

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	22.9
95% Adjusted Gamma UCL	24.61

Data Distribution

Data appear Normal at 5% Significance Level

Nonparametric Statistics

95% CLT UCL	17.74
95% Jackknife UCL	18.07
95% Standard Bootstrap UCL	17.59
95% Bootstrap-t UCL	19.17
95% Hall's Bootstrap UCL	18.44
95% Percentile Bootstrap UCL	17.77
95% BCA Bootstrap UCL	18.2
95% Chebyshev(Mean, Sd) UCL	25.45
97.5% Chebyshev(Mean, Sd) UCL	30.8
99% Chebyshev(Mean, Sd) UCL	41.32

Potential UCL to Use		Use 95% Student's-t UCL	18.07

TCE

General Statistics

Number of Valid Samples	15	Number of Unique Samples	13

Raw Statistics		Log-transformed Statistics	
Minimum	0.36	Minimum of Log Data	-1.022
Maximum	2.1	Maximum of Log Data	0.742
Mean	1.007	Mean of log Data	-0.135
Median	0.9	SD of log Data	0.553
SD	0.558		
Coefficient of Variation	0.555		
Skewness	0.845		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.892	Shapiro Wilk Test Statistic	0.945
Shapiro Wilk Critical Value	0.881	Shapiro Wilk Critical Value	0.881
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1.261	95% H-UCL	1.394
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.655
95% Adjusted-CLT UCL	1.277	97.5% Chebyshev (MVUE) UCL	1.936
95% Modified-t UCL	1.266	99% Chebyshev (MVUE) UCL	2.487

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.996	Data appear Normal at 5% Significance Level	
Theta Star	0.336		
nu star	89.87		
Approximate Chi Square Value (.05)	69.02	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0324	95% CLT UCL	1.244
Adjusted Chi Square Value	66.77	95% Jackknife UCL	1.261
		95% Standard Bootstrap UCL	1.234
Anderson-Darling Test Statistic	0.399	95% Bootstrap-t UCL	1.312
Anderson-Darling 5% Critical Value	0.741	95% Hall's Bootstrap UCL	1.297
Kolmogorov-Smirnov Test Statistic	0.185	95% Percentile Bootstrap UCL	1.244
Kolmogorov-Smirnov 5% Critical Value	0.223	95% BCA Bootstrap UCL	1.278
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.635
		97.5% Chebyshev(Mean, Sd) UCL	1.907
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	2.441
95% Approximate Gamma UCL	1.311		
95% Adjusted Gamma UCL	1.355		

Potential UCL to Use		Use 95% Student's-t UCL	1.261

VC

General Statistics

Number of Valid Samples	15	Number of Unique Samples	4

Raw Statistics		Log-transformed Statistics	
Minimum	0.1	Minimum of Log Data	-2.303
Maximum	1	Maximum of Log Data	0
Mean	0.683	Mean of log Data	-0.578
Median	0.55	SD of log Data	0.772
SD	0.335		
Coefficient of Variation	0.49		
Skewness	-0.457		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.79	Shapiro Wilk Test Statistic	0.71
Shapiro Wilk Critical Value	0.881	Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.836	95% H-UCL	1.242
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.42
95% Adjusted-CLT UCL	0.815	97.5% Chebyshev (MVUE) UCL	1.715
95% Modified-t UCL	0.834	99% Chebyshev (MVUE) UCL	2.295

Gamma Distribution Test		Data Distribution
k star (bias corrected)	2.197	Data do not follow a Discernable Distribution (0.05)
Theta Star	0.311	
nu star	65.92	
Approximate Chi Square Value (.05)	48.24	**Nonparametric Statistics**
Adjusted Level of Significance	0.0324	95% CLT UCL 0.825
Adjusted Chi Square Value	46.38	95% Jackknife UCL 0.836
		95% Standard Bootstrap UCL 0.818
Anderson-Darling Test Statistic	1.537	95% Bootstrap-t UCL 0.815
Anderson-Darling 5% Critical Value	0.745	95% Hall's Bootstrap UCL 0.804
Kolmogorov-Smirnov Test Statistic	0.273	95% Percentile Bootstrap UCL 0.817
Kolmogorov-Smirnov 5% Critical Value	0.224	95% BCA Bootstrap UCL 0.807
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 1.06
		97.5% Chebyshev(Mean, Sd) UCL 1.223
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 1.543
95% Approximate Gamma UCL	0.934	
95% Adjusted Gamma UCL	0.971	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL	1.06

Recommended UCL exceeds the maximum observation

SURFACE SOIL INPUT

					PCE		TCE		VC	
					PCE		TCE		VC	
OU4	OUX-SO-EC03	0	1	--	<7.2	3.6	<7.2	3.6	<14	7
OU4	OUX-SO-EC04	0	1	--	<6.7	3.35	<6.7	3.35	<13	6.5
OU4	OU4-SO-ML6A	0.5	1	--	**.66 J,B**		<6	3	<12	6
OU4	OU4-SO-ML40	0.5	1		**11.**	11	<6.1	3.05	<12	6
OU4	OU4-SO-ML40	0.5	1		**1,500.**	1500	**130 J**	130	<640	320
OU4	OU4-SO-K05	1	1.5		<6	3	<6	3	<12	6
OU4	OU4-SO-K10	1	1.5		<6.1	3.05	<6.1	3.05	<12	6
OU4	OU4-SO-ML41	1	1.5		**10.**	10	<6	3	<12	6
OU4	OU4-SO-ML20	1	2	--	**150 B**		**17.**	17	<14	7
OU4	OU4-SO-ML20	1.5	2	--	**8.0 B**		<6.4	3.2	<13	6.5
OU4	OU4-SO-ML40	1.5	2		**1,300.**	1300	**400.**	400	**180 J**	180

General UCL Statistics for Full Data Sets

User Selected Options

From File	S:\Riverfront OU4\RAGS D Tables\Table 3s\Surface Soil UCL Data.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

PCE

General Statistics

Number of Valid Samples	8	Number of Unique Samples	8

Raw Statistics

Minimum	3
Maximum	1500
Mean	354.3
Median	6.8
SD	647.7
Coefficient of Variation	1.828
Skewness	1.469

Log-transformed Statistics

Minimum of Log Data	1.099
Maximum of Log Data	7.313
Mean of log Data	2.986
SD of log Data	2.677

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.592
Shapiro Wilk Critical Value	0.818

Data not Normal at 5% Significance Level

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.704
Shapiro Wilk Critical Value	0.818

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	788.1

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	858
95% Modified-t UCL	807.9

Assuming Lognormal Distribution

95% H-UCL	3138049
95% Chebyshev (MVUE) UCL	1086
97.5% Chebyshev (MVUE) UCL	1453
99% Chebyshev (MVUE) UCL	2174

Gamma Distribution Test

k star (bias corrected)	0.238
Theta Star	1491
nu star	3.801
Approximate Chi Square Value (.05)	0.645
Adjusted Level of Significance	0.0195
Adjusted Chi Square Value	0.389
Anderson-Darling Test Statistic	1.417
Anderson-Darling 5% Critical Value	0.818
Kolmogorov-Smirnov Test Statistic	0.419
Kolmogorov-Smirnov 5% Critical Value	0.32

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	2088
95% Adjusted Gamma UCL	3461

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL	730.9
95% Jackknife UCL	788.1
95% Standard Bootstrap UCL	710.3
95% Bootstrap-t UCL	65955
95% Hall's Bootstrap UCL	63635
95% Percentile Bootstrap UCL	704.5
95% BCA Bootstrap UCL	840.4
95% Chebyshev(Mean, Sd) UCL	1352
97.5% Chebyshev(Mean, Sd) UCL	1784
99% Chebyshev(Mean, Sd) UCL	2633

Potential UCL to Use		Use 95% Hall's Bootstrap UCL	63635

Recommended UCL exceeds the maximum observation

In Case Bootstrap t and/or Hall's Bootstrap yields an unreasonably large UCL value, use 97.5% or 99% Chebyshev (Mean, Sd) UCL

TCE

General Statistics

Number of Valid Samples	11	Number of Unique Samples	8

Raw Statistics		Log-transformed Statistics	
Minimum	3	Minimum of Log Data	1.099
Maximum	400	Maximum of Log Data	5.991
Mean	52.02	Mean of log Data	2.079
Median	3.2	SD of log Data	1.75
SD	121.4		
Coefficient of Variation	2.335		
Skewness	2.841		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.486	Shapiro Wilk Test Statistic	0.636
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	118.4	95% H-UCL	473.9
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	97.95
95% Adjusted-CLT UCL	145.8	97.5% Chebyshev (MVUE) UCL	128.1
95% Modified-t UCL	123.6	99% Chebyshev (MVUE) UCL	187.3

Gamma Distribution Test		Data Distribution
k star (bias corrected)	0.321	Data do not follow a Discernable Distribution (0.05)
Theta Star	162.1	
nu star	7.059	
Approximate Chi Square Value (.05)	2.203	**Nonparametric Statistics**
Adjusted Level of Significance	0.0278	95% CLT UCL 112.3
Adjusted Chi Square Value	1.788	95% Jackknife UCL 118.4
		95% Standard Bootstrap UCL 109.6
Anderson-Darling Test Statistic	2.242	95% Bootstrap-t UCL 1436
Anderson-Darling 5% Critical Value	0.809	95% Hall's Bootstrap UCL 1588
Kolmogorov-Smirnov Test Statistic	0.43	95% Percentile Bootstrap UCL 122.9
Kolmogorov-Smirnov 5% Critical Value	0.274	95% BCA Bootstrap UCL 151.2
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 211.6
		97.5% Chebyshev(Mean, Sd) UCL 280.7
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 416.4
95% Approximate Gamma UCL	166.7	
95% Adjusted Gamma UCL	205.4	

Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	416.4

Recommended UCL exceeds the maximum observation

VC

General Statistics

Number of Valid Samples	11	Number of Unique Samples	5

Raw Statistics

Minimum	6
Maximum	320
Mean	50.64
Median	6.5
SD	103.4
Coefficient of Variation	2.042
Skewness	2.312

Log-transformed Statistics

Minimum of Log Data	1.792
Maximum of Log Data	5.768
Mean of log Data	2.505
SD of log Data	1.478

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.512
Shapiro Wilk Critical Value	0.85

Data not Normal at 5% Significance Level

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.535
Shapiro Wilk Critical Value	0.85

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	107.2

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	125.2
95% Modified-t UCL	110.8

Assuming Lognormal Distribution

95% H-UCL	237
95% Chebyshev (MVUE) UCL	95.31
97.5% Chebyshev (MVUE) UCL	123.2
99% Chebyshev (MVUE) UCL	178

Gamma Distribution Test

k star (bias corrected)	0.391
Theta Star	129.5
nu star	8.601
Approximate Chi Square Value (.05)	3.088
Adjusted Level of Significance	0.0278
Adjusted Chi Square Value	2.574
Anderson-Darling Test Statistic	2.78
Anderson-Darling 5% Critical Value	0.79
Kolmogorov-Smirnov Test Statistic	0.503
Kolmogorov-Smirnov 5% Critical Value	0.271

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	141
95% Adjusted Gamma UCL	169.2

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL	101.9
95% Jackknife UCL	107.2
95% Standard Bootstrap UCL	100.6
95% Bootstrap-t UCL	11381
95% Hall's Bootstrap UCL	5798
95% Percentile Bootstrap UCL	107.7
95% BCA Bootstrap UCL	123.3
95% Chebyshev(Mean, Sd) UCL	186.6
97.5% Chebyshev(Mean, Sd) UCL	245.4
99% Chebyshev(Mean, Sd) UCL	360.9

Potential UCL to Use

Use 99% Chebyshev (Mean, Sd) UCL 360.9

Recommended UCL exceeds the maximum observation

TOTAL SOIL INPUT

					PCE	PCE	TCE	TCE	VC	VC	
OU4	OUX-SO-EC03	0	1	--	<7.2	3.6	<7.2	3.6	<14	7	
OU4	OUX-SO-EC04	0	1	--	<6.7	3.35	<6.7	3.35	<13	6.5	
OU4	OU4-SO-ML201	6	6.5	--	<6.2	3.1	<6.2	3.1	<12	6	
OU4	OU4-SO-ML202	6	6.5	--	<6	3	<6	3	<12	6	
OU4	OU4-SO-ML203	6	6.5	--	**.55 J**	0.55	3.1 J	3.1	<12	6	
OU4	OU4-SO-ML204	4.5	5.5	--	**18000 E**	18000	**7,300.**		<670		Duplicate
OU4	OU4-SO-ML204	4.5	5.5	--	**17,000.**		**7,700.**	7700	<1300	650	Duplicate
OU4	OU4-SO-ML204	13	13.5	--	**1,200,000.**	1200000	<77000	38500	<150000	75000	
OU4	OU4-SO-ML205	1	2	--	**150 B**		**17.**	17	<14	7	
OU4	OU4-SO-ML206	1.5	2	--	**8.0 B**		<6.4	3.2	<13	6.5	
OU4	OU4-SO-ML04	15.5	16	--	**0.39 J,B**		<6.2	3.1	<12	6	
OU4	OU4-SO-ML6A	0.5	1	--	**.66 J,B**		<6	3	<12	6	
OU4	OU4-SO-K03	7.5	8		<6	3	<6	3	<12	6	
OU4	OU4-SO-K05	1	1.5		<6	3	<6	3	<12	6	
OU4	OU4-SO-K10	1	1.5		<6.1	3.05	<6.1	3.05	<12	6	
OU4	OU4-SO-ML402	6.5	7		**23.**	23	**35.**	35	<12	6	
OU4	OU4-SO-ML404	0.5	1		**11.**	11	<6.1	3.05	<12	6	
OU4	OU4-SO-ML405	5.5	6		<6.1	3.05	<6.1	3.05	**200.**	200	
OU4	OU4-SO-ML406	1.5	2		**1,300.**	1300	**400.**	400	**180 J**	180	
OU4	OU4-SO-ML406	15.4	15.8		**890,000.**	890000	<35,000	17500	<69,000	34500	
OU4	OU4-SO-ML407	15.5	16		**680.**	680	**57 J**	57	<640	320	
OU4	OU4-SO-ML408	0.5	1		**1,500.**	1500	**130 J**	130	<640	320	
OU4	OU4-SO-ML408	5.8	6.3		**670,000.**	670000	<30,000	15000	<61,000	30500	
OU4	OU4-SO-ML408	17.2	18		**6,100,000.**	6100000	<21,000	10500	<41,000	20500	
OU4	OU4-SO-ML410	1	1.5		**10.**	10	<6	3	<12	6	

General UCL Statistics for Full Data Sets

User Selected Options

From File	S:\Riverfront OU4\RAGS D Tables\Table 3s\Total Soil UCL Data.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

PCE

General Statistics

Number of Valid Samples	20	Number of Unique Samples	17

Raw Statistics

Minimum	0.55
Maximum	6100000
Mean	444077
Median	10.5
SD	1375485
Coefficient of Variation	3.097
Skewness	4.047

Log-transformed Statistics

Minimum of Log Data	-0.598
Maximum of Log Data	15.62
Mean of log Data	5.196
SD of log Data	5.345

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.369
Shapiro Wilk Critical Value	0.905

Data not Normal at 5% Significance Level

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.811
Shapiro Wilk Critical Value	0.905

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	975903

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	1247348
95% Modified-t UCL	1022286

Assuming Lognormal Distribution

95% H-UCL	1.025E+14
95% Chebyshev (MVUE) UCL	15059735
97.5% Chebyshev (MVUE) UCL	20345658
99% Chebyshev (MVUE) UCL	30728829

Gamma Distribution Test

k star (bias corrected)	0.121
Theta Star	3659261
nu star	4.854
Approximate Chi Square Value (.05)	1.085
Adjusted Level of Significance	0.038
Adjusted Chi Square Value	0.954
Anderson-Darling Test Statistic	2.5
Anderson-Darling 5% Critical Value	0.927
Kolmogorov-Smirnov Test Statistic	0.3
Kolmogorov-Smirnov 5% Critical Value	0.218

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	1985952
95% Adjusted Gamma UCL	2259614

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL	949982
95% Jackknife UCL	975903
95% Standard Bootstrap UCL	955458
95% Bootstrap-t UCL	2515665
95% Hall's Bootstrap UCL	2548228
95% Percentile Bootstrap UCL	1019742
95% BCA Bootstrap UCL	1359977
95% Chebyshev(Mean, Sd) UCL	1784735
97.5% Chebyshev(Mean, Sd) UCL	2364838
99% Chebyshev(Mean, Sd) UCL	3504339

Potential UCL to Use	Use 95% Hall's Bootstrap UCL 2548228

In Case Bootstrap t and/or Hall's Bootstrap yields an unreasonably large UCL value, use 97.5% or 99% Chebyshev (Mean, Sd) UCL

TCE

General Statistics

Number of Valid Samples	24	Number of Unique Samples	16

Raw Statistics		Log-transformed Statistics	
Minimum	3	Minimum of Log Data	1.099
Maximum	38500	Maximum of Log Data	10.56
Mean	3745	Mean of log Data	3.555
Median	3.275	SD of log Data	3.467
SD	8960		
Coefficient of Variation	2.393		
Skewness	2.994		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.496	Shapiro Wilk Test Statistic	0.715
Shapiro Wilk Critical Value	0.916	Shapiro Wilk Critical Value	0.916
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	6880	95% H-UCL	1653218
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	21632
95% Adjusted-CLT UCL	7948	97.5% Chebyshev (MVUE) UCL	29006
95% Modified-t UCL	7066	99% Chebyshev (MVUE) UCL	43492

Gamma Distribution Test		Data Distribution
k star (bias corrected)	0.17	Data do not follow a Discernable Distribution (0.05)
Theta Star	22029	
nu star	8.16	
Approximate Chi Square Value (.05)	2.828	**Nonparametric Statistics**
Adjusted Level of Significance	0.0392	95% CLT UCL 6754
Adjusted Chi Square Value	2.612	95% Jackknife UCL 6880
		95% Standard Bootstrap UCL 6676
Anderson-Darling Test Statistic	3.701	95% Bootstrap-t UCL 10011
Anderson-Darling 5% Critical Value	0.91	95% Hall's Bootstrap UCL 9507
Kolmogorov-Smirnov Test Statistic	0.324	95% Percentile Bootstrap UCL 6712
Kolmogorov-Smirnov 5% Critical Value	0.198	95% BCA Bootstrap UCL 7925
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 11718
		97.5% Chebyshev(Mean, Sd) UCL 15167
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 21944
95% Approximate Gamma UCL	10806	
95% Adjusted Gamma UCL	11702	

Potential UCL to Use	Use 95% Hall's Bootstrap UCL 9507

In Case Bootstrap t and/or Hall's Bootstrap yields an unreasonably large UCL value, use 97.5% or 99% Chebyshev (Mean, Sd) UCL

VC

General Statistics

Number of Valid Samples	24	Number of Unique Samples	11

Raw Statistics

Minimum	6
Maximum	75000
Mean	6761
Median	6.5
SD	17532
Coefficient of Variation	2.593
Skewness	3.073

Log-transformed Statistics

Minimum of Log Data	1.792
Maximum of Log Data	11.23
Mean of log Data	4.074
SD of log Data	3.333

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.456
Shapiro Wilk Critical Value	0.916

Data not Normal at 5% Significance Level

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.704
Shapiro Wilk Critical Value	0.916

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	12894

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	15046
95% Modified-t UCL	13268

Assuming Lognormal Distribution

95% H-UCL	1238477
95% Chebyshev (MVUE) UCL	25708
97.5% Chebyshev (MVUE) UCL	34427
99% Chebyshev (MVUE) UCL	51553

Gamma Distribution Test

k star (bias corrected)	0.168
Theta Star	40214
nu star	8.07
Approximate Chi Square Value (.05)	2.776
Adjusted Level of Significance	0.0392
Adjusted Chi Square Value	2.561
Anderson-Darling Test Statistic	3.999
Anderson-Darling 5% Critical Value	0.911
Kolmogorov-Smirnov Test Statistic	0.359
Kolmogorov-Smirnov 5% Critical Value	0.198

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	19657
95% Adjusted Gamma UCL	21301

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL	12647
95% Jackknife UCL	12894
95% Standard Bootstrap UCL	12594
95% Bootstrap-t UCL	21786
95% Hall's Bootstrap UCL	15067
95% Percentile Bootstrap UCL	13446
95% BCA Bootstrap UCL	15517
95% Chebyshev(Mean, Sd) UCL	22360
97.5% Chebyshev(Mean, Sd) UCL	29110
99% Chebyshev(Mean, Sd) UCL	42368

Potential UCL to Use

Use 95% Hall's Bootstrap UCL 15067

In Case Bootstrap t and/or Hall's Bootstrap yields an unreasonably large UCL value, use 97.5% or 99% Chebyshev (Mean, Sd) UCL

GROUNDWATER INPUT

Sample ID	Date		Acetone	Acetone	cis-1,2-Dichloroethene	cis-1,2-Dichloroethene		trans-1,2-Dichloroethene	trans-1,2-Dichloroethene		1,2-Dichloroethene (total)	1,2-Dichloroethene (total)		Tetrachloroethene (PCE)	Tetrachloroethene (PCE)		Trichloroethene (TCE)	Trichloroethene (TCE)
OU4-GW-BW-11A-D	2/6/2006		<67	33.5	68	68		<6.7	3.35		68	68		150	150		23	23
OU4-GW-BW-11A-S	2/6/2006		<100	50	210	210		2.9J	2.9		210	210		250	250		51	51
OU4-GW-BW-13A	2/7/2006		<10	5	<1	0.5		<1	0.5		<1	0.5		4.4	4.4		<1	0.5
OU4-GW-BW-13	2/7/2006		<4000	2000	<400	200		<400	200		<400	200		8000	8000		<400	200
OU4-GW-BW-14A	2/7/2006		<10	5	<1	0.5		<1	0.5		<1	0.5		<1	0.5		<1	0.5
OU4-GW-BW-14	2/7/2006		<10	5	<1	0.5		<1	0.5		<1	0.5		<1	0.5		<1	0.5
OU4-GW-BW-10	2/9/2006		<1000	500	<100	50		<100	50		<100	50		1900	1900		<100	50
OU4-GW-BW-11	2/15/2006		<10	5	0.23J	0.23		<1	0.5		0.23J	0.23		35	35		1.1	1.1
OU4-GW-BW-10A	2/15/2006		<10	5	<1	0.5		<1	0.5		<1	0.5		0.80J	0.8		<1	0.5
OU4-GW-BW-07	9/12/2006		<10	5	<1	0.5		<1	0.5		<1	0.5		<1	0.5		<1	0.5
OU4-GW-BW-05A	9/13/2006		<10	5	<1	0.5		<1	0.5		<1	0.5		6.2	6.2		<1	0.5
OU4-GW-BW-05	9/13/2006		<13	6.5	<1.3	0.65		<1.3	0.65		<1.3	0.65		65	65		0.24J	0.24
OU4-GW-BW-02	9/13/2006		<80	40	<8	4		<8	4		<8	4		240	240		<8	4
OU4-GW-BW-08	9/12/2006		<10	5	<1	0.5		<1	0.5		<1	0.5		4.8	4.8		<1	0.5
OU4-GW-BW-08A	9/12/2006		<10	5	<1	0.5		<1	0.5		<1	0.5		0.45J	0.45		<1	0.5
OU4-GW-BW-06	9/13/2006		<10	5	<1	0.5		<1	0.5		<1	0.5		<1	0.5		<1	0.5
OU4-GW-BW-06A	9/13/2006		<10	5	<1	0.5		<1	0.5		<1	0.5		<1	0.5		<1	0.5
OU4-GW-BW-11A-S	9/20/2006		<100	50	140	140		1.6J	1.6		140	140		350	350		82	82
OU4-GW-BW-11A	9/20/2006		<10	5	0.19J	0.19		<1	0.5		0.19J	0.19		36	36		0.97J	0.97
OU4-GW-BW-11A-D	9/20/2006		<100	50	41	41		<10	5		41	41		440	440		26	26
OU4-GW-BW-11A-S	7/17/2007		<200	100	60	60		<20	10		60	60		350	350		72	72
OU4-GW-BW-11A-D	7/17/2007		<80	40	24	24		<8	4		24	24		190	190		23	23
OU4-GW-BW-11	7/17/2007		<10	5	0.16J	0.16		<1	0.5		0.16J	0.16		26	26		0.76J	0.76
OU4-GW-TW-2	7/17/2007		<27000	13500	4500	4500		<2700	1350		4500	4500		48000	48000		5200	5200
OU4-GW-BW-13A	7/18/2007		3.2J	3.2	<1	0.5		<1	0.5		<1	0.5		6.2	6.2		<1	0.5
OU4-GW-BW-13	7/18/2007	Duplicate	<2000	1000	<200	100		<200	100		<200	100		3300			<200	100
OU4-GW-BW-13	7/18/2007	Duplicate	<2000		<200			<200			<200			3500	3500		<200	
OU4-GW-BW-04S	9/14/2006		<10	5	8	8		<1	0.5		8	8		0.34J	0.34		0.34J	0.34
OU4-GW-BW-04D	9/14/2006		<10	5	<1	0.5		<1	0.5		<1	0.5		<1	0.5		<1	0.5
OU4-GW-BW-02A	9/14/2006		<10	5	<1	0.5		<1	0.5		<1	0.5		<1	0.5		<1	0.5
OU4-GW-BW-04A-S	9/14/2006	Duplicate	<10	5	<1	0.5		<1	0.5		<1	0.5		20			0.33J	
OU4-GW-BW-04A-S	9/14/2006	Duplicate	<10		<1			<1			<1			22	22		0.35J	0.35
OU4-GW-BW-04A-D	9/14/2006		<10	5	0.20J	0.2		<1	0.5		0.20J	0.2		33	33		0.68J	0.68
OU4-GW-BW-14	9/19/2006		<10	5	<1	0.5		<1	0.5		<1	0.5		0.24J	0.24		<1	0.5
OU4-GW-BW-14A	9/19/2006		<10	5	<1	0.5		<1	0.5		<1	0.5		<1	0.5		<1	0.5

GROUNDWATER INPUT (continued)

Sample ID	Date		Acetone	Acetone	cis-1,2-Dichloroethene	cis-1,2-Dichloroethene		trans-1,2-Dichloroethene	trans-1,2-Dichloroethene		1,2-Dichloroethene (total)	1,2-Dichloroethene (total)		Tetrachloroethene (PCE)	Tetrachloroethene (PCE)		Trichloroethene (TCE)	Trichloroethene (TCE)
OU4-GW-BW-10	9/21/2006		<200	100	<20	10		<20	10		<20	10		820	820		4.1J	4.1
OU4-GW-BW-10A	9/21/2006		<10	5	<1	0.5		<1	0.5		<1	0.5		4.2	4.2		<1	0.5
OU4-GW-BW-13A	9/22/2006		<10	5	<1	0.5		<1	0.5		<1	0.5		10	10		<1	0.5
OU4-GW-BW-13	9/22/2006	Duplicate	<1300	650	21J			<130	65		21J			4500			41J	
OU4-GW-BW-13	9/22/2006	Duplicate	<1300		23J	23		<130			23J	23		5300	5300		53J	53
OU4-GW-BW-13A	5/9/2007		<10	5	<1	0.5		<1	0.5		<1	0.5		10	10		<1	0.5
OU4-GW-BW-13	5/9/2007		<2900	1450	<290	145		<290	145		<290	145		3700	3700		<290	145
OU4-GW-BW-11	5/10/2007		<27	13.5	<2.7	1.35		<2.7	1.35		<2.7	1.35		34	34		0.92J	0.92
OU4-GW-BW-11A-D	5/10/2007		<100	50	22	22		<10	5		22	22		220	220		23	23
OU4-GW-BW-11A-S	5/10/2007		<200	100	64	64		<20	10		64	64		550	550		93	93
OU4-GW-TW-2	5/10/2007		<20000	10000	2200	2200		<2000	1000		2200	2200		36000	36000		3400	3400
OU4-GW-TW-3	5/10/2007		<200	100	140	140		<20	10		140	140		330	330		230	230
OU4-GW-TW-1	5/10/2007		<400	200	1400	1400		14J	14		1400	1400		82	82		700	700
OU4-GW-TW-3	6/12/2007		2100	2100	<100	50		<100	50		<100	50		<100	50		<100	50
OU4-GW-TW-2	6/12/2007		<10000	5000	4800	4800		<1000	500		4800	4800		51000	51000		5000	5000
OU4-GW-TW-1	6/12/2007		1300	1300	<100	50		<100	50		<100	50		<100	50		<100	50
OU4-GW-BW-11A-D	6/20/2007		<27	13.5	25	25		<2.7	1.35		25	25		150	150		21	21
OU4-GW-BW-11	6/20/2007		<10	5	0.21J	0.21		<1	0.5		0.21J	0.21		36	36		0.97J	0.97
OU4-GW-BW-11A-S	6/20/2007		<100	50	65	65		<10	5		65	65		400	400		71	71
OU4-GW-BW-13A	6/21/2007		<10	5	<1	0.5		<1	0.5		<1	0.5		4.9	4.9		<1	0.5
OU4-GW-BW-13	6/21/2007	Duplicate	<1000	500	<100	50		<100	50		<100	50		4700	4700		36J	36
OU4-GW-BW-13	6/21/2007	Duplicate	<1000		<100			<100			<100			4500			32J	
OU4-GW-BW-11A-D	9/11/2007		<40	20	23	23		<4	2		NR			140	140		22	22
OU4-GW-BW-11A-S	9/11/2007		<100	50	65	65		<10	5		NR			600	600		100	100
OU4-GW-BW-11	9/11/2007	Duplicate	3.7J	3.7	0.20J			<1	0.5		NR			36	36		1	
OU4-GW-BW-11	9/11/2007	Duplicate	<10		0.24J	0.24		<1			NR			34			1.1	1.1
OU4-GW-TW-2	9/11/2007		<25000	12500	8000	8000		<2500	1250		NR			71000	71000		7900	7900
OU4-GW-BW-13A	9/12/2007		2.0J	2	<1	0.5		<1	0.5		NR			7.6	7.6		<1	0.5
OU4-GW-BW-13	9/12/2007		<2000	1000	<200	100		<200	100		NR			4700	4700		41J	41
OU4-GW-BW-02A	10/23/2007	Duplicate	<10	5	<1	0.5		<1	0.5		NR			<1	0.5		<1	0.5
OU4-GW-BW-02A	10/23/2007	Duplicate	<10		<1			<1			NR			<1			<1	
OU4-GW-BW-02	10/23/2007		<100	50	<10	5		<10	5		NR			300	300		<10	5
OU4-GW-BW-13A	10/24/2007		<10	5	<1	0.5		<1	0.5		NR			6.3	6.3		<1	0.5
OU4-GW-BW-13	10/24/2007		<2000	1000	<200	100		<200	100		NR			3600	3600		37J	37
OU4-GW-BW-11A-S	10/25/2007		<40	20	57	57		<4	2		NR			110	110		47	47
OU4-GW-BW-11A-D	10/25/2007		<40	20	14	14		<4	2		NR			110	110		13	13
OU4-GW-BW-11	10/25/2007		<10	5	0.20J	0.2		<1	0.5		NR			33	33		0.94J	0.94
OU4-GW-BW-14A	10/29/2007		8.7J	8.7	<1	0.5		<1	0.5		NR			<1	0.5		<1	0.5
OU4-GW-BW-14	10/29/2007		<10	5	<1	0.5		<1	0.5		NR			1.8	1.8		<1	0.5
OU4-GW-BW-05	10/30/2007		<40	20	<4	2		<4	2		NR			85	85		<4	2
OU4-GW-BW-05A	10/30/2007		<10	5	<1	0.5		<1	0.5		NR			6.9	6.9		<1	0.5
OU4-GW-BW-04A-S	10/31/2007		<10	5	<1	0.5		<1	0.5		NR			16	16		0.23J	0.23
OU4-GW-BW-04A-D	10/31/2007		<10	5	0.56J	0.56		<1	0.5		NR			27	27		0.66J	0.66
OU4-GW-BW-04-D	11/1/2007	Duplicate	<10	5	<1	0.5		<1	0.5		NR			1.8	1.8		<1	0.5
OU4-GW-BW-04-D	11/1/2007	Duplicate	<10		<1			<1			NR			1.7			<1	
OU4-GW-BW-04-S	11/1/2007		<10	5	18	18		<1	0.5		NR			0.95J	0.95		0.30J	0.3

General UCL Statistics for Full Data Sets

User Selected Options

From File	S:\Riverfront OU4\RAGS D Tables\Table 3s\Groundwater UCL Data.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Acetone

General Statistics

Number of Valid Samples	74	Number of Unique Samples	24

Raw Statistics

Minimum	2
Maximum	13500
Mean	727.9
Median	5.75
SD	2457
Coefficient of Variation	3.375
Skewness	4.344

Log-transformed Statistics

Minimum of Log Data	0.693
Maximum of Log Data	9.51
Mean of log Data	3.339
SD of log Data	2.351

Relevant UCL Statistics

Normal Distribution Test

Lilliefors Test Statistic	0.398
Lilliefors Critical Value	0.103

Data not Normal at 5% Significance Level

Lognormal Distribution Test

Lilliefors Test Statistic	0.269
Lilliefors Critical Value	0.103

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	1204

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	1352
95% Modified-t UCL	1228

Assuming Lognormal Distribution

95% H-UCL	1288
95% Chebyshev (MVUE) UCL	1157
97.5% Chebyshev (MVUE) UCL	1488
99% Chebyshev (MVUE) UCL	2137

Gamma Distribution Test

k star (bias corrected)	0.223
Theta Star	3270
nu star	32.94
Approximate Chi Square Value (.05)	20.82
Adjusted Level of Significance	0.0468
Adjusted Chi Square Value	20.63
Anderson-Darling Test Statistic	10.86
Anderson-Darling 5% Critical Value	0.9
Kolmogorov-Smirnov Test Statistic	0.312
Kolmogorov-Smirnov 5% Critical Value	0.114

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	1152
95% Adjusted Gamma UCL	1162

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL	1198
95% Jackknife UCL	1204
95% Standard Bootstrap UCL	1189
95% Bootstrap-t UCL	1675
95% Hall's Bootstrap UCL	1237
95% Percentile Bootstrap UCL	1225
95% BCA Bootstrap UCL	1372
95% Chebyshev(Mean, Sd) UCL	1973
97.5% Chebyshev(Mean, Sd) UCL	2511
99% Chebyshev(Mean, Sd) UCL	3569

Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	3569

cis-1,2-Dichloroethene

General Statistics

Number of Valid Samples	74	Number of Unique Samples	38

Raw Statistics		Log-transformed Statistics	
Minimum	0.16	Minimum of Log Data	-1.833
Maximum	8000	Maximum of Log Data	8.987
Mean	308.8	Mean of log Data	1.655
Median	1	SD of log Data	2.905
SD	1212		
Coefficient of Variation	3.925		
Skewness	4.946		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.465	Lilliefors Test Statistic	0.266
Lilliefors Critical Value	0.103	Lilliefors Critical Value	0.103
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	543.5	95% H-UCL	1694
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	974.8
95% Adjusted-CLT UCL	627.1	97.5% Chebyshev (MVUE) UCL	1278
95% Modified-t UCL	557	99% Chebyshev (MVUE) UCL	1873

Gamma Distribution Test		Data Distribution
k star (bias corrected)	0.185	Data do not follow a Discernable Distribution (0.05)
Theta Star	1673	
nu star	27.31	
Approximate Chi Square Value (.05)	16.39	**Nonparametric Statistics**
Adjusted Level of Significance	0.0468	95% CLT UCL 540.6
Adjusted Chi Square Value	16.23	95% Jackknife UCL 543.5
		95% Standard Bootstrap UCL 535.8
Anderson-Darling Test Statistic	8.871	95% Bootstrap-t UCL 826.1
Anderson-Darling 5% Critical Value	0.925	95% Hall's Bootstrap UCL 567
Kolmogorov-Smirnov Test Statistic	0.243	95% Percentile Bootstrap UCL 566.4
Kolmogorov-Smirnov 5% Critical Value	0.116	95% BCA Bootstrap UCL 665.8
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 923
		97.5% Chebyshev(Mean, Sd) UCL 1189
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 1711
95% Approximate Gamma UCL	514.5	
95% Adjusted Gamma UCL	519.8	

Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	1711

trans-1,2-Dichloroethene

General Statistics

Number of Valid Samples	74	Number of Unique Samples	20

Raw Statistics		Log-transformed Statistics	
Minimum	0.5	Minimum of Log Data	-0.693
Maximum	1350	Maximum of Log Data	7.208
Mean	69.39	Mean of log Data	0.992
Median	0.5	SD of log Data	2.281
SD	245.1		
Coefficient of Variation	3.532		
Skewness	4.415		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.4	Lilliefors Test Statistic	0.283
Lilliefors Critical Value	0.103	Lilliefors Critical Value	0.103
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	116.9	95% H-UCL	98.95
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	92.66
95% Adjusted-CLT UCL	131.9	97.5% Chebyshev (MVUE) UCL	118.7
95% Modified-t UCL	119.3	99% Chebyshev (MVUE) UCL	170

Gamma Distribution Test		Data Distribution
k star (bias corrected)	0.223	Data do not follow a Discernable Distribution (0.05)
Theta Star	311.6	
nu star	32.97	
Approximate Chi Square Value (.05)	20.84	**Nonparametric Statistics**
Adjusted Level of Significance	0.0468	95% CLT UCL 116.3
Adjusted Chi Square Value	20.65	95% Jackknife UCL 116.9
		95% Standard Bootstrap UCL 116.8
Anderson-Darling Test Statistic	11.66	95% Bootstrap-t UCL 151.2
Anderson-Darling 5% Critical Value	0.9	95% Hall's Bootstrap UCL 116.4
Kolmogorov-Smirnov Test Statistic	0.308	95% Percentile Bootstrap UCL 118.5
Kolmogorov-Smirnov 5% Critical Value	0.114	95% BCA Bootstrap UCL 134.6
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 193.6
		97.5% Chebyshev(Mean, Sd) UCL 247.3
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 352.9
95% Approximate Gamma UCL	109.8	
95% Adjusted Gamma UCL	110.8	

Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	352.9

1,2-Dichloroethene (total)

General Statistics

Number of Valid Samples	53	Number of Unique Samples	30

Raw Statistics		Log-transformed Statistics	
Minimum	0.16	Minimum of Log Data	-1.833
Maximum	4800	Maximum of Log Data	8.476
Mean	272.9	Mean of log Data	1.778
Median	1.35	SD of log Data	2.965
SD	943.9		
Coefficient of Variation	3.459		
Skewness	4.186		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.451	Lilliefors Test Statistic	0.269
Lilliefors Critical Value	0.122	Lilliefors Critical Value	0.122
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	490	95% H-UCL	3507
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1277
95% Adjusted-CLT UCL	565.8	97.5% Chebyshev (MVUE) UCL	1686
95% Modified-t UCL	502.4	99% Chebyshev (MVUE) UCL	2490

Gamma Distribution Test		Data Distribution
k star (bias corrected)	0.195	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	1401	
nu star	20.65	
Approximate Chi Square Value (.05)	11.33	**Nonparametric Statistics**
Adjusted Level of Significance	0.0455	95% CLT UCL 486.1
Adjusted Chi Square Value	11.13	95% Jackknife UCL 490
		95% Standard Bootstrap UCL 487.4
Anderson-Darling Test Statistic	5.52	95% Bootstrap-t UCL 903.9
Anderson-Darling 5% Critical Value	0.913	95% Hall's Bootstrap UCL 619.6
Kolmogorov-Smirnov Test Statistic	0.244	95% Percentile Bootstrap UCL 505.4
Kolmogorov-Smirnov 5% Critical Value	0.136	95% BCA Bootstrap UCL 604.9
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 838
		97.5% Chebyshev(Mean, Sd) UCL 1083
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 1563
95% Approximate Gamma UCL	497.3	
95% Adjusted Gamma UCL	505.9	

Potential UCL to Use	Use 99% Chebyshev (Mean, Sd) UCL 1563

Tetrachloroethene (PCE)

General Statistics

Number of Valid Samples	74	Number of Unique Samples	54

Raw Statistics		Log-transformed Statistics	
Minimum	0.24	Minimum of Log Data	-1.427
Maximum	71000	Maximum of Log Data	11.17

Mean	3349	Mean of log Data	3.777
Median	36	SD of log Data	3.308
SD	12046		
Coefficient of Variation	3.597		
Skewness	4.346		

Relevant UCL Statistics

Normal Distribution Test

Lilliefors Test Statistic	0.421
Lilliefors Critical Value	0.103

Data not Normal at 5% Significance Level

Lognormal Distribution Test

Lilliefors Test Statistic	0.0873
Lilliefors Critical Value	0.103

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	5682

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	6409
95% Modified-t UCL	5800

Assuming Lognormal Distribution

95% H-UCL	76222
95% Chebyshev (MVUE) UCL	27525
97.5% Chebyshev (MVUE) UCL	36433
99% Chebyshev (MVUE) UCL	53929

Gamma Distribution Test

k star (bias corrected)	0.175
Theta Star	19104
nu star	25.95
Approximate Chi Square Value (.05)	15.34
Adjusted Level of Significance	0.0468
Adjusted Chi Square Value	15.18
Anderson-Darling Test Statistic	6.084
Anderson-Darling 5% Critical Value	0.933
Kolmogorov-Smirnov Test Statistic	0.238
Kolmogorov-Smirnov 5% Critical Value	0.116

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	5666
95% Adjusted Gamma UCL	5726

Data Distribution

Data appear Lognormal at 5% Significance Level

Nonparametric Statistics

95% CLT UCL	5653
95% Jackknife UCL	5682
95% Standard Bootstrap UCL	5607
95% Bootstrap-t UCL	7452
95% Hall's Bootstrap UCL	5523
95% Percentile Bootstrap UCL	5947
95% BCA Bootstrap UCL	6787
95% Chebyshev(Mean, Sd) UCL	9453
97.5% Chebyshev(Mean, Sd) UCL	12094
99% Chebyshev(Mean, Sd) UCL	17283

Potential UCL to Use

Use 97.5% Chebyshev (MVUE) UCL 36433

Trichloroethene (TCE)

General Statistics

Number of Valid Samples	74	Number of Unique Samples	42

Raw Statistics

Minimum	0.23
Maximum	7900
Mean	322.9
Median	0.97
SD	1277
Coefficient of Variation	3.953

Log-transformed Statistics

Minimum of Log Data	-1.47
Maximum of Log Data	8.975
Mean of log Data	1.603
SD of log Data	2.797

Skewness	4.606

Relevant UCL Statistics

Normal Distribution Test

Lilliefors Test Statistic	0.461
Lilliefors Critical Value	0.103

Data not Normal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	570.2

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	651.9
95% Modified-t UCL	583.4

Lognormal Distribution Test

Lilliefors Test Statistic	0.246
Lilliefors Critical Value	0.103

Data not Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% H-UCL	1065
95% Chebyshev (MVUE) UCL	680.1
97.5% Chebyshev (MVUE) UCL	888.7
99% Chebyshev (MVUE) UCL	1299

Gamma Distribution Test

k star (bias corrected)	0.181
Theta Star	1784
nu star	26.79
Approximate Chi Square Value (.05)	15.99
Adjusted Level of Significance	0.0468
Adjusted Chi Square Value	15.83
Anderson-Darling Test Statistic	10.23
Anderson-Darling 5% Critical Value	0.928
Kolmogorov-Smirnov Test Statistic	0.253
Kolmogorov-Smirnov 5% Critical Value	0.116

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	541
95% Adjusted Gamma UCL	546.7

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL	567
95% Jackknife UCL	570.2
95% Standard Bootstrap UCL	570.6
95% Bootstrap-t UCL	798.5
95% Hall's Bootstrap UCL	570.1
95% Percentile Bootstrap UCL	586.8
95% BCA Bootstrap UCL	687.6
95% Chebyshev(Mean, Sd) UCL	969.8
97.5% Chebyshev(Mean, Sd) UCL	1250
99% Chebyshev(Mean, Sd) UCL	1799

Potential UCL to Use

Use 99% Chebyshev (Mean, Sd) UCL	1799

SANITARY SEWER WATER INPUT

Sample ID		**Date**	Bromometh	Bromomethane	Chloroform	Chloroform	PCE	PCE
OUX-WA-MH051		2/17/2004	<2	1	0.97J	0.97	1.4	1.4
OUX-WA-MH054		2/17/2004	<2	1	0.99J	0.99	1.5	1.5
OUX-WA-MH057W		2/17/2004	2.2	2.2	0.60J	0.6	1.3	1.3
OUX-WA-MH058		2/17/2004	<2	1	<1	0.5	<1	0.5
OUX-WA-MH063		2/17/2004	<8	4	2J	2	2.2J	2.2
OUX-WA-MH051	Duplicate	2/17/2004	<2	1	7.5	7.5	5	5
OUX-WA-MH051	Duplicate	2/17/2004	<2		5		2.9	

General UCL Statistics for Full Data Sets

User Selected Options

From File	S:\Riverfront OU4\RAGS D Tables\Table 3s\Sanitary Sewer Water UCL Data.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Bromomethane

General Statistics

Number of Valid Samples	6	Number of Unique Samples	3

Raw Statistics		**Log-transformed Statistics**	
Minimum	1	Minimum of Log Data	0
Maximum	4	Maximum of Log Data	1.386
Mean	1.7	Mean of log Data	0.362
Median	1	SD of log Data	0.592
SD	1.225		
Coefficient of Variation	0.72		
Skewness	1.783		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.685	Shapiro Wilk Test Statistic	0.705
Shapiro Wilk Critical Value	0.788	Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	2.708	95% H-UCL	3.75
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	3.402
95% Adjusted-CLT UCL	2.911	97.5% Chebyshev (MVUE) UCL	4.157
95% Modified-t UCL	2.768	99% Chebyshev (MVUE) UCL	5.639

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.676	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	1.014	
nu star	20.11	
Approximate Chi Square Value (.05)	10.93	**Nonparametric Statistics**
Adjusted Level of Significance	0.0122	95% CLT UCL 2.522
Adjusted Chi Square Value	8.599	95% Jackknife UCL 2.708
		95% Standard Bootstrap UCL 2.403
Anderson-Darling Test Statistic	1.002	95% Bootstrap-t UCL 2.95
Anderson-Darling 5% Critical Value	0.701	95% Hall's Bootstrap UCL 2.509
Kolmogorov-Smirnov Test Statistic	0.414	95% Percentile Bootstrap UCL 2.6
Kolmogorov-Smirnov 5% Critical Value	0.334	95% BCA Bootstrap UCL 2.4
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 3.879
		97.5% Chebyshev(Mean, Sd) UCL 4.822
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 6.675
95% Approximate Gamma UCL	3.127	
95% Adjusted Gamma UCL	3.976	

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	3.879

Chloroform

General Statistics

Number of Valid Samples	6	Number of Unique Samples	6

Raw Statistics		Log-transformed Statistics	
Minimum	0.5	Minimum of Log Data	-0.693
Maximum	7.5	Maximum of Log Data	2.015
Mean	2.093	Mean of log Data	0.244
Median	0.98	SD of log Data	0.993
SD	2.701		
Coefficient of Variation	1.29		
Skewness	2.251		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.657	Shapiro Wilk Test Statistic	0.879
Shapiro Wilk Critical Value	0.788	Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4.316	95% H-UCL	13.93
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	5.155
95% Adjusted-CLT UCL	4.99	97.5% Chebyshev (MVUE) UCL	6.571
95% Modified-t UCL	4.485	99% Chebyshev (MVUE) UCL	9.352

Gamma Distribution Test		Data Distribution
k star (bias corrected)	0.685	Data appear Gamma Distributed at 5% Significance Level
Theta Star	3.054	
nu star	8.224	
Approximate Chi Square Value (.05)	2.865	**Nonparametric Statistics**
Adjusted Level of Significance	0.0122	95% CLT UCL 3.907
Adjusted Chi Square Value	1.853	95% Jackknife UCL 4.316
		95% Standard Bootstrap UCL 3.756
Anderson-Darling Test Statistic	0.641	95% Bootstrap-t UCL 18.16
Anderson-Darling 5% Critical Value	0.713	95% Hall's Bootstrap UCL 14.32
Kolmogorov-Smirnov Test Statistic	0.316	95% Percentile Bootstrap UCL 4.098
Kolmogorov-Smirnov 5% Critical Value	0.34	95% BCA Bootstrap UCL 4.41
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 6.901
		97.5% Chebyshev(Mean, Sd) UCL 8.981
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 13.07
95% Approximate Gamma UCL	6.008	
95% Adjusted Gamma UCL	9.289	

Potential UCL to Use		Use 95% Approximate Gamma UCL	6.008

PCE

General Statistics

Number of Valid Samples	6	Number of Unique Samples	6

Raw Statistics		Log-transformed Statistics	
Minimum	0.5	Minimum of Log Data	-0.693
Maximum	5	Maximum of Log Data	1.609
Mean	1.983	Mean of log Data	0.452
Median	1.45	SD of log Data	0.75
SD	1.574		
Coefficient of Variation	0.794		
Skewness	1.813		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.804	Shapiro Wilk Test Statistic	0.949
Shapiro Wilk Critical Value	0.788	Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	3.278	95% H-UCL	6.613
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.588
95% Adjusted-CLT UCL	3.549	97.5% Chebyshev (MVUE) UCL	5.72
95% Modified-t UCL	3.357	99% Chebyshev (MVUE) UCL	7.944

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.259	Data appear Normal at 5% Significance Level	
Theta Star	1.575		
nu star	15.11		
Approximate Chi Square Value (.05)	7.339	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0122	95% CLT UCL	3.04
Adjusted Chi Square Value	5.5	95% Jackknife UCL	3.278
		95% Standard Bootstrap UCL	2.925
Anderson-Darling Test Statistic	0.374	95% Bootstrap-t UCL	5.082
Anderson-Darling 5% Critical Value	0.703	95% Hall's Bootstrap UCL	9.919
Kolmogorov-Smirnov Test Statistic	0.237	95% Percentile Bootstrap UCL	2.983
Kolmogorov-Smirnov 5% Critical Value	0.335	95% BCA Bootstrap UCL	3.317
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	4.784
		97.5% Chebyshev(Mean, Sd) UCL	5.996
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	8.377
95% Approximate Gamma UCL	4.084		
95% Adjusted Gamma UCL	5.449		

Potential UCL to Use		Use 95% Student's-t UCL	3.278

INDOOR AIR INPUT

Sample ID	Sample Date		CHLOROFC	CHLOROFORM	PCE	PCE	TCE	TCE
15	21204		0.041U	0.0205	0.59	0.59	0.26	0.26
16	21204		0.31	0.31	6.2	6.2	0.54	0.54
9	21104		0.42	0.42	1.7	1.7	1.1	1.1
10	21104		0.079	0.079	0.76	0.76	0.046U	0.023
21	21204		0.36	0.36	1.7	1.7	0.52	0.52
22	21204		0.13	0.13	1.4	1.4	7.6	7.6
1	21104		1.2	1.2	0.1	0.1	0.06	0.06
2	21104		0.89	0.89	0.17	0.17	0.29	0.29
11	21204		0.33	0.33	0.12	0.12	0.24	0.24
12	21204		0.37	0.37	0.11	0.11	0.16	0.16
7	21104		.04U	0.02	0.12	0.12	0.066	0.066
8	21104		.04U	0.02	0.1	0.1	0.087	0.087
17	21204		0.047U	0.0235	0.15	0.15	1.8	1.8
18	21204		0.041U	0.0205	0.076	0.076	0.16	0.16
4	21104		0.06	0.06	0.15	0.15	0.23	0.23
5	21104		0.034U	0.017	0.42	0.42	0.32	0.32
14	21204		0.28	0.28	0.48	0.48	0.45	0.45
20	21204	Duplicate	0.55	0.55	0.35		0.26	0.26
20FD	21204	Duplicate	0.5		0.37	0.37	0.16	
NA	92402				0.136	0.136	0.175	0.175
NA	92502				0.192	0.192	0.257	0.257
NA	92602				0.446	0.446	0.765	0.765
NA	92402				0.855	0.855	0.361	0.361
NA	92502				0.952	0.952	0.765	0.765
NA	92602				1.32	1.32	0.0819	0.0819
8	51503		0.038	0.038	11	11	0.066	0.066

General UCL Statistics for Full Data Sets

User Selected Options

From File	S:\Riverfront OU4\RAGS D Tables\Table 3s\Indoor Air UCL Data(rev1).wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

CHLOROFORM

General Statistics

Number of Valid Samples	19	Number of Unique Samples	17

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.017	Minimum of Log Data	-4.075
Maximum	1.2	Maximum of Log Data	0.182
Mean	0.27	Mean of log Data	-2.161
Median	0.13	SD of log Data	1.48
SD	0.325		
Coefficient of Variation	1.202		
Skewness	1.704		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.778	Shapiro Wilk Test Statistic	0.885
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.4	95% H-UCL	1.119
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.853
95% Adjusted-CLT UCL	0.424	97.5% Chebyshev (MVUE) UCL	1.088
95% Modified-t UCL	0.405	99% Chebyshev (MVUE) UCL	1.549

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.631	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	0.429	
nu star	23.97	
Approximate Chi Square Value (.05)	13.83	**Nonparametric Statistics**
Adjusted Level of Significance	0.0369	95% CLT UCL 0.393
Adjusted Chi Square Value	13.15	95% Jackknife UCL 0.4
		95% Standard Bootstrap UCL 0.391
Anderson-Darling Test Statistic	0.777	95% Bootstrap-t UCL 0.471
Anderson-Darling 5% Critical Value	0.783	95% Hall's Bootstrap UCL 0.568
Kolmogorov-Smirnov Test Statistic	0.167	95% Percentile Bootstrap UCL 0.394
Kolmogorov-Smirnov 5% Critical Value	0.207	95% BCA Bootstrap UCL 0.418
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 0.596
		97.5% Chebyshev(Mean, Sd) UCL 0.736
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 1.012
95% Approximate Gamma UCL	0.469	
95% Adjusted Gamma UCL	0.493	

Potential UCL to Use		Use 95% Approximate Gamma UCL	0.469

PCE

General Statistics

Number of Valid Samples	25	Number of Unique Samples	21

Raw Statistics		Log-transformed Statistics	
Minimum	0.076	Minimum of Log Data	-2.577
Maximum	11	Maximum of Log Data	2.398
Mean	1.185	Mean of log Data	-0.854
Median	0.42	SD of log Data	1.339
SD	2.392		
Coefficient of Variation	2.019		
Skewness	3.497		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.486	Shapiro Wilk Test Statistic	0.918
Shapiro Wilk Critical Value	0.918	Shapiro Wilk Critical Value	0.918
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	2.003	95% H-UCL	2.355
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2.36
95% Adjusted-CLT UCL	2.329	97.5% Chebyshev (MVUE) UCL	2.957
95% Modified-t UCL	2.059	99% Chebyshev (MVUE) UCL	4.13

Gamma Distribution Test		Data Distribution
k star (bias corrected)	0.557	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	2.125	
nu star	27.87	
Approximate Chi Square Value (.05)	16.83	Nonparametric Statistics
Adjusted Level of Significance	0.0395	95% CLT UCL 1.972
Adjusted Chi Square Value	16.24	95% Jackknife UCL 2.003
		95% Standard Bootstrap UCL 1.966
Anderson-Darling Test Statistic	1.626	95% Bootstrap-t UCL 4.538
Anderson-Darling 5% Critical Value	0.797	95% Hall's Bootstrap UCL 5.638
Kolmogorov-Smirnov Test Statistic	0.175	95% Percentile Bootstrap UCL 2.074
Kolmogorov-Smirnov 5% Critical Value	0.183	95% BCA Bootstrap UCL 2.517
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 3.27
		97.5% Chebyshev(Mean, Sd) UCL 4.172
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 5.945
95% Approximate Gamma UCL	1.962	
95% Adjusted Gamma UCL	2.033	

Potential UCL to Use		Use 95% Approximate Gamma UCL	1.962

TCE

General Statistics

Number of Valid Samples	25	Number of Unique Samples	21

Raw Statistics

Minimum	0.023
Maximum	7.6
Mean	0.665
Median	0.26
SD	1.497
Coefficient of Variation	2.25
Skewness	4.49

Log-transformed Statistics

Minimum of Log Data	-3.772
Maximum of Log Data	2.028
Mean of log Data	-1.305
SD of log Data	1.224

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.395
Shapiro Wilk Critical Value	0.918

Data not Normal at 5% Significance Level

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.969
Shapiro Wilk Critical Value	0.918

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	1.178

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	1.445
95% Modified-t UCL	1.223

Assuming Lognormal Distribution

95% H-UCL	1.158
95% Chebyshev (MVUE) UCL	1.236
97.5% Chebyshev (MVUE) UCL	1.535
99% Chebyshev (MVUE) UCL	2.121

Gamma Distribution Test

k star (bias corrected)	0.622
Theta Star	1.07
nu star	31.11
Approximate Chi Square Value (.05)	19.37
Adjusted Level of Significance	0.0395
Adjusted Chi Square Value	18.74
Anderson-Darling Test Statistic	1.527
Anderson-Darling 5% Critical Value	0.79
Kolmogorov-Smirnov Test Statistic	0.202
Kolmogorov-Smirnov 5% Critical Value	0.182

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	1.069
95% Adjusted Gamma UCL	1.105

Data Distribution

Data appear Lognormal at 5% Significance Level

Nonparametric Statistics

95% CLT UCL	1.158
95% Jackknife UCL	1.178
95% Standard Bootstrap UCL	1.145
95% Bootstrap-t UCL	2.74
95% Hall's Bootstrap UCL	2.936
95% Percentile Bootstrap UCL	1.244
95% BCA Bootstrap UCL	1.614
95% Chebyshev(Mean, Sd) UCL	1.971
97.5% Chebyshev(Mean, Sd) UCL	2.536
99% Chebyshev(Mean, Sd) UCL	3.645

Potential UCL to Use

Use 95% H-UCL	1.158

Exposure Unit A
Indoor Air Input

			Chloroform		PCE		TCE	
15	Exposure Unit A	21204	0.041U	0.0205	0.59	0.59	0.26	0.26
16	Exposure Unit A	21204	0.31	0.31	6.2	6.2	0.54	0.54
			max	0.31		6.2		0.54
			mean	0.16525		3.395		0.4

Exposure Unit B
Indoor Air Input

		Chloroform		PCE		TCE	
Exposure Unit B	21104	0.42	0.42	1.7	1.7	1.1	1.1
Exposure Unit B	21104	0.079	0.079	0.76	0.76	0.046U	0.023
Exposure Unit B	21204	0.36	0.36	1.7	1.7	0.52	0.52
Exposure Unit B	21204	0.13	0.13	1.4	1.4	7.6	7.6
		Max	0.42		1.7		7.6
		Mean	0.24725		1.39		2.31075

Exposure Unit C
Indoor Air Input

			Chloroform		PCE		TCE	
1	Exposure Unit C	21104	1.2	1.2	0.1	0.1	0.06	0.06
2	Exposure Unit C	21104	0.89	0.89	0.17	0.17	0.29	0.29
11	Exposure Unit C	21204	0.33	0.33	0.12	0.12	0.24	0.24
12	Exposure Unit C	21204	0.37	0.37	0.11	0.11	0.16	0.16
			max	1.2		0.17		0.29
			mean	0.6975		0.125		0.1875

Exposure Unit D
Indoor Air Input

			Chloroform		PCE		TCE	
7	Exposure Unit D	21104	.04U	0.02	0.12	0.12	0.066	0.066
8	Exposure Unit D	21104	.04U	0.02	0.1	0.1	0.087	0.087
17	Exposure Unit D	21204	0.047U	0.0235	0.15	0.15	1.8	1.8
18	Exposure Unit D	21204	0.041U	0.0205	0.076	0.076	0.16	0.16
			max	ND		0.15		1.8
			mean	ND		0.1115		0.52825

Exposure Unit E
Indoor Air Input

				Chloroform		PCE		TCE	
	4	Exposure Unit E	21104	0.06	0.06	0.15	0.15	0.23	0.23
	5	Exposure Unit E	21104	0.034U	0.017	0.42	0.42	0.32	0.32
	14	Exposure Unit E	21204	0.28	0.28	0.48	0.48	0.45	0.45
	20	Exposure Unit E	21204 Duplicate	0.55	0.55	0.35		0.26	0.26
20FD		Exposure Unit E	21204 Duplicate	0.5		0.37	0.37	0.16	
				max	0.55		0.48		0.45
				mean	0.22675		0.355		0.315

Exposure Unit F
Indoor Air Input

			Chloroform		PCE		TCE	
NA	Exposure Unit F	92402			0.855	0.855	0.361	0.361
NA	Exposure Unit F	92502			0.952	0.952	0.765	0.765
NA	Exposure Unit F	92602			1.32	1.32	0.0819	0.0819
8	Exposure Unit F	51503	0.038	0.038	11	11	0.066	0.066
			max	0.038		11		0.765
			mean	0.038		3.53175		0.318475