S/A **Skinner Associates**

Vapor Intrusion Health Risk Assessment for Uptown Newport Village – Phase One - Newport Beach, California

By:

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EXECUTIVE SUMMARY

A Vapor Intrusion Health Risk Assessment (HRA) for the proposed Phase 1 portion of the Uptown Newport development located at 4311-4321 Jamboree Road in Newport Beach California was performed by Skinner Associates to evaluate the potential for human health risks assocatied with the development of the Phase 1 portion of the Uptown Newport site into a high density residential development. Based on subsequent investigations, the Phase 1 portion of the property has no known environmental impacts. However, subsurface soil and groundwater contamination has impacted the Phase 2 portion of the site.

Based on the results of this soil-gas vapor intrusion HRA, future residents and visitors of the Uptown Newport Village Phase 1 development will not be exposed to unacceptable levels of VOCs as a result of vapor intrusion into buildings.

Background: The following is a Vapor Intrusion Health Risk Assessment (HRA) for the proposed Phase 1 portion of the Uptown Newport development located at 4311-4321 Jamboree Road in Newport Beach California (See Figures 1-4). The site consists of approximately 25 acres of land to be developed into multi-family residential dwellings with subterranean basement parking and limited retail commercial. The basement parking slab-on-grade depths are anticipated to be 5 to 18 feet below the existing grade. The proposed residential dwellings and retail commercial development are to be located above the subsurface parking garages or at elevations above the existing grades at the site.

The site is proposed to be constructed in two phases. Phase 1 will consist of approximately 12.29 acres of land located in the south and southwest portions of the site. The Phase 2 development consists of approximately 12.76 acres of land located in the north and northeast portions of the site. The Phase 2 site is currently occupied by the Jazz Semi-Conductor manufacturing facility.

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Background: The following is a Vapor Intrusion Health Risk Assessment (HRA) for the proposed Phase 1 portion of the Uptown Newport development located at 4311-4321 Jamboree Road in Newport Beach California (See Figures 1-4). The site consists of approximately 25 acres of land to be developed into multi-family residential dwellings with subterranean basement parking and limited retail commercial. The basement parking slab-on-grade depths are anticipated to be 5 to 18 feet below the existing grade. The proposed residential dwellings and retail commercial development are to be located above the subsurface parking garages or at elevations above the existing grades at the site.

The site is proposed to be constructed in two phases. Phase 1 will consist of approximately 12.29 acres of land located in the south and southwest portions of the site. The Phase 2 development consists of approximately 12.76 acres of land located in the north and northeast portions of the site. The Phase 2 site is currently occupied by the Jazz Semi-Conductor manufacturing facility.

Prior usage of the Phase 1 portion of the site has been limited to open parking space, landscape areas, and an office/administrative building. Manufacturing, chemical handling operations, or storage of hazardous materials have not occurred in the Phase 1 portion of the site. Subsurface soil and groundwater contamination has impacted the Phase 2 portion of the site by volatile organic compounds (VOCs) from historical solvent and hydrocarbon underground storage tank releases. Numerous subsurface investigations and remediation activities have been conducted at this site. No significant subsurface soil contamination has been identified in the Phase 1 portion of the site. The underlying groundwater in the vicinity of the site is not used for municipal purposes (high salinity).

For this HRA, soil-gas vapor intrusion modeling was chosen as the best measure of future residential exposure to VOCs. Since basement parking sub-grade elevations are anticipated at depths of 5 to 18 feet below the existing grade, 5, 10, and 15 foot sampling depths were used in the model. The soil-gas samples were collected from both nested and single well soil gas probes located in the perimeter area of the contaminated soil and groundwater in the Phase 2 portion of the site (Figure 4). Probe locations were selected to represent the highest potential source of

contamination from the Phase 2 area and are generally over the 100 foot vapor zone-of-impact for vapor intrusion into the Phase 1 development.

Cancer risks: 95% UCL - Slab: Soil Gas vapor intrusion risk for 95% UCL concentrations of all VOCs using 15, 10 and 5' sample depth bgs for slab-on-grade were: 3.69E-07, 5.32E-07 and 9.56E-07.

Hazard: 95% UCL - Slab: The vapor intrusion hazard from 95% soil-gas for 15, 10 and 5' sampling depths were: **2.00E-03, 2.89E-03 and 5.25E-03.**

Cancer risks: Maximum - Slab: Vapor intrusion risk from soil-gas using the maximum concentrations using 15, 10 and 5' sample depth bgs. were: **1.42E-06, 2.01E-06** and **3.61E-06.**

Hazard: Maximum - Slab: Vapor intrusion hazard from soil-gas using the maximum concentrations for 15, 10 and 5' sampling depths were: **7.49E-03, 1.73E-02** and **3.16E-02.**

Cancer risks: 95% UCL - Garage: The soil gas vapor intrusion risk for the 95% UCL concentrations of all VOCs using 15, 10 and 5' sample depth bgs. for garage were: **8.96E-07, 2.34E-06** and **2.34E-06.**

Hazard: 95% UCL - Garage: The vapor intrusion hazard from 95% soil-gas for 15, 10 and 5' sampling depths were: **4.97E-03 , 1.32E-02**. and **1.31E-02.**

Cancer risks: Maximum - Garage: The vapor intrusion risk from soil-gas using the maximum concentrations using 15, 10 and 5' sample depth bgs. were: **4.24E-06, 8.78E-06** and **8.78E-06.**

Hazard: Maximum - Garage: The vapor intrusion hazard from soil-gas using the maximum concentrations for 15, 10 and 5' sampling depths were: **2.78E-02, 7.27E-02, and 7.27E-02.**

Conclusion: Based on 95% UCL soil-gas concentrations of VOCs, the estimated vapor intrusion risk and hazards in the proposed subsurface parking garages are below 3E-6 for risk and below 1.0 for hazard and are within acceptable limits for residential exposure. For maximum soil-gas concentrations, the risks are below E-5 and hazards are below 1.0 and are all within acceptable limits for the planned residential site. The SG-Screen model assumes soil-gas vapor sources are within a 100 foot zone of impact for VOC vapors.

Based on 95% UCL soil-gas concentrations of VOCs, the estimated vapor intrusion risk and hazards of proposed structures constructed at or above the existing grades are below E-6 for risk and below for hazard and are within acceptable limits for residential exposure. For maximum soil-gas concentrations, the risks are below 4E-6 and hazards are below 1.0 and are all within acceptable limits for the planned residential site.

This HRA has been limited to the Phase 1 portion of the site.

Vapor Intrusion Health Risk Assessment for Uptown Newport Site – Phase One - Newport Beach, California

1.0 Introduction and Background

1.1 Background

Skinner Associates was asked by Robert Manning of R M Environmental, Inc., (RME) to prepare a soil-gas vapor intrusion Health Risk Assessment (HRA) for the Phase 1 portion of the proposed Uptown Newport Village development site at 4311-4321 Jamboree Road in Newport Beach California (Figure 1).

The Uptown Newport development is proposed to be constructed in two phases. The Phase 1 development will consist of approximately 12.29 acres of land located in the south and southwest portions of the site (Figure 2). The Phase 2 development consists of approximately 12.76 acres of land located in the north and northeast portions of the site (Figure 3). The approximate 25 acre Site consists of a semi-conductor manufacturing facility that includes two large buildings and large parking areas to the northeast and southeast of the buildings.

Prior usage of the Phase 1 portion of the site has been limited to open parking space, landscape areas, and an office/administrative building. Manufacturing, chemical handling operations, or storage of hazardous materials have not occurred in the Phase 1 portion of the site. The underlying groundwater in the vicinity of the site is not used for municipal purposes (high salinity).

Subsurface soil and groundwater contamination has impacted the Phase 2 portion of the site by volatile organic compounds (VOCs) from historical solvent and hydrocarbon underground storage tank releases. Numerous subsurface investigation and remediation activities have been conducted at this site.

1.2 Purpose

This HRA has been prepared to evaluate potential risks to future residents within the proposed Phase 1 portion of the Uptown Newport development. The HRA will be submitted to the California State Regional Water Quality Control Board (Water Board) for review and approval of the HRA prior to development of the Uptown Newport site.

1.3 Future Development

The proposed development of the site consists of the construction of multi-family residential dwellings with subterranean basement parking and limited retail commercial. The basement parking slab-on-grade depths are anticipated to be 5 to 18 feet below the existing grade. The proposed residential dwellings and retail commercial development are to be located above the subsurface parking garages or at elevations above the existing grades at the site. Residential buildings may include low-rise row-houses and 4 and 5-story apartments or condominiums

featuring a range of floor plan sizes and configurations. Mid-rise to high-rise buildings are also possible. The Phase 1 portion of the site will include demolition of the existing single-story office building at 4311 Jamboree (the "Half Dome Building"), and development of the westerly portion of the property. The development of the Phase 1 portion of the site will include approximately 680 units and 11,500 square feet of retail on 12.29 acres. The construction is anticipated to commence in 2014 with build-out of Phase 1 through 2019.

The TowerJazz semiconductor facility is an existing semiconductor chip manufacturing facility that operates on the Phase 2 portion of the Uptown Newport property. The operation of the TowerJazz facility may continue as an interim use during development of Phase 1. Development of Phase 2 portion of the site is anticipated to commence after development of Phase 1.

2.0 Exposure Assessment Methods

2.1 General Vapor Intrusion Principles

Volatile chemicals in the subsurface, whether in soil or groundwater, can migrate upward through the soil and enter into buildings, causing unacceptable chemical exposure for building occupants. Evaluation of the indoor air exposure pathway involves characterizing the nature and extent of subsurface volatile chemical contamination, obtaining appropriate environmental data, using fate and transport models to predict indoor air concentrations from vapor intrusion.

2.2 Areas of Exposure

Initial exposure evaluates the property as a whole using all soil-gas data for the Phase 1 Area. The soil gas probe (boring) locations are seen in Figure 4. Future buildings will include parking below buildings and some grading for the development will change existing grades and ground levels, model input of sampling depths included: 5, 10, and 15 feet.

2.3 Chemicals of Concern:

Soil-gas VOCs: Benzene, toluene, ethyl benzene, xylenes, 1,2,4-trimethylbenzene, acetone, methyl ethyl ketone, methyl isobutyl ketone, styrene, carbon disulfide, vinyl chloride, chloroform, methylene chloride, dichlorodifluoromethane, trichlorfluoromentane, 1,1-dichlorethane, t-1,2-dichloroethene, 1,1-dichloroethane, c-1,2-dichloroethene, 1,1,1-trichlorethane, trichoroethene, tetrachloroethene, 111Cl, 122Fl ethane.

2.4 Vapor Intrusion Modeling

To evaluate the potential residential exposure of residents in the proposed buildings to soil and water VOCs, the soil-gas data from 17 soil probes was used to estimate vapor intrusion of 23 contaminants into buildings using the Cal/EPA Human and Ecological Risk Division (HERD) soil-gas screen vapor intrusion model (SG-Screen) for residential use. Volatile organics in soil and groundwater transfer to soil spaces which are measured as soil-gas concentrations. Soil-gas is the most immediate source of vapor intrusion into buildings (Cal/EPA, Oct 2011 pg. 11).

The Cal/EPA HERD SG-Screen 2009rev adaptation of the Johnson-Ettinger model (J&E) is available from the Cal/EPA Science and Technology Models website at: (http://165.235.111.242/AssessingRisk/JE_Models.cfm)

2.5 Source Term

As currently recommended by USEPA and Cal/EPA, the 95% upper confidence limit of the mean is used as the source term together with the maximum. (Cal/EPA HERD May 2009). The EPA ProUCL model is found at the EPA ProUCL website. The input and output of the ProUCL model is included in Appendix C.

2.6 Description of J&E Model

The J&E Model is a one-dimensional analytical solution to convective and diffusive vapor transport into indoor spaces and provides an estimated attenuation coefficient that relates the vapor concentration in the indoor space to the vapor concentration at the source of contamination. Volatilization of contaminants located in subsurface soils and the subsequent mass transport of these vapors into indoor spaces constitutes a potential inhalation exposure pathway. The Johnson and Ettinger (1991) screening-level model incorporates both convective and diffusive mechanisms for estimating the transport of contaminant vapors emanating from subsurface soils into indoor spaces located directly above the source of contamination. The model assumes that breathing zones are impacted within **100 feet** of a source. This distance may be exceeded due to fractures or increasing concentrations. (Cal/EPA Oct. 2009). The model is constructed as both a steady-state solution to vapor transport (infinite or non-diminishing source) and as a quasi-steady-state solution (finite or diminishing source). Inputs to the model include chemical properties of the contaminant, saturated and unsaturated zone soil properties, and structural properties of the building. A list of conservative, model input parameters for selected soil and sampling related parameters are provided for choice in the model. The J&E Model assumes that subsurface volatiles migrating into the building are completely mixed within the building volume, which is determined by the building area and mixing height. For HRA defaults and formulas used by the Cal/EPA HERD vapor intrusion models see Appendix A.

2.7 Cal/EPA HERD Model Input – SG Screen

Site-specific input into the screening model:

1) Chemical – See Table 1A & ProUCL Data Inputs
2) Concentration – See Table 1A & ProUCL Outputs
3) Soil type (From Boring Logs – Silty Clay (SIC)
4) Soil-gas sampling depth – 5', 10' and 15' bgs. To account for garages below living areas and grading.

Exposure Assessment Defaults:

1) ED (exposure duration) 30 years
2) Averaging time: 25550 (carcinogens) 365 x ED (non-carcinogens)
3) Exposure Frequency: 350 days/year

2.8 Conceptual Site Model – Appendix B

Source Term	Routes	Receptors
Water & Soil -> Soil-gas	Vapor intrusion -> inhalation	Child / adult residents

2.9 Sensitive Receptors

The HERD SG-Screen model used in the present vapor intrusion assessment applies the standard residential exposure assessment defaults including a 30-year exposure duration and a 350-day per year exposure frequency. The default exposure breathing rates and body weights used include those of a child and an adult which are built into the Unit Risk (cancer) and Reference Concentration (non-cancer hazard) values. According to the BAAQMD CEQA Guidelines (May, 2007)," "sensitive individuals refer to those segments of the population most susceptible to poor air quality: children, the elderly, and those with pre-existing serious health problems affected by air quality." "Examples of receptors include residences, schools and school yards, parks and play grounds, daycare centers, nursing homes, and medical facilities. Residences can include houses, apartments, and senior living complexes. Medical facilities can include hospitals, convalescent homes, and health clinics. Playgrounds could be play areas associated with parks or community centers."

The Project residents may include infants and the elderly. As discussed below in the Uncertainty and Safety Factors section 4.0, risk and hazard estimates include a 10-fold uncertainty factor for sensitive individuals. Further sensitivity in the assessment is afforded by use of conservative risk and hazard action thresholds (1-in-a-million risk and <1.0 hazard).

3.0 Risk and Hazard Assessment Methods (Appendix A)

The HERD Vapor Intrusion Model contains contaminants for which all of the toxicological or physical chemical properties needed to make an assessment of the indoor inhalation risk are included in the spreadsheets. A chemical is considered to be sufficiently toxic if the vapor concentration of the pure component poses an incremental life time cancer risk greater than 1×10^{-6} or the non cancer hazard index is greater than 1. A chemical is considered to be sufficiently volatile if its Henry's law constant is 1×10^{-5} atm-m^3/mole or greater. Cal/EPA's Toxic Chemical Data Base is used by the HERD model as the source of carcinogenic unit risks. The source of non-carcinogenic reference concentrations (RfCs) and (cREL) rom the on-line OEHHA site: http://www/oehha/org/air/allrels.html. and the EPA's Integrated Risk Information System (IRIS) system and the To evaluate cancer risk, the HERD Screen model uses Cal/EPA oral Cancer Slope Factors and inhalation unit risk values seen in the Lookup tab of the model and at the Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) Toxicity Criteria Data Base (TCDB) at: http://www.oehha.ca.gov/risk/ChemicalDB/cancerpotency.asp
See formulas used for risk and hazard in Appendix A.

4.0 Uncertainty in Risk Assessment and Margin of Safety

4.1 Risk Assessment Principles: The assessment of risk and hazard of exposure to chemicals in the environment compares estimated exposure rates to known adverse effects observed with similar exposures in animals or humans. This process is dependent on choice of media values, exposure defaults, risk and hazard factors and uncertainty or safety factors. Uncertainty in hazard and risk assessment involves the use of assumptions, judgments and data with varying degrees of certainty to protect occupational and residential receptors including people of all ages and sensitivities.

4.2 Uncertainty in Source terms - 95% UCL vs. Maximum: Estimating exposure of receptors to maximum concentrations instead of average concentrations has been widely employed to avoid underestimating risk. This practice is likely to overestimate risk/hazard since maximum concentrations are often outliers while receptors are actually exposed to average concentrations, as discussed in Cal/EPA PEA manual Jan. 1994 part 2.5.1.4 which states the Maximum may be used "where there is adequate characterization." Also the US EPA (May 1992) Supplemental Guidance to RAGS: Calculating the Concentration Term, states "the 95% upper confidence limit (UCL) of the mean should be used where sufficient test samples are present." Use of the USEPA's ProUCL software to define the upper confidence interval of the mean, improves precision and is more realistic since receptors are exposed to average concentrations and the 95% UCL includes all but the upper 5% of the exposure range.

4.3 Uncertainty in Exposure Assessment - Exposure Duration and Exposure Frequency: The use of a continuous 30 year exposure duration for residents with a exposure frequency of 350 days per year and a 25 year and 250 day exposure for workers are conservative assumptions used by most agencies. Actual work and residential durations are contained in the USEPA's Exposure Factors Handbook (USEPA, Aug 1996) and are lower than these defaults. As discussed by Borgert et al. (1995), the assumption that the proposed development will pose residential levels of exposure (24 hrs x 7 days/week for 30 years) is probably an overestimation.

4.4 Uncertainty in Risk and Hazard Assessment - (Slope Factors and Reference Concentrations): Use of animal models to generate cancer slope factors and reference concentrations requires extrapolation from effects seen at defined high doses to lower human doses by use of safety factors or mathematical slope factors. Low dose risk extrapolation methods (eg. linearized multistage model) usually assume linear dose-response slopes unless another mechanism is known. Actual biological mechanisms, however, often demonstrate log-linear or sigmoidal rate curves. To this overestimation is often added a 95% upper confidence limit on the risk estimate. Use of the most sensitive animal data sets as a policy should be weighed against models with more significance for human exposure. In generating risk and hazard values, uncertainty or safety factors of up to 10-fold are used to extrapolate for each of these 4 uncertainties: 1) extrapolation of animal data to humans and 2) allowing for sensitive receptors (infants, elderly and compromised) 3) extrapolation from short-term to long-term exposures and 4) extrapolation from studies without a no-effect-level. Use of these uncertainty factors can increase the final Cancer Slope Factor or shrink the allowed Reference Concentration by 100 to 1000 times.

5.0 Hazard and Risk Assessment Results

The HERD SG-Screen model input and output are included in Appendix D.

Cancer risks: 95% UCL - Slab: As seen in Table 2A, the Soil Gas vapor intrusion risk for 95% UCL concentrations of all VOCs using 15, 10 and 5' sample depth bgs. for slab were: **3.69E-07, 5.32E-07** and **9.56E-07.**

Hazard: 95% UCL - Slab: As seen in Table 2A, vapor intrusion hazard from 95% soil-gas for 15, 10 and 5' sampling depths were: **2.00E-03, 2.89E-03 and 5.25E-03.**

Cancer risks: Maximum - Slab: As seen in Table 2B, vapor intrusion risk from soil-gas using the maximum concentrations using 15, 10 and 5' sample depth bgs were: **1.42E-06, 2.01E-06** and **3.61E-06.**

Hazard: Maximum - Slab: As seen in Table 2B, vapor intrusion hazard from soil-gas using the maximum concentrations for 15, 10 and 5' sampling depths were: **7.49E-03, 1.73E-02 and 3.16E-02.**

Cancer risks: 95% UCL - Garage: As seen in Table 2C, the Soil Gas vapor intrusion risk for the 95% UCL concentrations of all VOCs using 15, 10 and 5' sample depth bgs for garage were: **8.96E-07, 2.34E-06** and **2.34E-06.**

Hazard: 95% UCL - Garage: As seen in Table 2C, vapor intrusion hazard from 95% soil-gas for 15, 10 and 5' sampling depths were: **4.97E-03 , 1.32E-02**. and **1.31E-02.**

Cancer risks: Maximum - Garage: As seen in Table 2D, vapor intrusion risk from soil-gas using the maximum concentrations using 15, 10 and 5' sample depth bgs. were: **4.24E-06, 8.78E-06** and **8.78E-06.**

Hazard: Maximum - Garage: As seen in Table 2D, vapor intrusion hazard from soil-gas using the maximum concentrations for 15, 10 and 5' sampling depths were: **2.78E-02, 7.27E-02, and 7.27E-02.**

6.0 Conclusions

Risk Results - Slab: Using the 95% UCL of the mean for soil-gas concentrations, the combined risks for the 8 carcinogens (benzene, ethyl benzene, vinyl chloride, chloroform, methylene chloride, 1,1-dichloroethane, trichloroethene and tetrachloroethene) using 3 sampling depths ranged from a high of **9.56E-7** for 5' to **3.69E-7** for 15' sampling depth. The result at 10' was intermediate at **5.3E-7**. This result reflects estimated resistance to vapor intrusion for vapor sources at greater depths. The same pattern was seen for the maximum values which ranged from a high of **3.6E-6** for 5' to a low of **1.42E-6** for 15' and an intermediate result of **2.0E-6** for 10'. All risk values for Slabs constructed at or above the existing grades were in the acceptable mid E-6 to E-7 range, and are acceptable for residential exposure.

Hazard Results - Slab: Similar results were seen for 95% hazards with highs for the 5' sampling depth at 0.005 for slab and 0.03 for maximum at 5'. None of the Slab hazard values exceeded the 1.0 hazard threshold, and are acceptable for residential exposure.

Risk Results - Garage: Using the 95% UCL of the mean for soil-gas concentrations, the combined risks for the 8 carcinogens using 3 sampling depths ranged from a high of **2.34E-6** for 5 and 10' sampling depths to **8.96E-7** for 15' sampling depths. This same pattern was seen for the maximum values which ranged from a high of **8.8E-6** for 5 and 10' sampling depths to a low of **4.24E-6** for 15'. All risk estimates for garage scenarios were in the E-6 and E-7 range, and are acceptable for residential exposure.

Hazard Results - Garage: For 95% UCL values, a similar result for hazard results with a hazard value of 0.005 at 15' and 0.0013 at 10' and 5'. For maximum values a hazard of 0.028 was seen at 15' and 0.073 was seen for 5 and 10'. None of the values exceeded the 1.0 hazard threshold and are acceptable for residential exposure.

Conclusion: This HRA has been limited to the Phase 1 portion of the site. The HERD SG-Screen model assumes that vapor intrusion zone-of-impact is within 100 feet of the source. Most soil gas probes for this site were located in the Phase 2 area of the site and were over 100 feet from the Phase 1 development area. Attenuation of vapors through diffusion in soil and air should reduce impacts well below the risk and hazard estimates.

Based on the results of this soil-gas vapor intrusion HRA, future residents and visitors of the Uptown Newport Village Phase 1 development will not be exposed to unacceptable levels of VOCs as a result of vapor intrusion into buildings.

Limitations of S/A Risk Assessment: The methods and information used in this assessment are the most current California Regulatory guidance for human health risk assessment and are offered without specific warranty. Evaluations cover only those media and areas delineated. Decisions involving remediation and liability should be made with the aid of the appropriate regulatory authorities together with legal counsel.

7.0 References

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FIGURES

FIGURE 1-Uptown Newport Facility-Aerial View

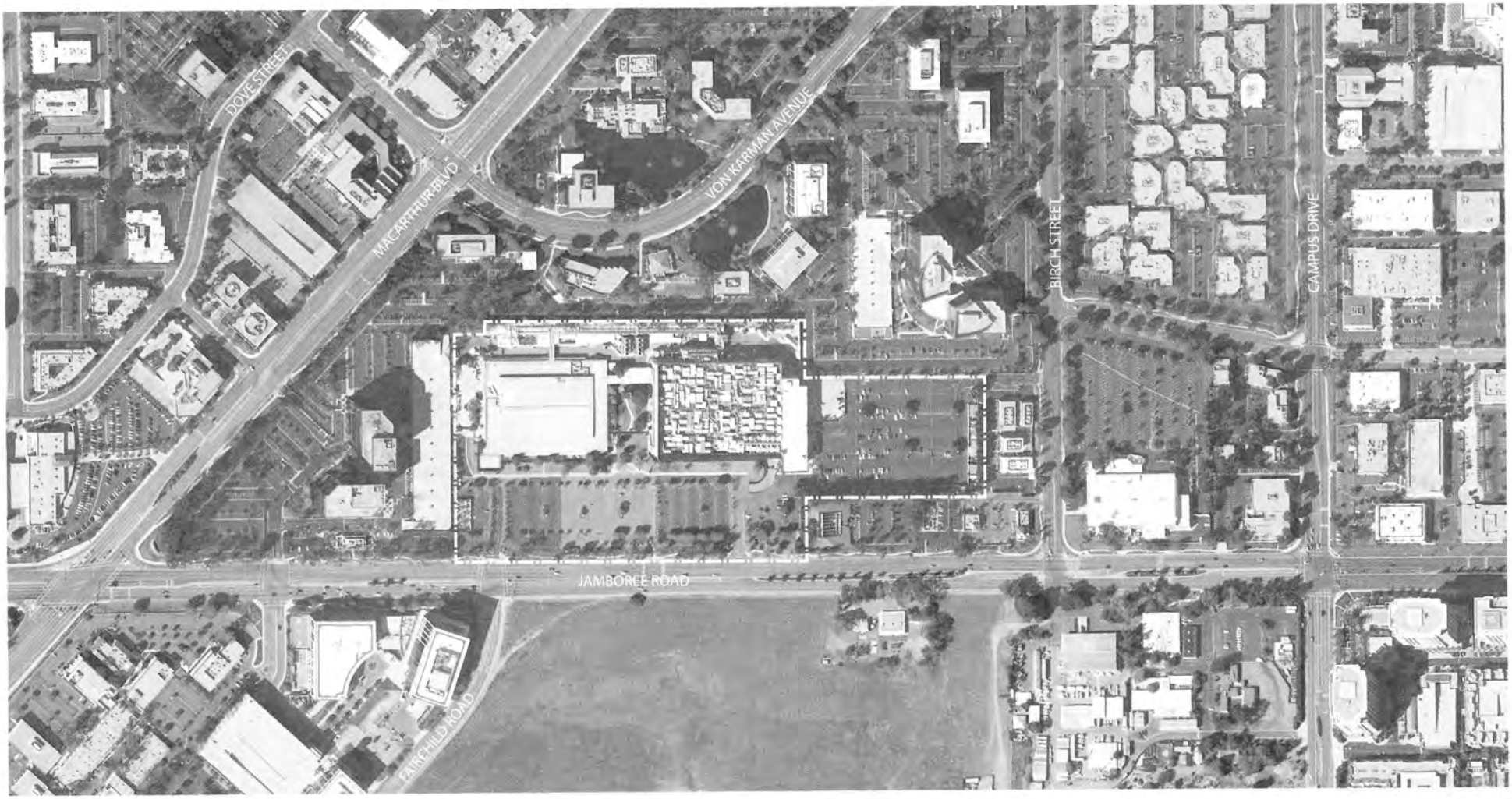

Figure 2: Uptown Newport Facility Site – Impacted Soils and Groundwater

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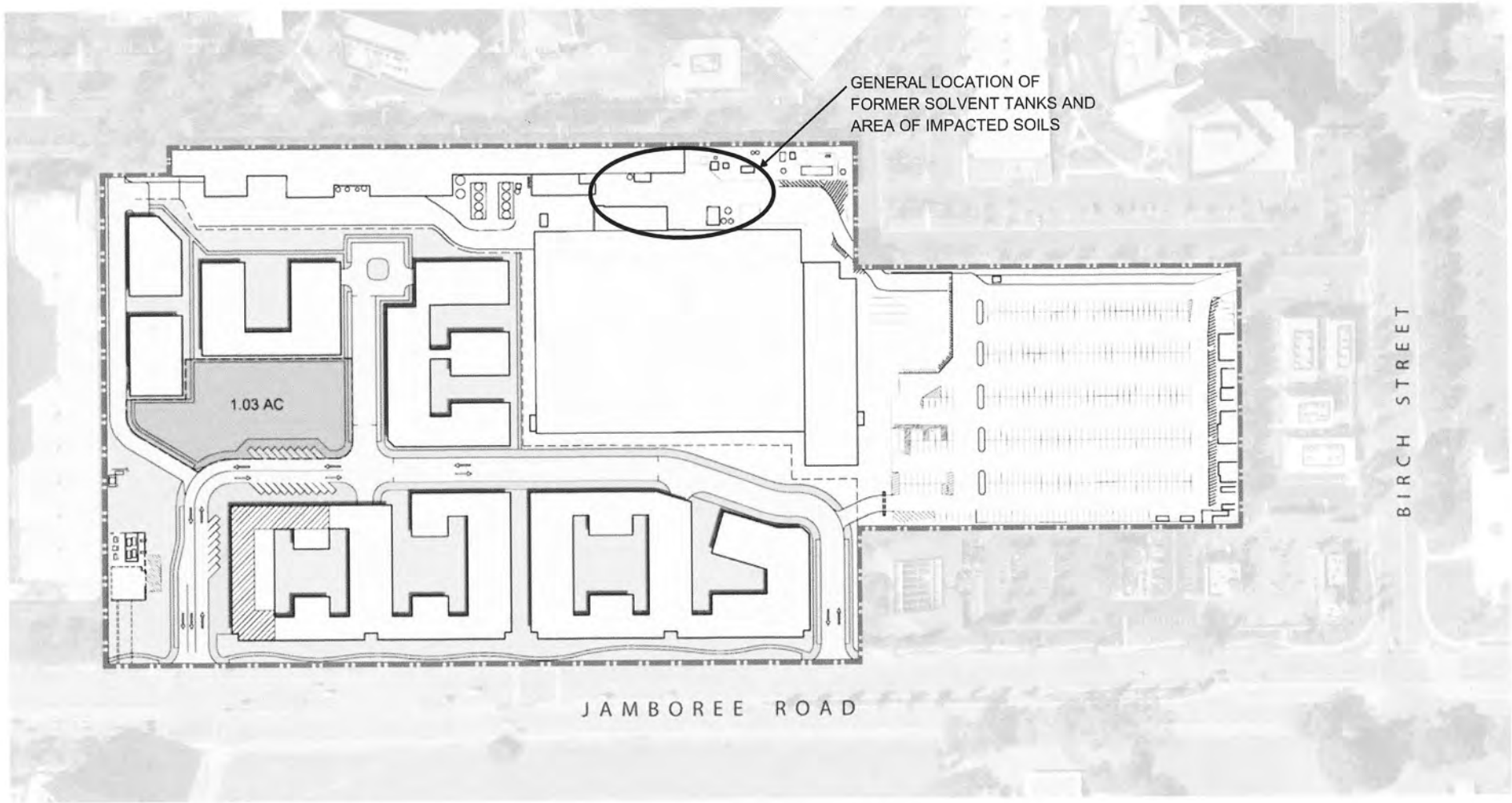
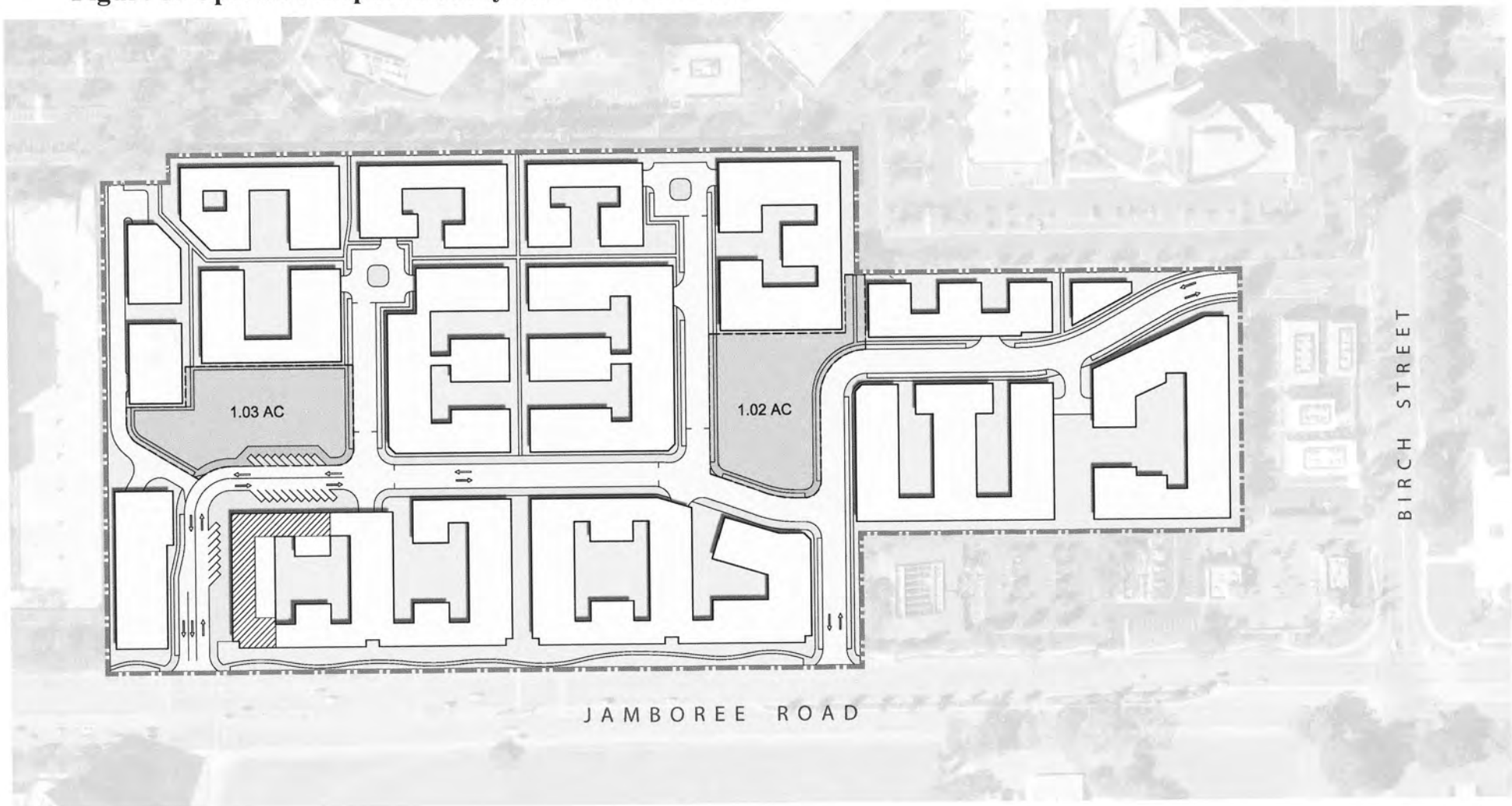


Master Plan - Phase 1
Uptown Newport
Uptown Newport LP

Developable Area: 9.33 ac
Park Area: 1.03 ac
Right of Way Area: 2.49 ac
Total Site (Phase 1): 12.85 ac

0 50 100 200
August 17, 2011

Figure 3: Uptown Newport Facility Site – Master Plan

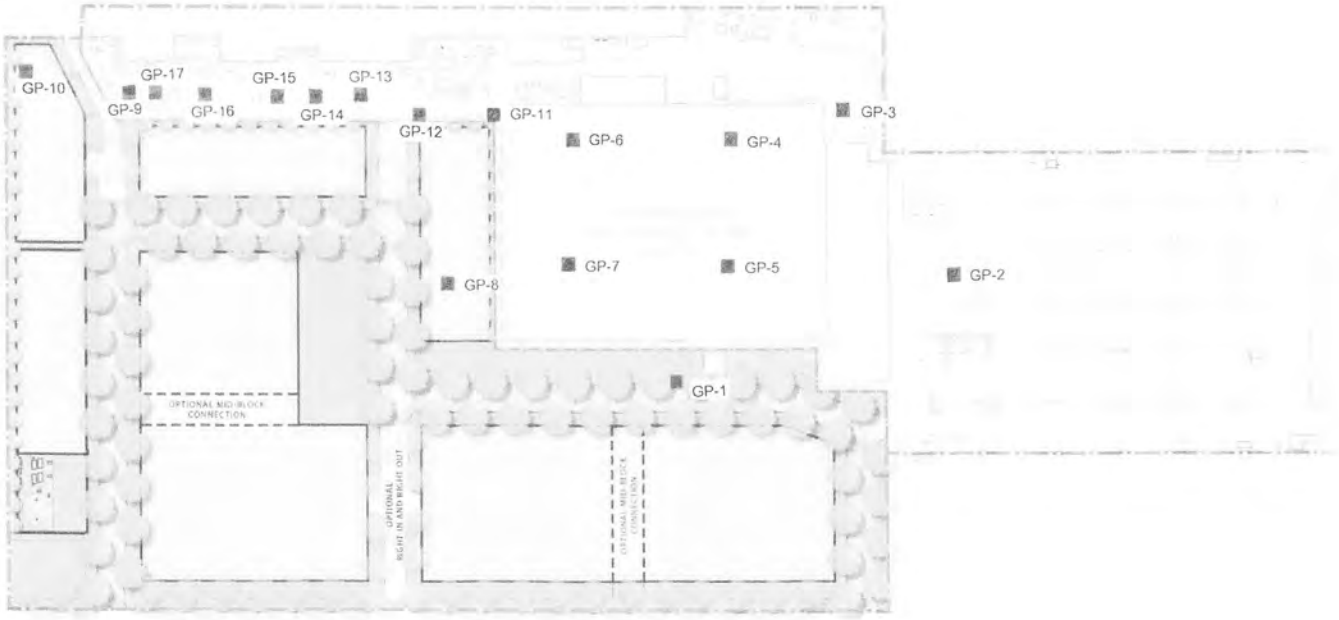


Master Plan
Uptown Newport
Uptown Newport LP

Developable Area: 19.44 ac
Park Area: 2.05 ac
Right of Way Area: 3.52 ac
Total Site: 25.05 ac

0' 50' 100' 200'
August 17, 2011

Figure 4: Boring Locations Uptown Newport Facility Site



R M Environmental, Inc.
Project No. 10-629 FIGURE 1

TABLES

Table 1: Conexant Soil Gas in ug/m3 - 10-31-11

Sample	Depth	Date	Dichloro difluoro methane	Chloro methane	Vinyl Chloride	Trichloro fluoro methane	1,1-Dichloro ethene	Carbon Disulfide	1,1,2-Cl 1,2,2-Fl ethane	Acetone	t-1,2-Dichloro ethene	1,1-Dichloro ethane	c-1,2-Dichloro ethene	2-Butanone	Chloroform	1,1,1-Trichloro ethane	Benzene	Trichloro ethene	4-Methyl 2-Pentanone	Toluene	Tetrachloro ethene	2-Hexanone	Ethyl benzene	p, & m-Xylene	o-Xylene	Styrene	4-Ethyl Toluene	1,2,4-Trimethyl benzene
GP-1-S	10' bgs	05/28/10	ND(9.8)	ND(8.2)	ND(5.1)	25	ND(7.9)	ND(31)	ND(15)	96	ND(7.9)	ND(8.0)	ND(7.9)	28	ND(9.7)	ND(11)	15	ND(11)	11	68	ND(11)	ND(13)	ND(9.1)	ND(8.6)	18	ND(8.6)	ND(10)	ND(19)
GP-1-D	15' bgs	05/28/10	ND(9.3)	ND(7.7)	ND(4.8)	34	ND(7.4)	45	ND(14)	76	ND(7.4)	ND(7.6)	ND(7.4)	18	11	ND(10)	16	ND(10)	ND(7.7)	82	ND(10)	17	ND(8.6)	ND(8.1)	24	ND(8.1)	ND(9.7)	ND(18)
GP-2-S	10' bgs	05/28/10	ND(9.4)	ND(7.9)	ND(4.9)	ND(11)	ND(7.6)	470	ND(15)	170	ND(7.6)	ND(7.7)	ND(7.6)	40	ND(9.3)	ND(10)	55	ND(10)	45	210	ND(10)	ND(13)	ND(8.8)	12	38	11	ND(9.9)	ND(19)
GP-2-D	15' bgs	05/28/10	ND(8.9)	ND(7.5)	ND(4.6)	ND(10)	ND(7.2)	88	ND(14)	270	ND(7.2)	ND(7.3)	ND(7.2)	57	ND(8.8)	ND(9.8)	34	ND(9.7)	20	110	ND(9.8)	ND(12)	ND(8.3)	9.6	30	8.4	ND(9.3)	ND(18)
GP-3-S	10' bgs	05/28/10	ND(9.3)	ND(7.7)	ND(4.8)	ND(11)	ND(7.4)	54	170	170	ND(7.4)	ND(7.6)	ND(7.4)	43	ND(9.1)	53	17	140	ND(7.7)	200	ND(10)	480	ND(8.6)	14	47	12	ND(9.7)	ND(18)
GP-3-D	15' bgs	05/28/10	ND(9.3)	ND(7.7)	ND(4.8)	ND(11)	ND(7.4)	100	170	140	ND(7.4)	ND(7.6)	19	42	ND(9.1)	32	53	29	ND(7.7)	150	ND(10)	18	ND(8.6)	12	39	11	ND(9.7)	ND(18)
GP-4	5' bgs	05/28/10	ND(10.0)	9.2	ND(5.2)	ND(11)	ND(8.0)	33	ND(15)	130	ND(8.0)	ND(8.2)	ND(8.0)	32	ND(9.9)	ND(11)	29	ND(11)	17	86	ND(11)	ND(14)	ND(9.3)	ND(8.8)	16	ND(8.8)	ND(10)	ND(20)
GP-5	5' bgs	05/28/10	ND(8.8)	ND(7.3)	ND(4.5)	ND(10.0)	ND(7.0)	ND(28)	ND(14)	79	ND(7.0)	ND(7.2)	ND(7.0)	19	ND(8.7)	ND(9.7)	11	ND(9.5)	8.1	45	ND(9.7)	ND(12)	ND(8.2)	ND(7.7)	13	ND(7.7)	ND(9.2)	ND(17)
GP-6	5' bgs	05/28/10	ND(10.0)	8.6	5.9	ND(11)	ND(8.0)	50	ND(15)	210	ND(8.0)	ND(8.2)	84	53	ND(9.9)	ND(11)	37	29	26	91	ND(11)	ND(14)	ND(9.3)	ND(8.8)	18	ND(8.8)	ND(10)	ND(20)
GP-7	5' bgs	05/28/10	ND(9.1)	ND(7.6)	ND(4.7)	ND(10)	ND(7.3)	ND(29)	ND(14)	72	17	ND(7.4)	240	23	ND(9.0)	ND(10)	29	700	15	99	ND(10)	ND(12)	ND(8.5)	ND(8.0)	20	ND(8.0)	ND(9.5)	ND(18)
GP-8-S	10' bgs	05/28/10	ND(8.3)	ND(7.0)	ND(4.3)	ND(9.5)	ND(6.7)	68	ND(13)	90	ND(6.7)	ND(6.8)	ND(6.7)	35	ND(8.2)	ND(9.2)	43	ND(9.1)	28	150	ND(9.2)	ND(11)	ND(7.6)	12	40	11	ND(8.7)	ND(17)
GP-8-D	15' bgs	05/28/10	ND(8.9)	ND(7.5)	ND(4.6)	ND(10)	ND(7.2)	46	ND(14)	120	ND(7.2)	ND(7.3)	ND(7.2)	42	ND(8.8)	ND(9.8)	43	ND(9.7)	18	160	ND(9.8)	ND(12)	ND(8.3)	11	39	11	ND(9.3)	ND(18)
GP-9-S	10' bgs	05/28/10	ND(98)	ND(82)	ND(51)	ND(110)	ND(79)	ND(310)	ND(150)	ND(240)	ND(79)	ND(80)	ND(79)	ND(58)	ND(97)	ND(110)	190	ND(110)	ND(81)	180	ND(110)	ND(130)	ND(91)	ND(86)	ND(86)	ND(86)	ND(100)	ND(190)
GP-9-D	15' bgs	05/28/10	ND(44)	ND(37)	23	ND(50)	ND(35)	ND(140)	ND(68)	ND(110)	ND(35)	ND(36)	ND(35)	ND(26)	ND(43)	ND(48)	290	ND(48)	ND(36)	210	ND(48)	ND(60)	ND(41)	ND(39	39	ND(39)	ND(46)	ND(87)
GP-10-S	10' bgs	05/28/10	ND(8.6)	ND(7.2)	ND(4.5)	ND(9.8)	ND(6.9)	92	ND(13)	61	ND(6.9)	ND(7.1)	ND(6.9)	19	ND(8.5)	ND(9.5)	33	28	13	110	ND(9.5)	ND(12)	ND(8.0)	7.7	25	ND(7.6)	ND(9.0)	ND(17)
GP-10-s	15' bgs	05/28/10						92		61				19			33	28	13	110		ND(12)		7.7	25			
GP-10-D	15' bgs	05/28/10	ND(8.1)	ND(6.7)	ND(4.2)	ND(9.2)	ND(6.5)	ND(25)	ND(12)	88	ND(6.5)	ND(6.6)	ND(6.5)	45	ND(8.0)	ND(8.9)	6.2	420	ND(6.7)	190	ND(8.9)	200	ND(7.5)	ND(7.1)	18	ND(7.1)	ND(8.1)	ND(16)
GP-1-S	10' bgs	08/11/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
GP-1-D	15' bgs	08/11/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
GP-2-S	10' bgs	08/11/11	2.2	1.00	ND(0.51)	ND(1.1)	ND(0.79)	ND(3.1)	ND(1.5)	15	ND(0.79)	ND(0.81)	ND(0.79)	9.2	ND(0.98)	ND(1.1)	8.1	ND(1.1)	3.3	9.9	ND(1.4)	1.4	3.5	9.1	3.8	1.8	2.8	3.0
GP-2-D	15' bgs	08/11/11	2.1	0.92	ND(0.51)	ND(1.1)	ND(0.79)	ND(3.1)	ND(1.5)	12	ND(0.79)	ND(0.81)	ND(0.79)	2.9	ND(0.98)	ND(1.1)	9.7	ND(1.1)	3.6	10	ND(1.4)	ND(0.82	4.9	9.0	4.1	3.3	3.7	4.1
GP-3-S	10' bgs	08/11/11	3.1	1.4	ND(0.51)	1.4	ND(0.79)	8.2	ND(1.5)	26	ND(0.79)	ND(0.81)	ND(0.79)	9.2	ND(0.98)	ND(1.1)	0.85	ND(1.1)	2.6	5.1	ND(1.4)	1.7	1.4	5.1	2.5	1.3	2.3	3.0
GP-3-D	15' bgs	08/11/11	3.0	1.4	ND(0.51)	1.3	ND(0.79)	3.2	ND(1.5)	11	ND(0.79)	ND(0.81)	ND(0.79)	4.0	ND(0.98)	ND(1.1)	1.1	ND(1.1)	2.0	7.9	ND(1.4)	ND(0.82	1.6	5.4	2.5	1.6	2.0	2.3
GP-4	5' bgs	08/11/11	3.3	ND(0.83)	ND(0.51)	1.4	ND(0.79)	ND(3.1)	ND(1.5)	15	ND(0.79)	ND(0.81)	ND(0.79)	7.6	ND(0.98)	ND(1.1)	1.2	ND(1.1)	2.3	14	ND(1.4)	ND(0.82	1.9	5.7	2.6	2.4	1.7	ND(2.0)
GP-5	5' bgs	08/11/11	3.4	ND(0.83)	ND(0.51)	1.5	ND(0.79)	ND(3.1)	ND(1.5)	8.3	ND(0.79)	0.91	ND(0.79)	3.3	ND(0.98)	ND(1.1)	1.2	20	1.6	6.8	3.3	ND(0.82	1.5	5.0	2.5	1.6	2.0	2.5
GP-6	5' bgs	08/11/11	3.9	ND(2.1)	1.8	ND(2.8)	2.7	ND(7.8)	ND(3.8)	50	14	3.0	160	6.8	ND(2.4)	ND(2.7)	ND(1.6)	240	ND(2.0)	4.3	ND(3.4)	ND(2.0)	ND(2.2)	2.6	ND(2.2)	ND(2.1)	ND(2.5)	ND(4.9)
GP-7	5' bgs	08/11/11	ND(22)	ND(18)	ND(11)	ND(25)	ND(18)	ND(70)	ND(34)	69	56	ND(18)	750	ND(13)	ND(22)	ND(24)	ND(14)	5,200	ND(18)	ND(17)	93	ND(18)	ND(19)	ND(19)	ND(19)	ND(22)	ND(44)	
GP-8-S	10' bgs	08/11/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
GP-8-D	15' bgs	08/11/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
GP-9-S	10' bgs	08/11/11	ND(9.5)	690	ND(4.9)	ND(11)	ND(7.6)	ND(30)	ND(15)	87	ND(7.6)	ND(7.8)	ND(7.6)	11	ND(9.4)	ND(10)	180	ND(10)	ND(7.9)	48	ND(13)	ND(7.9)	13	24	ND(8.3)	8.3	ND(9.4)	ND(19)
GP-9-D	15' bgs	08/11/11	3.2	ND(2.1)	ND(1.3)	ND(2.8)	ND(2.0)	ND(7.8)	ND(3.8)	17	ND(2.0)	ND(2.0)	ND(2.0)	7.3	ND(2.4)	ND(2.7)	32	ND(2.7)	ND(2.0)	10	ND(3.4)	ND(2.0)	3.7	8.8	4.1	4.5	3.8	5.1
GP-10-S	10' bgs	08/11/11	4.2	ND(2.1)	ND(1.3)	4.7	ND(2.0)	ND(7.8)	ND(3.8)	22	ND(2.0)	ND(2.0)	ND(2.0)	9.0	4.1	8.9	4.2	200	2.4	15	150	ND(2.0)	3.1	7.7	4.0	2.7	2.7	ND(4.9)
GP-10-s	15' bgs	05/28/10	5.2	ND(2.1)	ND(1.3)	5.7	ND(2.0)	ND(7.8)	ND(3.8)	23	ND(2.0)	ND(2.0)	ND(2.0)	10.0	4.1	8.9	5.2	201	2.4	15	151	ND(2.0)	3.1	7.7	4.0	2.7	3.7	7.1
GP-10-D	15' bgs	08/11/11	2.8	ND(2.1)	ND(1.3)	4.1	ND(2.0)	ND(7.8)	ND(3.8)	15	2.4	ND(2.0)	3.2	4.9	4.7	10	2.2	410	2.8	12	270	ND(2.0)	ND(2.2)	6.7	3.2	2.2	ND(2.5)	ND(4.9)
GP-11-S	15' bgs	08/19/11	3.7	ND(2.8)	ND(1.8)	ND(3.9)	3.4	16	100	290	ND(2.7)	ND(2.8)	ND(2.7)	140	12	4.5	2.8	29	41	49	25	3.9	7.6	24	7.6	7.8	3.9	ND(6.6)
GP-11-D	20' bgs	08/19/11	4.2	ND(2.1)	ND(1.3)	ND(2.8)	2.7	ND(7.8)	62	160	ND(2.0)	ND(2.0)	18	71	7.1	2.9	3.2	28	33	46	15	3.5	6.9	21	6.4	6.6	2.7	ND(4.9)
GP-12-S	10' bgs	08/19/11	3.1	ND(2.1)	ND(1.3)	9.5	ND(2.0)	12	75	260	ND(2.0)	ND(2.0)	ND(2.0)	60	ND(2.4)	ND(2.7)	5.5	6.0	31	56	12	4.1	13	43	13	11	6.9	7.6
GP-12-D	15' bgs	08/19/11	2.8	1.9	ND(0.51)	4.9	1.8	32	25	60	2.8	2.0	78	23	5.4	ND(1.1)	24	19	31	120	3.6	3.9	21	59	17	23	5.9	5.4
GP-13-S	10' bgs	08/19/11	4.3	ND(2.1)	ND(1.3)	26	55	11	270	70	12	2.4	64	15	3.3	ND(2.7)	3.9	370	4.3	65	98	ND(2.0)	7.6	21	6.4	9.4	4.1	ND(4.9)
GP-13-D	15' bgs	08/19/11	3.2	ND(2.1)	ND(1.3)	35	79	25	360	190	30	4.8	290	67	4.4	ND(2.7)	11	520	31	130	130	4.8	18	58	17	15	7.9	6.6
GP-14-S	10' bgs	08/19/11	3.2	1.1	ND(0.51)	12	2.1	15	24	100	2.7	ND(0.81)	ND(0.79)	24	4.4	ND(1.1)	9.2	7.2	19	110	7.1	3.5	17	49	16	17	9.0	7.5
GP-14-D	15' bgs	08/19/11	3.2	3.8	ND(0.51)	13	ND(0.79)	31	27	94	ND(0.79)	ND(0.81)	0.83	20	14	ND(1.1)	18	16	18	180	3.5	2.9	18	47	14	23	6.0	ND(2.0)
GP-15-S	10' bgs	08/19/11	3.3	ND(0.83)	ND(0.51)	2.6	ND(0.79)	3.2	ND(1.5)	50	ND(0.79)	ND(0.81)	ND(0.79)	26	ND(0.98)	ND(1.1)	3.6	ND(1.1)	4.5	35	ND(1.4)	5.3	8.7	26	8.0	11	3.1	3.0
GP-15-D	15' bgs	08/19/11	3.3	ND(2.1)	ND(1.3)	15	3.8	14	9.7	130	2.5	ND(2.0)	ND(2.0)	25	2.8	ND(2.7)	10	5.3	15	110	4.5	2.9	19	54	16	15	6.8	5.2
GP-16-S	10'	10/20/11	3.9	1.5	0.18J	3.2	0.36J	1.3J	ND(1.5)	ND(2.4)	0.20J	ND(0.81)	ND(0.91)	6.0	0.45J	ND(1.1)	13	4.9	4.3	85	6.2	ND(0.82	6.4	16	4.9	3.9	5.2	6.5
GP-16-D	15'	10/20/11	0.93	0.69	0.32	14	0.81	13	ND(1.5)	15	0.68	0.25	3.3	8.1	ND(0.98)	ND(1.1)	9.6	7.5	ND(1.1)	13	22	1.3	1.9	5.3	1.8	2.3	2.4	ND(3.0)
GP-17-S	10'	10/20/11	1.1	0.69	1.2	1.9	ND(0.79)	0.80J	ND(1.5)	52	ND(0.79)	ND(0.81)	ND(0.79)	17	1.5	ND(1.1)	41	ND(1.1)	ND(0.82	76	0.64J	2.0	24	16	5.4	4.7	6.5	ND(3.0)
GP-17-D	15'	10/20/11	0.78J	1.7	ND(1.3)	ND(2.8)	ND(1.9)	2.4J	ND(3.8)	23	ND(1.9)	ND(2.0)	ND(1.9)	9.8	ND(2.4)	ND(2.7)	78	ND (2.6)	ND(2.0)	170	1.4J	ND(2.0)	14	21	7.2	12	12	ND(7.3)
Soil-Gas ug/m3 ProUCL Statistics			Dichloro difluoro methane	Chloro methane	Vinyl Chloride	Trichloro fluoro methane	1,1-Dichloro ethene	Carbon Disulfide	1,1,2-Cl 1,2,2-Fl ethane	Acetone	t-1,2-Dichloro ethene	1,1-Dichloro ethane	c-1,2-Dichloro ethene	2-Butanone	Chloroform	1,1,1-Trichloro ethane	Benzene	Trichloro ethene	4-Methyl 2-Pentanone	Toluene	Tetrachloro ethene	2-Hexanone	Ethyl benzene	p, & m-Xylene	o-Xylene	Styrene	4-Ethyl Toluene	1,2,4-Trimethyl benzene
Max @ Depth ft bgs			15	10	15	15	15	10	15	10	5	15	5	10	5	10	15	5	10	10	5	5	15	15	15	15	5	10
Max			5.2	690	23	35	79	470	360	290	56	4.8	750	140	14	53	290	5200	45	210	270	480	24	59	47	23	12	7.6
MEAN			3.193	51.61	5.4	10.81	15.17	51.32	117.5	90.91	12.75	2.227	131.6	27.33	5.842	17.17	33.65	375.2	15.21	84.38	56.37	44.48	9.2	19.25	15.33	8.339	4.661	4.921
SD			0.946	183.8	6.873	10.99	27.92	93.94	114	75.54	17.04	1.609	208.7	26.18	4.098	18.51	57.55	1070	12.9	65.66	79.79	121.8	7.164	16.86	13.01	6.046	2.618	1.936
95% UCL			3.45	89.09	2.08	8.867	14.17	53.23	57.02	137.8	6.58	1.165	74.08	43.51	3.79	8.006	69.9	408	20.2	127	36.6	71.7	8.61	20.9	23.3	8.57	5.09	4.64

Table 2A: Soil-Gas Vapor Risk/Hazard - 95% UCL, Slab						
All Data	15' sample depth		10' sample depth		5' sample depth	
	RISK	HAZARD	RISK	HAZARD	RISK	HAZARD
Benzene	2.28E-07	6.10E-04	3.28E-07	8.80E-04	5.88E-07	1.58E-03
Toluene	NA	1.10E-04	NA	1.58E-04	NA	2.84E-04
Ethyl Benz	2.09E-09	1.95E-06	3.04E-09	2.84E-06	5.56E-09	5.19E-06
Xylene	NA	9.38E-05	NA	1.37E-04	NA	2.52E-04
1,2,4, TMB	NA	1.24E-04	NA	1.81E-04	NA	3.39E-04
Acetone	NA	1.61E-06	NA	2.28E-06	NA	3.87E-06
2-Butanone (MEK)	NA	2.16E-06	NA	3.13E-06	NA	5.65E-06
4-Me-2-Pentanone (MIBK)	NA	1.54E-06	NA	2.24E-06	NA	4.09E-06
Styrene	NA	2.06E-06	NA	3.00E-06	NA	5.51E-06
CS2	NA	2.31E-05	NA	3.30E-05	NA	5.78E-05
Vinyl Chloride	2.1E-08	6.4E-06	3.06E-08	9.16E-06	5.35E-08	1.60E-05
Chloroform	2.61E-09	3.83E-06	3.73E-09	5.48E-06	6.55E-09	9.61E-06
Methylene Chloride	1.13E-08	6.59E-05	1.62E-08	9.44E-05	2.85E-08	1.66E-04
Dichlorodiflouromethane	NA	3.51E-06	NA	5.12E-06	NA	9.49E-06
Trichlorofluoromethane	NA	3.28E-06	NA	4.74E-06	NA	8.51E-06
1,1-Dichloroethene	NA	5.42E-05	NA	7.93E-05	NA	1.42E-04
t-1,2-Dichloroethene	NA	2.36E-05	NA	3.44E-05	NA	6.32E-05
1,1-Dichloroethane	1.80E-10	3.76E-07	2.6E-10	5.5E-07	4.79E-10	9.99E-07
c-1,2-Dichloroethene	NA	4.73E-04	NA	6.88E-04	NA	1.26E-03
1,1,1-Trichloroethane	NA	3.83E-07	NA	5.55E-07	NA	1.01E-06
Trichloroethene	8.3E-08	1.6E-04	1.2E-07	2.3E-04	2.2E-07	4.3E-04
Tetrachloroethene	2.02E-08	2.29E-04	2.95E-08	3.33E-04	5.41E-08	6.11E-04
111Cl 122Fl ethane	NA	4.47E-07	NA	6.48E-07	NA	1.18E-06
Combination						
Child/Adult (Res)	**3.69E-07**	**2.00E-03**	**5.32E-07**	**2.89E-03**	**9.56E-07**	**5.25E-03**
NOTES						
NA = Not Availble in Model (Not Carcinogen)						

Table 2B: Soil-Gas Risk/Hazard - Maximum, Slab

All Data	15' sample depth		10' sample depth		5' sample depth	
	RISK	HAZARD	RISK	HAZARD	RISK	HAZARD
Benzene	9.44E-07	2.53E-03	1.36E-06	3.65E-03	2.44E-06	6.54E-03
Toluene	NA	1.81E-04	NA	2.62E-04	NA	4.70E-04
Ethyl Benz	5.84E-09	5.45E-06	8.48E-09	7.91E-06	1.55E-08	1.45E-05
Xylene	NA	1.68E-04	NA	2.45E-04	NA	4.52E-04
1,2,4, TMB	NA	2.03E-04	NA	2.97E-04	NA	5.56E-04
Acetone	NA	3.39E-06	NA	4.78E-06	NA	8.14E-06
2-Butanone (MEK)	NA	6.97E-06	NA	1.01E-05	NA	1.82E-05
4-Me-2-Pentanone (MIBK)	NA	3.43E-06	NA	4.99E-06	NA	9.10E-06
Styrene	NC	5.52E-06	NA	8.04E-06	NA	1.48E-05
CS2	NA	2.04E-04	NA	2.91E-04	NA	5.10E-04
Vinyl Chloride	4.90E-08	1.47E-05	3.06E-08	9.16E-06	5.35E-08	1.60E-05
Chloroform	9.65E-09	1.42E-05	1.38E-08	2.02E-05	2.42E-08	3.55E-05
Methylene Chloride	8.75E-08	5.10E-04	1.25E-07	7.31E-04	2.20E-07	1.29E-03
Dichlorodiflouromethane	NC	5.08E-06	NA	7.42E-06	NA	1.37E-05
Trichlorofluoromethane	NA	1.30E-05	NA	1.9E-05	NA	3.36E-05
1,1-Dichloroethene	NA	3.01E-04	NA	6.43E-06	NA	1.15E-05
t-1,2-Dichloroethene	NA	2.01E-04	NA	2.92E-04	NA	5.38E-04
1,1-Dichloroethane	7.40E-10	1.54E-06	1.08E-09	2.24E-06	1.97E-09	4.10E-06
c-1,2-Dichloroethene	NA	3.77E-07	NA	6.95E-03	NA	1.27E-02
1,1,1-Trichloroethane	NA	2.49E-06	NA	3.61E-06	NA	6.57E-06
Trichloroethene	5.50E-08	1.07E-04	7.98E-08	1.55E-04	1.45E-07	2.82E-04
Tetrachloroethene	2.65E-07	3.00E-03	3.9E-07	4.4E-03	7.091E-07	8.01E-03
111Cl 122Fl ethane	NC	2.81E-06	NA	4.08E-06	NA	7.42E-06
Combination						
Child/Adult (Res)	1.42E-06	7.49E-03	2.01E-06	1.73E-02	3.61E-06	3.16E-02
NOTES						
NA = Not Availble in Model (Not Carcinogen)						

Table 2C: Soil-Gas Vapor Risk/Hazard - 95% Garage - 10' Grade to Floor						
All Data	15' sample depth		10' sample depth		5' sample depth	
	RISK	HAZARD	RISK	HAZARD	RISK	HAZARD
Benzene	5.50E-07	1.48E-03	1.35E-06	3.63E-03	1.35E-06	3.63E-03
Toluene	NA	2.66E-04	NA	6.59E-04	NA	6.59E-04
Ethyl Benz	5.32E-09	4.97E-06	1.43E-08	1.34E-05	1.43E-08	1.34E-05
Xylene	NA	2.42E-04	NA	6.83E-04	NA	6.83E-04
1,2,4, TMB	NA	3.31E-04	NA	1.03E-03	NA	1.03E-03
Acetone	NA	3.46E-06	NA	6.95E-06	NA	6.95E-06
2-Butanone (MEK)	NA	5.32E-06	NA	1.35E-05	NA	1.35E-05
4-Me-2-Pentanone (MIBK)	NA	3.89E-06	NA	1.05E-05	NA	1.05E-05
Styrene	NA	5.28E-06	NA	1.48E-05	NA	1.48E-05
CS2	NA	5.30E-05	NA	1.18E-04	NA	1.18E-04
Vinyl Chloride	4.90E-08	1.47E-05	1.08E-07	3.24E-05	1.08E-07	3.24E-05
Chloroform	6.00E-09	8.81E-06	1.34E-08	1.97E-05	1.34E-08	1.97E-05
Methylene Chloride	2.62E-08	1.53E-04	5.95E-08	3.47E-04	5.95E-08	3.47E-04
Dichlorodiflouromethane	NA	9.16E-06	NA	2.68E-05	NA	2.68E-05
Trichlorofluoromethane	NA	7.97E-06	NA	7.78E-05	NA	1.97E-05
1,1-Dichloroethene	NA	1.32E-04	NA	3.21E-04	NA	3.21E-04
t-1,2-Dichloroethene	NA	6.06E-05	NA	1.70E-04	NA	1.70E-04
1,1-Dichloroethane	3.13E-10	6.52E-07	5.70E-10	1.19E-06	1.25E-09	2.60E-06
c-1,2-Dichloroethene	NA	1.20E-03	NA	3.29E-03	NA	3.29E-03
1,1,1-Trichloroethane	NA	9.58E-07	1.08E-07	3.24E-05	1.08E-07	3.24E-05
Trichloroethene	2.07E-07	4.03E-04	5.44E-07	1.06E-03	5.44E-07	1.06E-03
Tetrachloroethene	5.17E-08	5.85E-04	1.44E-07	1.62E-03	1.44E-07	1.62E-03
111Cl 122Fl ethane	NA	1.12E-06	NA	2.95E-06	NA	2.95E-06
Combination						
Child/Adult (Res)	**8.96E-07**	**4.97E-03**	**2.34E-06**	**1.32E-02**	**2.34E-06**	**1.31E-02**

NOTES

NA = Not Availble in Model (Not Carcinogen)

Table 2D Soil-Gas Risk/Hazard - Max Garage - 10' Grade to Floor						
All Data	15' sample depth		10' sample depth		5' sample depth	
	RISK	HAZARD	RISK	HAZARD	RISK	HAZARD
Benzene	2.28E-06	6.12E-03	5.61E-06	1.50E-02	5.61E-06	1.50E-02
Toluene	NA	4.40E-04	NA	1.09E-03	NA	1.09E-03
Ethyl Benz	1.48E-08	1.38E-05	3.99E-08	3.73E-05	3.99E-08	3.73E-05
Xylene	NA	4.34E-04	NA	1.23E-03	NA	1.23E-03
1,2,4, TMB	NA	5.41E-04	NA	1.68E-03	NA	1.68E-03
Acetone	NA	7.28E-06	NA	1.46E-05	NA	1.46E-05
2-Butanone (MEK)	NA	1.71E-05	NA	4.35E-05	NA	4.35E-05
4-Me-2-Pentanone (MIBK)	NA	8.66E-06	NA	2.33E-05	NA	2.33E-05
Styrene	NA	1.42E-05	NA	3.97E-05	NA	3.97E-05
CS2	NA	4.68E-04	NA	1.05E-03	NA	1.05E-03
Vinyl Chloride	1.20E-06	3.59E-04	1.20E-06	3.59E-04	1.20E-06	3.59E-04
Chloroform	2.22E-08	3.25E-05	4.96E-08	7.27E-05	4.96E-08	7.27E-05
Methylene Chloride	2.03E-07	1.18E-03	4.61E-07	2.69E-03	4.61E-07	2.69E-03
Dichlorodiflouromethane	NA	1.33E-05	NA	3.88E-05	NA	3.88E-05
Trichlorofluoromethane	NA	7.78E-05	NA	7.78E-05	NA	7.78E-05
1,1-Dichloroethene	NA	7.24E-04	NA	1.76E-03	NA	1.76E-03
t-1,2-Dichloroethene	NA	5.16E-04	NA	1.45E-03	NA	1.45E-03
1,1-Dichloroethane	1.88E-09	3.91E-06	5.11E-09	1.07E-05	5.11E-09	1.07E-05
c-1,2-Dichloroethene	NA	1.22E-02	NA	3.33E-02	NA	3.33E-02
1,1,1-Trichloroethane	NA	6.24E-06	NA	1.65E-05	NA	1.65E-05
Trichloroethene	1.37E-07	2.67E-04	3.60E-07	6.99E-04	3.60E-07	6.99E-04
Tetrachloroethene	3.82E-07	4.31E-03	1.06E-06	1.20E-02	1.06E-06	1.20E-02
111Cl 122Fl ethane	NA	7.03E-06	NA	4.08E-06	NA	7.42E-06
Combination						
Child/Adult (Res)	**4.24E-06**	**2.78E-02**	**8.78E-06**	**7.27E-02**	**8.78E-06**	**7.27E-02**
NOTES						
NA = Not Availble in Model (Not Carcinogen)						

Appendix A: Exposure and Risk/Hazard Methods

J&E Vapor Intrusion Risk/Hazard Assessment Methods

1) Receptor Defaults

Resident Child Portion (PEA B-7-14): Age: 6, body weight: 15 kg inhalation rate: 10 m3/day, exposure frequency: 350 d/yr., exposure duration: 6 years, cancer average time: 25550 days: non-cancer average time: ED x 365 days. Media exposure: soil-gas.

Resident Adult Portion (PEA B-7-14): Age > 6, body weight: 70 kg, inhalation rate: 20 m3/day, exposure frequency: 350 d/yr., exposure duration: 24 years, cancer average time: 25550 days: non-cancer average time: ED x 365 days. Media exposure: soil-gas.

2) Exposure Assessment Formula

The equations for estimating the exposure concentration for inhalation exposure to volatile chemicals in indoor air for cancer risk and for hazard, respectively, are:

ECc = Cindoor air x ET x EF x ED /ATc x 365 days/year x 24 hours/day

ECnc = Cindoor air x ET x EF x ED /ATnc x 365 days/year x 24 hours/day

Where:

$C_{indoor\ air}$ = contaminant concentration in indoor air ($\mu g/m^3$)
ET = exposure time (hours per day)
EF = exposure frequency (days per year)
ED = exposure duration (years)
AT = period of time over which exposure is averaged (years)

3) Risk and Hazard Evaluation Methods (HERD SG Screen)

Cancer Risk and Non-cancer hazard is calculated using the Cal/PEA equations from Cal/EPA PEA Guidance (June 1999) seen in pages B7-B14, as appropriate. Defaults will be from Cal/EPA HERD (Oct 27 2005) HERD HHRA Note 1.
http://www.dtsc.ca.gov/AssessingRisk/upload/HHRA_Note1.pdf

Non-Cancer Hazard Assessment

The HERD model uses basic Cal/EPA methods as seen in the PEA reduced oral/dermal exposure Hazard equation for soil for the child/adult is: (B-12) Hazard = [(C/RfD)*1.28E-05)]+[(C/RfD)*1.28E-04*ABS]

Where: RfD = USEPA Reference Dose or OEHHA REL; C = Concentration in soil; ABS = dermal absorption.

Oral and dermal hazards are calculated using Cal/EPA chronic reference exposure levels (cREL) seen in the Lookup section of the HERD spreadsheets and from the on-line OEHHA site: http://www/oehha/org/air/allrels.html.

Allowable Hazard: Any hazard quotient or index greater than 1.0 is considered excessive.

Where: HQ = Hazard Quotient; REL = OEHHA Reference Exposure Limit or RfC = USEPA Reference Concentration; EC = Exposure Concentration as:
EC = (CA * EF * ED)/(AT) (EQ-6)

Where: CA = Contaminant concentration in air; EF=Exposure Frequency; ED=Exposure Duration; AT = Averaging time (365 * Lifetime in years)

3.3 Carcinogenic Effects Methods

To evaluate cancer risk, the HERD Screen model uses Cal/EPA oral Cancer Slope Factors and inhalation unit risk values seen in the Lookup tab of the model and at the Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) Toxicity Criteria Data Base (TCDB) at: http://www.oehha.ca.gov/risk/ChemicalDB/cancerpotency.asp

The oral and dermal exposure and risk equations are the PEA reduced risk equation: (B-11)

Risk = (SF*C*4.7E-07) + (SF*C*1.1E-06)+(SF*C*7.8E-06*ABS)+(SF*C*1.1E-05*ABS)

Where: SF = Slope Factor oral; C = Concentration in soil; ABS = dermal absorption.

For inhalation risk, the methods of USEPA part F equations 7 and 12 are used (EPA Jan 2009) with PEF methods from EPA July 1996. This inhalation exposure-risk equation will be:
Risk = IUR*EC (EQ-11)

Where: IUR = Inhalation Unit Risk in ug/m3; EC = Exposure Concentration is:

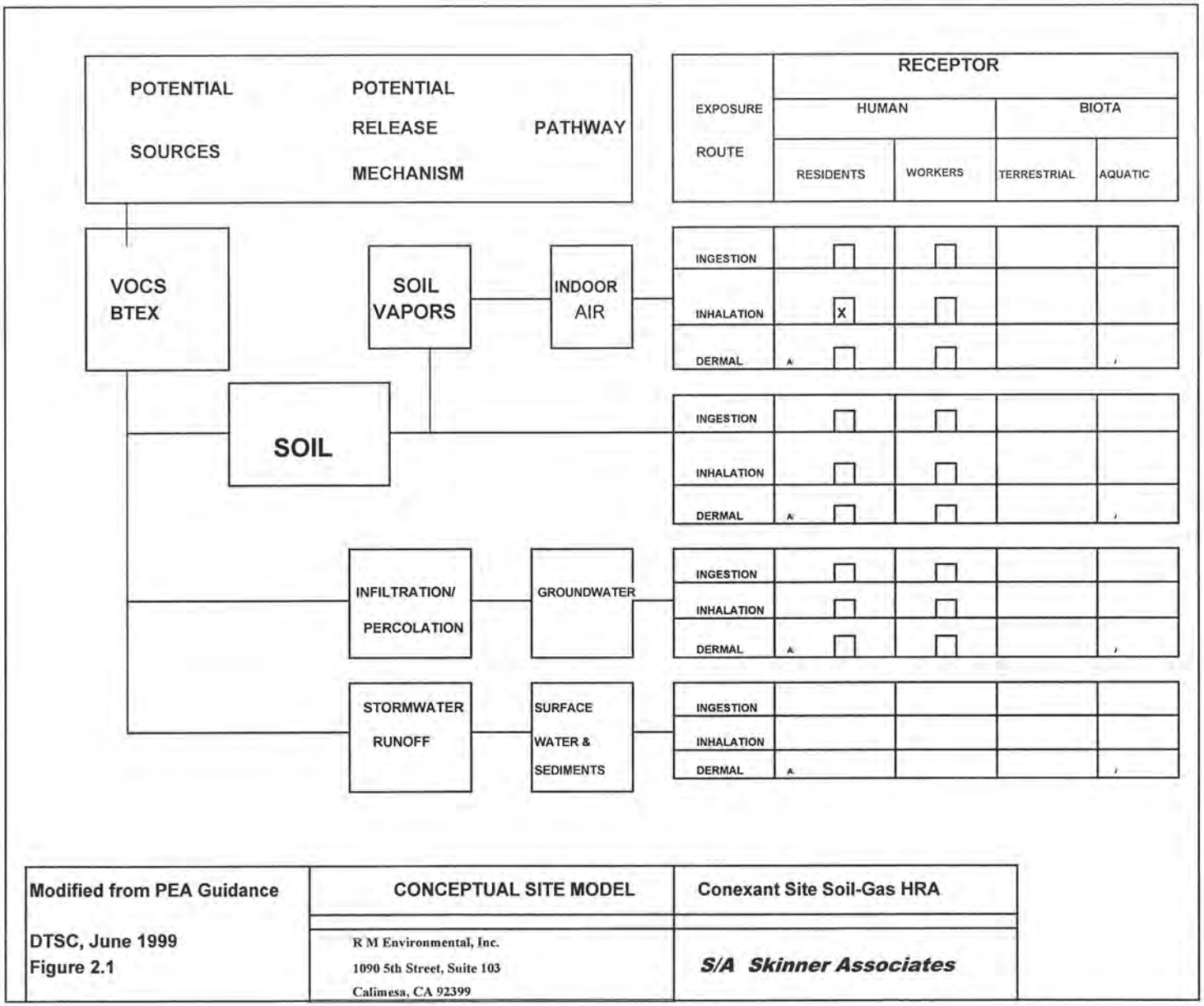
EC = (CA * EF * ED)/(AT) (EQ-6)

Where: CA = Contaminant concentration in air; EF=Exposure Frequency; ED=Exposure Duration; AT = Averaging time (365 * Lifetime in years)

A combined cancer risk value will be tabulated at the bottom of Tables 4a-f for the receptor for all routes and media for all carcinogens.

Allowable Risk – One in a million (10^{-6}) is the point of departure for risk management decisions with some agencies accepting 10 in a million (10^{-5}). Using these cancer potency factors, tabulated in Table 2, risks are calculated using the equations and defaults from the Cal/EPA PEA Guidance pages B7-B14.

Appendix B: Conceptual Site Model



Modified from PEA Guidance	CONCEPTUAL SITE MODEL	Conexant Site Soil-Gas HRA
DTSC, June 1999 Figure 2.1	R M Environmental, Inc. 1090 5th Street, Suite 103 Calimesa, CA 92399	***S/A Skinner Associates***

Appendix C: PROUCL Input and Output

Dichloro diflouro methane	D_Dichloro diflouro methane	Chloro methane	D_Chloro methane	Vinyl Chloride	D_Vinyl Chloride	Trichloro fluoro methane	D_Trichloro fluoro methane	1,1-Dichloro ethene	D_1,1-Dichloro ethene	Carbon Disulfide	D_Carbon Disulfide	1,1,2-Cl 1,2,2-Fl ethane	D_1,1,2-Cl 1,2,2-Fl ethane	Acetone	D_Acetone	t-1,2-Dichloro ethene	D_t-1,2-Dichloro ethene	1,1-Dichloro ethane	D_1,1-Dichloro ethane	c-1,2-Dichloro ethene	D_c-1,2-Dichloro ethene	2-Butanone	D_2-Butanone	Chloroform	D_Chloroform
9.8	0	8.2	0	5.1	0	25	1	7.9	0	31.0	0	15.0	0	96	1	7.9	0	8.0	0	7.9	0	28	1	9.7	0
9.3	0	8	0	4.8	0	34	1	7.4	0	45	1	14.0	0	76	1	7.4	0	7.6	0	7.4	0	18	1	11	1
9.4	0	7.9	0	4.9	0	11.0	0	7.6	0	470	1	15.0	0	170	1	7.6	0	7.7	0	7.6	0	40	1	9.3	0
8.9	0	7.5	0	4.6	0	10.0	0	7.2	0	88	1	14.0	0	270	1	7.2	0	7.3	0	7.2	0	57	1	8.8	0
9	0	8	0	5	0	11	0	7	0	54	1	170	1	170	1	7	0	8	0	7	0	43	1	9.1	0
9	0	8	0	5	0	11	0	7	0	100	1	170	1	140	1	7	0	8	0	19	1	42	1	9.1	0
10	0	9.2	1	5.2	0	11	0	8	0	33	1	15	0	130	1	8	0	8.2	0	8	0	32	1	9.9	0
8.8	0	7.3	0	4.5	0	10.0	0	7.0	0	28.0	0	14.0	0	79	1	7.0	0	7.2	0	7.0	0	19	1	8.7	0
10	0	8.6	1	5.9	1	11	0	8	0	50	1	15	0	210	1	8	0	8.2	0	84	1	53	1	9.9	0
9.1	0	7.6	0	4.7	0	10.0	0	7.3	0	29.0	0	14.0	0	72	1	17	1	7.4	0	240	1	23	1	9.0	0
8.3	0	7	0	4.3	0	9.5	0	6.7	0	68	1	13	0	90	1	6.7	0	6.8	0	6.7	0	35	1	8.2	0
8.9	0	7.5	0	4.6	0	10	0	7.2	0	46	1	14	0	120	1	7.2	0	7.3	0	7.2	0	42	1	8.8	0
98	0	82	0	51	0	110	0	79	0	310.0	0	150	0	240	0	79	0	80	0	79	0	58	0	97	0
44	0	37	0	23	1	50	0	35	0	140.0	0	68	0	110	0	35	0	36	0	35	0	26	0	43	0
8.6	0	7.2	0	4.5	0	9.8	0	6.9	0	92	1	13	0	61	1	7	0	7	0	7	0	19	1	8.5	0
8.1	0	6.7	0	4.2	0	9.2	0	6.5	0	25	0	12	0	88	1	6.5	0	6.6	0	6.5	0	45	1	8	0
2.2	1	1.00	1	0.5	0	1.1	0	0.8	0	3	0	1.5	0	15	1	0.8	0	0.8	0	0.8	0	9.2	1	1.0	0
2.1	1	0.92	1	0.5	0	1.1	0	0.8	0	3	0	1.5	0	12	1	0.8	0	0.8	0	0.8	0	2.9	1	1.0	0
3.1	1	1.4	1	0.5	0	1.4	1	0.8	0	8.2	1	1.5	0	26	1	0.8	0	0.8	0	0.8	0	9.2	1	1.0	0
3.0	1	1.4	1	0.5	0	1.3	1	0.8	0	3.2	1	1.5	0	11	1	0.8	0	0.8	0	0.8	0	4.0	1	1.0	0
3.3	1	0.8	0	0.5	0	1.4	1	0.8	0	3.1	0	1.5	0	15	1	0.8	0	0.8	0	0.8	0	7.6	1	1.0	0
3.4	1	0.8	0	0.5	0	1.5	1	0.8	0	3.1	0	1.5	0	8.3	1	0.8	0	0.91	1	0.8	1	3.3	1	1.0	0
3.9	1	2.1	0	1.8	1	2.8	0	2.7	1	7.8	0	3.8	0	50	1	14	1	3.0	1	160	1	6.8	1	2.4	0
22.0	0	18.0	0	11.0	0	25.0	0	18.0	0	70.0	0	34.0	0	69	1	56	1	18.0	0	750	1	13.0	0	22.0	0
9.5	0	690	1	4.9	0	11	0	7.6	0	30.0	0	15	0	87	1	7.6	0	7.8	0	7.6	0	11	1	9.4	0
3.2	1	2.1	0	1.3	0	2.6	0	2.0	0	7.8	0	3.8	0	17	1	2	0	2.0	0	2	0	7.3	1	2.4	0
4.2	1	2.1	0	1.3	0	4.7	1	2.0	0	7.8	0	3.8	0	22	1	2	0	2.0	0	2	0	9.0	1	4.1	1
5.2	1	2.1	0	1.3	0	5.7	1	2.0	0	7.8	0	3.8	0	23	1	2	0	2.0	0	2	0	10.0	1	4.1	1
2.8	1	2.1	0	1.3	0	4.1	1	2.0	0	7.8	0	3.8	0	15	1	2.4	1	2.0	0	3.2	1	4.9	1	4.7	1
3.7	1	2.8	0	1.8	0	3.9	0	3.4	1	16	1	100	1	290	1	2.7	0	2.8	0	2.7	0	140	1	12	1
4.2	1	2.1	0	1.3	0	2.8	0	2.7	1	7.8	0	62	1	160	1	2	0	2.0	0	18	1	71	1	7.1	1
3.1	1	2.1	0	1.3	0	9.5	1	2	0	12	1	75	1	260	1	2	0	2.0	0	60	1	24	0		
2.8	1	1.9	1	0.5	0	4.9	1	1.8	1	32	1	25	1	60	1	2.8	1	2.0	1	78	1	23	1	5.4	1
4.3	1	2.1	0	1.3	0	26	1	55	1	11	1	270	1	70	1	12	1	2.4	1	64	1	15	1	3.3	0
3.2	1	2.1	0	1.3	0	35	1	79	1	25	1	360	1	190	1	30	1	4.8	1	290	1	67	1	4.4	1
3.2	1	1.1	1	0.5	0	12	1	2.1	1	15	1	24	1	100	1	2.7	1	0.8	0	0.8	0	24	1	4.4	1
3.2	1	3.8	1	0.5	0	13	1	0.8	0	31	1	27	1	94	1	0.8	0	0.8	0	0.83	1	20	1	14	1
3.3	1	0.8	0	0.5	0	2.6	1	0.8	0	3.2	1	2	0	50	1	0.8	0	0.8	0	0.79	0	26	1	1	0
3.3	1	2.1	0	1.3	0	15	1	3.8	1	14	1	9.7	1	130	1	2.5	1	2.0	0	2.0	0	25	1	2.8	1
3.9	1	1.5	1	0.18	1	3.2	1	0.36	1	1.3	1	1.5	0	2.4	0	0.2	1	0.81	0	0.91	0	6.0	1	0.45	1
0.93	1	0.29	1	0.32	1	14	1	0.81	1	13	1	1.5	0	15	1	0.68	1	0.25	1	3.3	1	8.1	1	1.0	0
1.1	1	0.59	1	1.2	1	1.9	1	0.79	0	0.8	1	1.5	0	52	1	0.79	0	0.81	0	0.79	0	17	1	1.5	1
0.78	0	0.79	1	1.3	0	2.8	0	1.9	0	2.4	0	3.8	0	23	1	1.9	0	2	0	1.9	0	9.8	1	2.4	0

1,1,1-Trichloroethane	D_1,1,1-Trichloroethane	Benzene	D_Benzene	Trichloroethene	D_Trichloroethene	4-Methyl 2-Pentanone	D_4-Methyl 2-Pentanone	Toluene	D_Toluene	Tetrachloroethene	D_Tetrachloroethene	2-Hexanone	D_2-Hexanone	Ethyl benzene	D_Ethyl benzene	p, & m-Xylene	D_p, & m-Xylene	o-Xylene	D_o-Xylene	Styrene	D_Styrene	4-Ethyl Toluene	D_4-Ethyl Toluene	1,2,4-Trimethyl benzene	D_1,2,4-Trimethyl benzene
11.0	0	15	1	11	0	11	1	68	1	11.0	0	13.0	0	9.1	0	8.6	0	18	1	8.6	0	10.0	0	19.0	0
10.0	0	16	1	10	0	7.7	0	82	1	10.0	0	17	1	8.6	0	8.1	0	24	1	8	0	9.7	0	18.0	0
10.0	0	55	1	10	0	45	1	210	1	10.0	0	13.0	0	8.8	0	12	1	38	1	11	1	9.9	0	19.0	0
9.8	0	34	1	10	0	20	1	110	1	9.8	0	12.0	0	8	0	9.6	1	30	1	8.4	1	9.3	0	18.0	0
53	1	17	1	140	1	8	0	200	1	10	0	480	1	8.6	0	14	1	47	1	12	1	9.7	0	18	0
32	1	53	1	29	1	8	0	150	1	10	0	18	1	8.6	0	12	1	39	1	11	1	9.7	0	18	0
11	0	29	1	11	0	17	1	86	1	11	0	14	0	9.3	0	8.8	0	16	1	8.8	0	10	0	20	0
9.7	0	11	1	9.5	0	8.1	1	45	1	9.7	0	12.0	0	8.2	0	7.7	0	13	1	7.7	0	9.2	0	17.0	0
11	0	37	1	29	1	26	1	91	1	11	0	14	0	9.3	0	8.8	0	18	1	8.8	0	10	0	20	0
10.0	0	29	1	700	1	15	1	99	1	10	0	12	0	8.5	0	8	0	20	1	8	0	9.5	0	18	0
9.2	0	43	1	9.1	0	28	1	150	1	9.2	0	11	0	7.8	0	12	1	40	1	11	1	8.7	0	17	0
9.8	0	43	1	9.7	0	18	1	160	1	9.8	0	12	0	8.3	0	11	1	39	1	11	1	9.3	0	18	0
110	0	190	1	110	0	81	0	180	1	110	0	130	0	91	0	86	0	86	0	86	0	100	0	190	0
48	0	290	1	48	0	36	0	210	1	48	0	60	0	41	0	(39	0	39	1	39	0	46	0	87	0
10	0	33	1	28	1	13	1	110	1	9.5	0	12	0	8	0	7.7	1	25	1	8	0	9	0	17	0
8.9	0	6.2	1	420	1	6.7	0	190	1	8.9	0	200	1	7.5	0	7.1	0	18	1	7.1	0	8.1	0	16	0
1.1	0	8.1	1	1	0	3.3	1	9.9	1	1.4	0	1.4	1	3.5	1	9.1	1	3.8	1	1.8	1	2.6	1	3.0	1
1.1	0	9.7	1	1	0	3.6	1	10	1	1.4	0	0.8	0	4.9	1	9.0	1	4.1	1	3.3	1	3.7	1	4.1	1
1.1	0	0.85	1	1	0	2.6	1	5.1	1	1.4	0	1.7	1	1.4	1	5.1	1	2.5	1	1.3	1	2.3	1	3.0	1
1.1	0	1.1	1	1	0	2.0	1	7.9	1	1.4	0	0.8	0	1.6	1	5.4	1	2.5	1	1.6	1	2.0	1	2.3	1
1.1	0	1.2	1	1	0	2.3	1	14	1	1.4	0	0.8	0	1.9	1	5.7	1	2.6	1	2.4	1	1.7	1	2.0	0
1.1	0	1.2	1	20	1	1.6	1	6.8	1	3.3	1	0.8	0	1.5	1	5.0	1	2.5	1	1.6	1	2.0	1	2.5	1
2.7	0	1.6	0	240	1	2.0	0	4.3	1	3.4	0	2	0	2.2	0	2.6	1	2.2	0	2.1	0	2.5	0	4.9	0
24.0	0	14.0	0	5,200	1	18.0	0	17.0	0	93	0	18	0	19	0	19	0	19	0	19	0	22	0	44	0
10	0	180	1	10	0	7.9	0	48	1	13	0	7.9	0	13	1	24	1	8.3	0	8.3	1	9.4	0	19	0
2.7	0	32	1	3	0	2.0	0	10	1	3.4	0	2	0	3.7	1	8.8	1	4.1	1	4.5	1	3.8	1	5.1	1
8.9	1	4.2	1	200	1	2.4	1	15	1	150	1	2	0	3.1	1	7.7	1	4.0	1	2.7	1	2.7	1	4.9	0
8.9	1	5.2	1	201	1	2.4	1	15	1	151	1	2	0	3.1	1	7.7	1	4.0	1	2.7	1	3.7	1	7.1	1
10	1	2.2	1	410	1	2.8	1	12	1	270	1	2	0	2.2	0	6.7	1	3.2	1	2.2	1	2.5	0	4.9	0
4.5	1	2.8	1	29	1	41	1	49	1	25	1	3.9	1	7.6	1	24	1	7.6	1	7.8	1	3.9	1	6.8	0
2.9	1	3.2	1	28	1	33	1	46	1	15	1	3.5	1	6.9	1	21	1	6.4	1	6.6	1	2.7	1	4.9	0
2.7	0	5.5	1	6.0	1	31	1	56	1	12	1	4.1	1	13	1	43	1	13	1	11	1	6.9	1	7.6	1
1.1	0	24	1	19	1	31	1	120	1	3.8	1	3.9	1	21	1	59	1	17	1	23	1	5.9	1	5.4	1
2.7	0	3.9	1	370	1	4.3	1	65	1	98	1	2	0	7.6	1	21	1	6.4	1	9.4	1	4.1	1	4.9	0
2.7	0	11	1	520	1	31	1	130	1	130	1	4.8	1	18	1	58	1	17	1	15	1	7.9	1	6.6	1
1.1	0	9.2	1	7.2	1	19	1	110	1	7.1	1	3.5	1	17	1	49	1	16	1	17	1	9.0	1	7.5	1
1.1	0	18	1	16	1	18	1	180	1	3.5	1	2.9	1	18	1	47	1	14	1	23	1	6.0	1	2.0	0
1.1	0	3.6	1	1	0	4.5	1	35	1	1.4	0	5.3	1	8.7	1	26	1	8.0	1	11	1	3.1	1	3.0	1
2.7	0	10	1	5.3	1	15	1	110	1	4.5	1	2.9	1	19	1	54	1	16	1	15	1	6.8	1	5.2	1
1.1	0	13	1	4.9	1	4.3	1	85	1	6.2	1	0.82	0	6.4	1	16	1	4.9	1	3.9	1	5.2	1	6.5	1
1.1	0	9.6	1	7.5	1	1.1	0	13	1	22	1	1.3	1	1.9	1	5.3	1	1.8	1	2.3	1	2.4	1	3.0	0
1.1	0	41	1	1.1	0	0.82	0	76	1	0.64	1	2.0	1	24	1	16	1	5.4	1	4.7	1	6.6	1	3.0	0
2.7	0	78	1	2.6	0	2	0	170	1	1.4	0	2	0	14	1	21	1	7.2	1	12	1	12	1	7.3	0

General UCL Statistics for Data Sets with Non-Detects

User Selected Options	
From File	Sheet1.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Dichloro diflouro methane

General Statistics			
Number of Valid Data	43	Number of Detected Data	24
Number of Distinct Detected Data	15	Number of Non-Detect Data	19
		Percent Non-Detects	44.19%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.93	Minimum Detected	-0.0726
Maximum Detected	5.2	Maximum Detected	1.649
Mean of Detected	3.193	Mean of Detected	1.102
SD of Detected	0.948	SD of Detected	0.391
Minimum Non-Detect	0.78	Minimum Non-Detect	-0.248
Maximum Non-Detect	98	Maximum Non-Detect	4.585

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	43
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.929	Shapiro Wilk Test Statistic	0.788
5% Shapiro Wilk Critical Value	0.916	5% Shapiro Wilk Critical Value	0.916
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	5.295	Mean	1.341
SD	7.53	SD	0.712
95% DL/2 (t) UCL	7.226	95% H-Stat (DL/2) UCL	6.19
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	1.069
		SD in Log Scale	0.326
		Mean in Original Scale	3.043
		SD in Original Scale	0.797
		95% t UCL	3.248
		95% Percentile Bootstrap UCL	3.24
		95% BCA Bootstrap UCL	3.216

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	7.551	Data appear Normal at 5% Significance Level	
Theta Star	0.423		
nu star	362.4		
A-D Test Statistic	1.437	Nonparametric Statistics	
5% A-D Critical Value	0.745	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.745	Mean	3.102
5% K-S Critical Value	0.178	SD	1.011
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.207
		95% KM (t) UCL	3.45
Assuming Gamma Distribution		95% KM (z) UCL	3.442
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	3.451
Minimum	0.735	95% KM (bootstrap t) UCL	3.437
Maximum	5.2	95% KM (BCA) UCL	3.479
Mean	3.232	95% KM (Percentile Bootstrap) UCL	3.441
Median	3.448	95% KM (Chebyshev) UCL	4.003
SD	0.833	97.5% KM (Chebyshev) UCL	4.393
k star	9.128	99% KM (Chebyshev) UCL	5.159
Theta star	0.354		
Nu star	785	Potential UCLs to Use	
AppChi2	721	95% KM (t) UCL	3.45
95% Gamma Approximate UCL	3.519	95% KM (Percentile Bootstrap) UCL	3.441
95% Adjusted Gamma UCL	3.529		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Chloro methane

General Statistics			
Number of Valid Data	43	Number of Detected Data	14
Number of Distinct Detected Data	13	Number of Non-Detect Data	29
		Percent Non-Detects	67.44%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.29	Minimum Detected	-1.238
Maximum Detected	690	Maximum Detected	6.537
Mean of Detected	51.61	Mean of Detected	0.855
SD of Detected	183.8	SD of Detected	1.891
Minimum Non-Detect	0.83	Minimum Non-Detect	-0.186
Maximum Non-Detect	82	Maximum Non-Detect	4.407
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	42
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	97.67%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.308	Shapiro Wilk Test Statistic	0.758
5% Shapiro Wilk Critical Value	0.874	5% Shapiro Wilk Critical Value	0.874
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	19.75	Mean	0.81
SD	104.9	SD	1.372
95% DL/2 (t) UCL	46.64	95% H-Stat (DL/2) UCL	10.44
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	0.0906
		SD in Log Scale	1.361
		Mean in Original Scale	17.49
		SD in Original Scale	105
		95% t UCL	44.43
		95% Percentile Bootstrap UCL	49.48
		95% BCA Bootstrap UCL	66.17
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.23	Data do not follow a Discernable Distribution (0.05)	
Theta Star	224		
nu star	6.452		
A-D Test Statistic	3.178	Nonparametric Statistics	
5% A-D Critical Value	0.86	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.86	Mean	17.49
5% K-S Critical Value	0.251	SD	103.8
Data not Gamma Distributed at 5% Significance Level		SE of Mean	16.43
		95% KM (t) UCL	45.12
Assuming Gamma Distribution		95% KM (z) UCL	44.51
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	44.43
Minimum	1.00E-12	95% KM (bootstrap t) UCL	1181
Maximum	690	95% KM (BCA) UCL	49.59
Mean	58.07	95% KM (Percentile Bootstrap) UCL	49.34
Median	64.26	95% KM (Chebyshev) UCL	89.09
SD	103.5	97.5% KM (Chebyshev) UCL	120.1
k star	0.368	99% KM (Chebyshev) UCL	180.9
Theta star	158		
Nu star	31.61	Potential UCLs to Use	
AppChi2	19.76	95% KM (Chebyshev) UCL	**89.09**
95% Gamma Approximate UCL	92.88		
95% Adjusted Gamma UCL	94.44		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Vinyl Chloride

General Statistics			
Number of Valid Data	43	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	37
		Percent Non-Detects	86.05%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.18	Minimum Detected	-1.715
Maximum Detected	23	Maximum Detected	3.135
Mean of Detected	5.4	Mean of Detected	0.471
SD of Detected	8.873	SD of Detected	1.804
Minimum Non-Detect	0.51	Minimum Non-Detect	-0.673
Maximum Non-Detect	51	Maximum Non-Detect	3.932

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	43
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.674	Shapiro Wilk Test Statistic	0.97
5% Shapiro Wilk Critical Value	0.788	5% 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	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.472	Mean	0.0384
SD	5.047	SD	1.212
95% DL/2 (t) UCL	3.767	95% H-Stat (DL/2) UCL	3.53
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.179
		SD in Log Scale	1.241
		Mean in Original Scale	1.041
		SD in Original Scale	3.549
		95% t UCL	1.951
		95% Percentile Bootstrap UCL	2.064
		95% BCA Bootstrap UCL	2.928

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.371	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	14.56		
nu star	4.451		
A-D Test Statistic	0.338	Nonparametric Statistics	
5% A-D Critical Value	0.735	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.735	Mean	1.055
5% K-S Critical Value	0.348	SD	3.551
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.606
		95% KM (t) UCL	2.075
Assuming Gamma Distribution		95% KM (z) UCL	2.052
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.006
Minimum	1.00E-12	95% KM (bootstrap t) UCL	4.564
Maximum	23	95% KM (BCA) UCL	3.227
Mean	3.903	95% KM (Percentile Bootstrap) UCL	2.491
Median	3.998	95% KM (Chebyshev) UCL	3.698
SD	3.682	97.5% KM (Chebyshev) UCL	4.841
k star	0.241	99% KM (Chebyshev) UCL	7.087
Theta star	16.18		
Nu star	20.74	Potential UCLs to Use	
AppChi2	11.4	95% KM (t) UCL	**2.075**
95% Gamma Approximate UCL	7.101		
95% Adjusted Gamma UCL	7.254		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Trichloro fluoro methane

General Statistics			
Number of Valid Data	43	Number of Detected Data	20
Number of Distinct Detected Data	19	Number of Non-Detect Data	23
		Percent Non-Detects	53.49%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.3	Minimum Detected	0.262
Maximum Detected	35	Maximum Detected	3.555
Mean of Detected	10.81	Mean of Detected	1.83
SD of Detected	10.99	SD of Detected	1.131
Minimum Non-Detect	1.1	Minimum Non-Detect	0.0953
Maximum Non-Detect	110	Maximum Non-Detect	4.7
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	43
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.811	Shapiro Wilk Test Statistic	0.926
5% Shapiro Wilk Critical Value	0.905	5% Shapiro Wilk Critical Value	0.905
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	8.944	Mean	1.593
SD	11.29	SD	1.108
95% DL/2 (t) UCL	11.84	95% H-Stat (DL/2) UCL	13.91
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	1.105
		SD in Log Scale	1.16
		Mean in Original Scale	6.117
		SD in Original Scale	8.669
		95% t UCL	8.341
		95% Percentile Bootstrap UCL	8.373
		95% BCA Bootstrap UCL	8.757
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.92	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	11.75		
nu star	36.8		
A-D Test Statistic	0.564	Nonparametric Statistics	
5% A-D Critical Value	0.767	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.767	Mean	6.484
5% K-S Critical Value	0.199	SD	8.695
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	1.417
		95% KM (t) UCL	8.867
Assuming Gamma Distribution		95% KM (z) UCL	8.815
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	8.83
Minimum	1.246	95% KM (bootstrap t) UCL	9.686
Maximum	35	95% KM (BCA) UCL	8.754
Mean	10.36	95% KM (Percentile Bootstrap) UCL	8.899
Median	9.5	95% KM (Chebyshev) UCL	12.66
SD	8.301	97.5% KM (Chebyshev) UCL	15.33
k star	1.444	99% KM (Chebyshev) UCL	20.58
Theta star	7.176		
Nu star	124.2	Potential UCLs to Use	
AppChi2	99.45	95% KM (t) UCL	**8.867**
95% Gamma Approximate UCL	12.94		
95% Adjusted Gamma UCL	13.04		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

1,1-Dichloro ethene

General Statistics			
Number of Valid Data	43	Number of Detected Data	10
Number of Distinct Detected Data	9	Number of Non-Detect Data	33
		Percent Non-Detects	76.74%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.36	Minimum Detected	-1.022
Maximum Detected	79	Maximum Detected	4.369
Mean of Detected	15.17	Mean of Detected	1.302
SD of Detected	27.92	SD of Detected	1.681
Minimum Non-Detect	0.79	Minimum Non-Detect	-0.236
Maximum Non-Detect	79	Maximum Non-Detect	4.369
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	42
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	97.67%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.576	Shapiro Wilk Test Statistic	0.869
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	6.563	Mean	0.763
SD	15.13	SD	1.354
95% DL/2 (t) UCL	10.45	95% H-Stat (DL/2) UCL	9.595
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.651
		SD in Log Scale	1.586
		Mean in Original Scale	3.847
		SD in Original Scale	14.38
		95% t UCL	7.536
		95% Percentile Bootstrap UCL	7.619
		95% BCA Bootstrap UCL	9.958
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.385	Data appear Lognormal at 5% Significance Level	
Theta Star	39.39		
nu star	7.702		
A-D Test Statistic	1.3	Nonparametric Statistics	
5% A-D Critical Value	0.785	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.785	Mean	4.142
5% K-S Critical Value	0.282	SD	14.22
Data not Gamma Distributed at 5% Significance Level		SE of Mean	2.301
		95% KM (t) UCL	8.012
Assuming Gamma Distribution		95% KM (z) UCL	7.927
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	7.643
Minimum	1.00E-12	95% KM (bootstrap t) UCL	36.57
Maximum	132.5	95% KM (BCA) UCL	9.625
Mean	31.05	95% KM (Percentile Bootstrap) UCL	8.434
Median	17.01	95% KM (Chebyshev) UCL	14.17
SD	33.67	97.5% KM (Chebyshev) UCL	18.51
k star	0.147	99% KM (Chebyshev) UCL	27.04
Theta star	211.4		
Nu star	12.63	Potential UCLs to Use	
AppChi2	5.646	95% KM (Chebyshev) UCL	**14.17**
95% Gamma Approximate UCL	69.47		
95% Adjusted Gamma UCL	71.52		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Carbon Disulfide

General Statistics			
Number of Valid Data	43	Number of Detected Data	24
Number of Distinct Detected Data	23	Number of Non-Detect Data	19
		Percent Non-Detects	44.19%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.8	Minimum Detected	-0.223
Maximum Detected	470	Maximum Detected	6.153
Mean of Detected	51.32	Mean of Detected	3.049
SD of Detected	93.94	SD of Detected	1.457
Minimum Non-Detect	2.4	Minimum Non-Detect	0.875
Maximum Non-Detect	310	Maximum Non-Detect	5.737
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	42
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	97.67%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.478	Shapiro Wilk Test Statistic	0.965
5% Shapiro Wilk Critical Value	0.916	5% Shapiro Wilk Critical Value	0.916
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	37.07	Mean	2.544
SD	75.34	SD	1.519
95% DL/2 (t) UCL	56.39	95% H-Stat (DL/2) UCL	81.47
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	2.106
		SD in Log Scale	1.608
		Mean in Original Scale	30.07
		SD in Original Scale	73.61
		95% t UCL	48.95
		95% Percentile Bootstrap UCL	51.4
		95% BCA Bootstrap UCL	66.09
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.624	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	82.19		
nu star	29.97		
A-D Test Statistic	0.534	Nonparametric Statistics	
5% A-D Critical Value	0.789	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.789	Mean	30.94
5% K-S Critical Value	0.186	SD	72.86
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	11.41
		95% KM (t) UCL	50.12
Assuming Gamma Distribution		95% KM (z) UCL	49.7
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	49.95
Minimum	1.00E-12	95% KM (bootstrap t) UCL	77.17
Maximum	470	95% KM (BCA) UCL	53.23
Mean	42.49	95% KM (Percentile Bootstrap) UCL	51.01
Median	31	95% KM (Chebyshev) UCL	80.66
SD	72.85	97.5% KM (Chebyshev) UCL	102.2
k star	0.184	99% KM (Chebyshev) UCL	144.4
Theta star	231.4		
Nu star	15.79	Potential UCLs to Use	
AppChi2	7.816	95% KM (BCA) UCL	53.23
95% Gamma Approximate UCL	85.84		
95% Adjusted Gamma UCL	88.05		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

1,1,2-Cl 1,2,2-Fl ethane

General Statistics		
Number of Valid Data	43	Number of Detected Data
Number of Distinct Detected Data	10	Number of Non-Detect Data
		Percent Non-Detects

Raw Statistics		Log-transformed Statistics
Minimum Detected	9.7	Minimum Detected
Maximum Detected	360	Maximum Detected
Mean of Detected	117.5	Mean of Detected
SD of Detected	114	SD of Detected
Minimum Non-Detect	1.5	Minimum Non-Detect
Maximum Non-Detect	150	Maximum Non-Detect

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage

UCL Statistics		
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only
Shapiro Wilk Test Statistic	0.857	Shapiro Wilk Test Statistic
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level
Assuming Normal Distribution		Assuming Lognormal Distribution
DL/2 Substitution Method		DL/2 Substitution Method
Mean	35.56	Mean
SD	74.83	SD
95% DL/2 (t) UCL	54.75	95% H-Stat (DL/2) UCL
Maximum Likelihood Estimate(MLE) Method		Log ROS Method
Mean	271.8	Mean in Log Scale
SD	79.18	SD in Log Scale
95% MLE (t) UCL	292.1	Mean in Original Scale
95% MLE (Tiku) UCL	336.7	SD in Original Scale
		95% t UCL
		95% Percentile Bootstrap UCL
		95% BCA Bootstrap UCL

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.867	Data appear Normal at 5% Significance Level
Theta Star	135.6	
nu star	19.07	
A-D Test Statistic	0.277	Nonparametric Statistics
5% A-D Critical Value	0.75	Kaplan-Meier (KM) Method
K-S Test Statistic	0.75	Mean
5% K-S Critical Value	0.262	SD
Data appear Gamma Distributed at 5% Significance Level		SE of Mean
		95% KM (t) UCL
		95% KM (z) UCL
Assuming Gamma Distribution		95% KM (jackknife) UCL
Gamma ROS Statistics using Extrapolated Data	9.7	95% KM (bootstrap t) UCL
Minimum	360	95% KM (BCA) UCL
Maximum	123.1	95% KM (Percentile Bootstrap) UCL
Mean	125	95% KM (Chebyshev) UCL
Median	63.22	97.5% KM (Chebyshev) UCL
SD	3.028	99% KM (Chebyshev) UCL
k star	40.67	
Theta star	260.4	Potential UCLs to Use
Nu star	224	95% KM (t) UCL
AppChi2	143.1	95% KM (Percentile Bootstrap) UCL
95% Gamma Approximate UCL	143.9	
95% Adjusted Gamma UCL		
Note: DL/2 is not a recommended method.		

11	
32	
74.42%	
2.272	
5.886	
4.252	
1.151	
0.405	
5.011	
39	
4	
90.70%	
0.955	
0.85	
1.948	
1.831	
98.66	
1.388	
2.079	
32.05	
75.29	
51.36	
52.01	
56.87	
37.54	
72.33	
11.58	
57.02	
56.59	
53.59	
66.04	
79.04	
65.94	
88.02	
109.9	
152.8	
57.02	
65.94	

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Acetone

General Statistics			
Number of Valid Data	43	Number of Detected Data	40
Number of Distinct Detected Data	33	Number of Non-Detect Data	3
		Percent Non-Detects	6.98%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	8.3	Minimum Detected	2.116
Maximum Detected	290	Maximum Detected	5.67
Mean of Detected	90.91	Mean of Detected	4.103
SD of Detected	75.54	SD of Detected	0.999
Minimum Non-Detect	2.4	Minimum Non-Detect	0.875
Maximum Non-Detect	240	Maximum Non-Detect	5.481
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	40
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	3
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	93.02%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.877	Shapiro Wilk Test Statistic	0.932
5% Shapiro Wilk Critical Value	0.94	5% Shapiro Wilk Critical Value	0.94
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	88.66	Mean	4.025
SD	74.4	SD	1.14
95% DL/2 (t) UCL	107.7	95% H-Stat (DL/2) UCL	167
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	141	Mean in Log Scale	4.031
SD	67.58	SD in Log Scale	1.035
95% MLE (t) UCL	158.3	Mean in Original Scale	86.76
95% MLE (Tiku) UCL	237.2	SD in Original Scale	74.56
		95% t UCL	105.9
		95% Percentile Bootstrap UCL	105
		95% BCA Bootstrap UCL	107.2
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.285	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	70.74		
nu star	102.8		
A-D Test Statistic	0.512	Nonparametric Statistics	
5% A-D Critical Value	0.769	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.769	Mean	87.6
5% K-S Critical Value	0.142	SD	73.94
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	11.52
		95% KM (t) UCL	107
Assuming Gamma Distribution		95% KM (z) UCL	106.5
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	106.9
Minimum	1.00E-12	95% KM (bootstrap t) UCL	109.2
Maximum	290	95% KM (BCA) UCL	106.7
Mean	88.4	95% KM (Percentile Bootstrap) UCL	106.7
Median	72	95% KM (Chebyshev) UCL	137.8
SD	74.16	97.5% KM (Chebyshev) UCL	159.6
k star	0.541	99% KM (Chebyshev) UCL	202.2
Theta star	163.3		
Nu star	46.54	Potential UCLs to Use	
AppChi2	31.89	95% KM (Chebyshev) UCL	137.8
95% Gamma Approximate UCL	129		
95% Adjusted Gamma UCL	130.7		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

t-1,2-Dichloro ethene

General Statistics			
Number of Valid Data	43	Number of Detected Data	11
Number of Distinct Detected Data	11	Number of Non-Detect Data	32
		Percent Non-Detects	74.42%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.2	Minimum Detected	-1.609
Maximum Detected	56	Maximum Detected	4.025
Mean of Detected	12.75	Mean of Detected	1.564
SD of Detected	17.04	SD of Detected	1.686
Minimum Non-Detect	0.79	Minimum Non-Detect	-0.236
Maximum Non-Detect	79	Maximum Non-Detect	4.369
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	43
For all methods (except KM, DL/2, and ROS Methods).		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.747	Shapiro Wilk Test Statistic	0.953
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	6.036	Mean	0.786
SD	11.12	SD	1.397
95% DL/2 (t) UCL	8.887	95% H-Stat (DL/2) UCL	10.74
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.303
		SD in Log Scale	1.583
		Mean in Original Scale	3.66
		SD in Original Scale	9.917
		95% t UCL	6.204
		95% Percentile Bootstrap UCL	6.279
		95% BCA Bootstrap UCL	7.716
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.516	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	24.74		
nu star	11.34		
A-D Test Statistic	0.345	Nonparametric Statistics	
5% A-D Critical Value	0.772	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.772	Mean	3.855
5% K-S Critical Value	0.267	SD	9.92
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	1.62
		95% KM (t) UCL	6.58
Assuming Gamma Distribution		95% KM (z) UCL	6.52
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	6.508
Minimum	1.00E-12	95% KM (bootstrap t) UCL	10.21
Maximum	56	95% KM (BCA) UCL	7.448
Mean	15.25	95% KM (Percentile Bootstrap) UCL	6.943
Median	14	95% KM (Chebyshev) UCL	10.92
SD	13.75	97.5% KM (Chebyshev) UCL	13.97
k star	0.269	99% KM (Chebyshev) UCL	19.98
Theta star	56.76		
Nu star	23.1	Potential UCLs to Use	
AppChi2	13.16	95% KM (t) UCL	6.58
95% Gamma Approximate UCL	26.75		
95% Adjusted Gamma UCL	27.29		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

1,1-Dichloro ethane

General Statistics

Number of Valid Data	43	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	37
		Percent Non-Detects	86.05%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.25	Minimum Detected	-1.386
Maximum Detected	4.8	Maximum Detected	1.569
Mean of Detected	2.227	Mean of Detected	0.459
SD of Detected	1.609	SD of Detected	1.056
Minimum Non-Detect	0.81	Minimum Non-Detect	-0.211
Maximum Non-Detect	80	Maximum Non-Detect	4.382

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	43
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.972	Shapiro Wilk Test Statistic	0.908
5% Shapiro Wilk Critical Value	0.788	5% 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	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.489	Mean	0.526
SD	6.45	SD	1.157
95% DL/2 (t) UCL	5.143	95% H-Stat (DL/2) UCL	5.198

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.965
		SD in Log Scale	0.935
		Mean in Original Scale	0.627
		SD in Original Scale	0.879
		95% t UCL	0.852
		95% Percentile Bootstrap UCL	0.866
		95% BCA Bootstrap UCL	0.934

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.917	Data appear Normal at 5% Significance Level	
Theta Star	2.429		
nu star	11		
A-D Test Statistic	0.242	Nonparametric Statistics	
5% A-D Critical Value	0.707	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.707	Mean	0.751
5% K-S Critical Value	0.337	SD	1.11
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.246
		95% KM (t) UCL	1.165
Assuming Gamma Distribution		95% KM (z) UCL	1.156
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.205
Minimum	0.25	95% KM (bootstrap t) UCL	1.161
Maximum	4.8	95% KM (BCA) UCL	2.616
Mean	2.895	95% KM (Percentile Bootstrap) UCL	2.384
Median	3.179	95% KM (Chebyshev) UCL	1.825
SD	0.86	97.5% KM (Chebyshev) UCL	2.29
k star	6.436	99% KM (Chebyshev) UCL	3.202
Theta star	0.45		
Nu star	553.5	Potential UCLs to Use	
AppChi2	499.9	95% KM (t) UCL	**1.165**
95% Gamma Approximate UCL	3.205	95% KM (Percentile Bootstrap) UCL	2.384
95% Adjusted Gamma UCL	3.216		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

c-1,2-Dichloro ethene

General Statistics			
Number of Valid Data	43	Number of Detected Data	13
Number of Distinct Detected Data	13	Number of Non-Detect Data	30
		Percent Non-Detects	69.77%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.79	Minimum Detected	-0.236
Maximum Detected	750	Maximum Detected	6.62
Mean of Detected	131.6	Mean of Detected	3.351
SD of Detected	208.7	SD of Detected	2.266
Minimum Non-Detect	0.79	Minimum Non-Detect	-0.236
Maximum Non-Detect	79	Maximum Non-Detect	4.369
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	38
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	5
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	88.37%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.671	Shapiro Wilk Test Statistic	0.93
5% Shapiro Wilk Critical Value	0.866	5% Shapiro Wilk Critical Value	0.866
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	42.39	Mean	1.34
SD	126.5	SD	2.069
95% DL/2 (t) UCL	74.85	95% H-Stat (DL/2) UCL	107.8
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.948
		SD in Log Scale	3.399
		Mean in Original Scale	39.89
		SD in Original Scale	127.2
		95% t UCL	72.51
		95% Percentile Bootstrap UCL	75.29
		95% BCA Bootstrap UCL	87.44
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.379	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	347.3		
nu star	9.854		
A-D Test Statistic	0.259	Nonparametric Statistics	
5% A-D Critical Value	0.805	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.805	Mean	40.56
5% K-S Critical Value	0.252	SD	125.5
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	19.93
		95% KM (t) UCL	74.08
Assuming Gamma Distribution		95% KM (z) UCL	73.34
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	73.12
Minimum	0.79	95% KM (bootstrap t) UCL	125.9
Maximum	750	95% KM (BCA) UCL	81.79
Mean	132.5	95% KM (Percentile Bootstrap) UCL	75.91
Median	132.5	95% KM (Chebyshev) UCL	127.4
SD	111.8	97.5% KM (Chebyshev) UCL	165
k star	1.148	99% KM (Chebyshev) UCL	238.8
Theta star	115.5		
Nu star	98.72	Potential UCLs to Use	
AppChi2	76.8	95% KM (t) UCL	**74.08**
95% Gamma Approximate UCL	170.4		
95% Adjusted Gamma UCL	171.9		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

2-Butanone

General Statistics			
Number of Valid Data	43	Number of Detected Data	40
Number of Distinct Detected Data	36	Number of Non-Detect Data	3
		Percent Non-Detects	6.98%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.9	Minimum Detected	1.065
Maximum Detected	140	Maximum Detected	4.942
Mean of Detected	27.33	Mean of Detected	2.913
SD of Detected	26.18	SD of Detected	0.93
Minimum Non-Detect	13	Minimum Non-Detect	2.565
Maximum Non-Detect	58	Maximum Non-Detect	4.06
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	39
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	4
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	90.70%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.787	Shapiro Wilk Test Statistic	0.976
5% Shapiro Wilk Critical Value	0.94	5% Shapiro Wilk Critical Value	0.94
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	26.55	Mean	2.891
SD	25.52	SD	0.915
95% DL/2 (t) UCL	33.09	95% H-Stat (DL/2) UCL	37.7
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	2.878
		SD in Log Scale	0.909
		Mean in Original Scale	26.23
		SD in Original Scale	25.57
		95% t UCL	32.79
		95% Percentile Bootstrap UCL	32.65
		95% BCA Bootstrap UCL	34.4
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.32	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	20.7		
nu star	105.6		
A-D Test Statistic	0.376	Nonparametric Statistics	
5% A-D Critical Value	0.768	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.768	Mean	26.35
5% K-S Critical Value	0.142	SD	25.35
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	3.936
		95% KM (t) UCL	32.97
Assuming Gamma Distribution		95% KM (z) UCL	32.82
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	32.97
Minimum	2.9	95% KM (bootstrap t) UCL	35.15
Maximum	140	95% KM (BCA) UCL	32.99
Mean	26.66	95% KM (Percentile Bootstrap) UCL	33.03
Median	19	95% KM (Chebyshev) UCL	43.51
SD	25.44	97.5% KM (Chebyshev) UCL	50.93
k star	1.367	99% KM (Chebyshev) UCL	65.51
Theta star	19.5		
Nu star	117.6	Potential UCLs to Use	
AppChi2	93.53	95% KM (Chebyshev) UCL	**43.51**
95% Gamma Approximate UCL	33.51		
95% Adjusted Gamma UCL	33.78		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Chloroform

General Statistics			
Number of Valid Data	43	Number of Detected Data	13
Number of Distinct Detected Data	11	Number of Non-Detect Data	30
		Percent Non-Detects	69.77%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.45	Minimum Detected	-0.799
Maximum Detected	14	Maximum Detected	2.639
Mean of Detected	5.842	Mean of Detected	1.472
SD of Detected	4.098	SD of Detected	0.914
Minimum Non-Detect	0.98	Minimum Non-Detect	-0.0202
Maximum Non-Detect	97	Maximum Non-Detect	4.575
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	43
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.891	Shapiro Wilk Test Statistic	0.892
5% Shapiro Wilk Critical Value	0.866	5% Shapiro Wilk Critical Value	0.866
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	5.361	Mean	1.048
SD	7.931	SD	1.169
95% DL/2 (t) UCL	7.395	95% H-Stat (DL/2) UCL	8.961
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	0.483
		SD in Log Scale	0.937
		Mean in Original Scale	2.597
		SD in Original Scale	3.109
		95% t UCL	3.394
		95% Percentile Bootstrap UCL	3.421
		95% BCA Bootstrap UCL	3.574
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.479	Data appear Normal at 5% Significance Level	
Theta Star	3.951		
nu star	38.45		
A-D Test Statistic	0.392	Nonparametric Statistics	
5% A-D Critical Value	0.745	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.745	Mean	2.754
5% K-S Critical Value	0.24	SD	3.394
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.616
		95% KM (t) UCL	3.79
Assuming Gamma Distribution		95% KM (z) UCL	3.767
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	3.67
Minimum	0.45	95% KM (bootstrap t) UCL	3.809
Maximum	14	95% KM (BCA) UCL	5.254
Mean	6.194	95% KM (Percentile Bootstrap) UCL	4.654
Median	6.262	95% KM (Chebyshev) UCL	5.438
SD	2.284	97.5% KM (Chebyshev) UCL	6.599
k star	5.11	99% KM (Chebyshev) UCL	8.881
Theta star	1.212		
Nu star	439.5	Potential UCLs to Use	
AppChi2	391.9	95% KM (t) UCL	3.79
95% Gamma Approximate UCL	6.947	95% KM (Percentile Bootstrap) UCL	4.654
95% Adjusted Gamma UCL	6.975		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

1,1,1-Trichloro ethane

General Statistics			
Number of Valid Data	43	Number of Detected Data	7
Number of Distinct Detected Data	6	Number of Non-Detect Data	36
		Percent Non-Detects	83.72%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.9	Minimum Detected	1.065
Maximum Detected	53	Maximum Detected	3.97
Mean of Detected	17.17	Mean of Detected	2.383
SD of Detected	18.51	SD of Detected	1.024
Minimum Non-Detect	1.1	Minimum Non-Detect	0.0953
Maximum Non-Detect	110	Maximum Non-Detect	4.7

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	43
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.767	Shapiro Wilk Test Statistic	0.933
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	6.808	Mean	0.967
SD	12.16	SD	1.355
95% DL/2 (t) UCL	9.928	95% H-Stat (DL/2) UCL	11.78
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.314
		SD in Log Scale	1.603
		Mean in Original Scale	3.368
		SD in Original Scale	9.339
		95% t UCL	5.763
		95% Percentile Bootstrap UCL	5.917
		95% BCA Bootstrap UCL	7.262

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.796	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	21.58		
nu star	11.14		
A-D Test Statistic	0.49	Nonparametric Statistics	
5% A-D Critical Value	0.725	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.725	Mean	5.502
5% K-S Critical Value	0.318	SD	8.82
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	1.489
		95% KM (t) UCL	8.006
Assuming Gamma Distribution		95% KM (z) UCL	7.951
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	7.486
Minimum	1.00E-12	95% KM (bootstrap t) UCL	11.65
Maximum	103.6	95% KM (BCA) UCL	12.72
Mean	43.75	95% KM (Percentile Bootstrap) UCL	11.05
Median	47.42	95% KM (Chebyshev) UCL	11.99
SD	30.39	97.5% KM (Chebyshev) UCL	14.8
k star	0.532	99% KM (Chebyshev) UCL	20.32
Theta star	82.21		
Nu star	45.77	Potential UCLs to Use	
AppChi2	31.25	95% KM (t) UCL	**8.006**
95% Gamma Approximate UCL	64.09		
95% Adjusted Gamma UCL	64.95		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzene

General Statistics			
Number of Valid Data	43	Number of Detected Data	41
Number of Distinct Detected Data	37	Number of Non-Detect Data	2
		Percent Non-Detects	4.65%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.85	Minimum Detected	-0.163
Maximum Detected	290	Maximum Detected	5.67
Mean of Detected	33.65	Mean of Detected	2.584
SD of Detected	57.55	SD of Detected	1.417
Minimum Non-Detect	1.6	Minimum Non-Detect	0.47
Maximum Non-Detect	14	Maximum Non-Detect	2.639
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	23
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	20
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	53.49%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.563	Shapiro Wilk Test Statistic	0.976
5% Shapiro Wilk Critical Value	0.941	5% Shapiro Wilk Critical Value	0.941
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	32.27	Mean	2.504
SD	56.52	SD	1.45
95% DL/2 (t) UCL	46.77	95% H-Stat (DL/2) UCL	67.04
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	2.504
		SD in Log Scale	1.438
		Mean in Original Scale	32.23
		SD in Original Scale	56.54
		95% t UCL	46.73
		95% Percentile Bootstrap UCL	47.77
		95% BCA Bootstrap UCL	52.68
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.623	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	54.03		
nu star	51.07		
A-D Test Statistic	1.031	Nonparametric Statistics	
5% A-D Critical Value	0.798	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.798	Mean	32.24
5% K-S Critical Value	0.144	SD	55.88
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	8.627
		95% KM (t) UCL	46.75
Assuming Gamma Distribution		95% KM (z) UCL	46.43
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	46.75
Minimum	1.00E-12	95% KM (bootstrap t) UCL	55.54
Maximum	290	95% KM (BCA) UCL	48.38
Mean	32.09	95% KM (Percentile Bootstrap) UCL	48.03
Median	11	95% KM (Chebyshev) UCL	69.85
SD	56.62	97.5% KM (Chebyshev) UCL	86.12
k star	0.295	99% KM (Chebyshev) UCL	118.1
Theta star	108.6		
Nu star	25.41	Potential UCLs to Use	
AppChi2	14.93	95% KM (Chebyshev) UCL	**69.85**
95% Gamma Approximate UCL	54.63		
95% Adjusted Gamma UCL	55.67		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Trichloro ethene

General Statistics			
Number of Valid Data	43	Number of Detected Data	23
Number of Distinct Detected Data	20	Number of Non-Detect Data	20
		Percent Non-Detects	46.51%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	4.9	Minimum Detected	1.589
Maximum Detected	5200	Maximum Detected	8.556
Mean of Detected	375.2	Mean of Detected	4.125
SD of Detected	1070	SD of Detected	1.91
Minimum Non-Detect	1.1	Minimum Non-Detect	0.0953
Maximum Non-Detect	110	Maximum Non-Detect	4.7
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	33
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	10
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	76.74%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.353	Shapiro Wilk Test Statistic	0.925
5% Shapiro Wilk Critical Value	0.914	5% Shapiro Wilk Critical Value	0.914
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	203.7	Mean	2.626
SD	796.8	SD	2.326
95% DL/2 (t) UCL	408.1	95% H-Stat (DL/2) UCL	912.1
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	2.138
		SD in Log Scale	2.679
		Mean in Original Scale	201.4
		SD in Original Scale	797.3
		95% t UCL	405.9
		95% Percentile Bootstrap UCL	429.2
		95% BCA Bootstrap UCL	571.9
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.35	Data appear Lognormal at 5% Significance Level	
Theta Star	1071		
nu star	16.12		
A-D Test Statistic	1.534	Nonparametric Statistics	
5% A-D Critical Value	0.834	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.834	Mean	203.3
5% K-S Critical Value	0.195	SD	787.5
Data not Gamma Distributed at 5% Significance Level		SE of Mean	122.8
		95% KM (t) UCL	409.9
Assuming Gamma Distribution		95% KM (z) UCL	405.3
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	**407.6**
Minimum	4.9	95% KM (bootstrap t) UCL	1110
Maximum	5200	95% KM (BCA) UCL	474.9
Mean	362.3	95% KM (Percentile Bootstrap) UCL	434.3
Median	313.5	95% KM (Chebyshev) UCL	738.6
SD	775.4	97.5% KM (Chebyshev) UCL	970.2
k star	0.604	99% KM (Chebyshev) UCL	1425
Theta star	599.6		
Nu star	51.97	Potential UCLs to Use	
AppChi2	36.41	97.5% KM (Chebyshev) UCL	970.2
95% Gamma Approximate UCL	517.1		
95% Adjusted Gamma UCL	523.6		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

4-Methyl 2-Pentanone

General Statistics			
Number of Valid Data	43	Number of Detected Data	30
Number of Distinct Detected Data	24	Number of Non-Detect Data	13
		Percent Non-Detects	30.23%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.6	Minimum Detected	0.47
Maximum Detected	45	Maximum Detected	3.807
Mean of Detected	15.21	Mean of Detected	2.252
SD of Detected	12.9	SD of Detected	1.078
Minimum Non-Detect	0.82	Minimum Non-Detect	-0.198
Maximum Non-Detect	81	Maximum Non-Detect	4.394
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	43
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.879	Shapiro Wilk Test Statistic	0.897
5% Shapiro Wilk Critical Value	0.927	5% Shapiro Wilk Critical Value	0.927
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	12.71	Mean	1.895
SD	12.85	SD	1.275
95% DL/2 (t) UCL	16.01	95% H-Stat (DL/2) UCL	25.42
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	1.78
		SD in Log Scale	1.222
		Mean in Original Scale	11.38
		SD in Original Scale	12.26
		95% t UCL	14.53
		95% Percentile Bootstrap UCL	14.55
		95% BCA Bootstrap UCL	15.05
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.106	Data do not follow a Discernable Distribution (0.05)	
Theta Star	13.75		
nu star	66.35		
A-D Test Statistic	0.973	Nonparametric Statistics	
5% A-D Critical Value	0.77	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.77	Mean	11.72
5% K-S Critical Value	0.164	SD	12.25
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.943
		95% KM (t) UCL	14.99
Assuming Gamma Distribution		95% KM (z) UCL	14.91
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	14.92
Minimum	1.00E-12	95% KM (bootstrap t) UCL	15.47
Maximum	45	95% KM (BCA) UCL	14.85
Mean	13.38	95% KM (Percentile Bootstrap) UCL	15.2
Median	11.14	95% KM (Chebyshev) UCL	20.19
SD	11.87	97.5% KM (Chebyshev) UCL	23.85
k star	0.487	99% KM (Chebyshev) UCL	31.05
Theta star	27.47		
Nu star	41.9	Potential UCLs to Use	
AppChi2	28.06	95% KM (Chebyshev) UCL	**20.19**
95% Gamma Approximate UCL	19.98		
95% Adjusted Gamma UCL	20.27		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Toluene

General Statistics			
Number of Valid Data	43	Number of Detected Data	42
Number of Distinct Detected Data	34	Number of Non-Detect Data	1
		Percent Non-Detects	2.33%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	4.3	Minimum Detected	1.459
Maximum Detected	210	Maximum Detected	5.347
Mean of Detected	84.38	Mean of Detected	3.941
SD of Detected	65.88	SD of Detected	1.184
Minimum Non-Detect	17	Minimum Non-Detect	2.833
Maximum Non-Detect	17	Maximum Non-Detect	2.833
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.851	Shapiro Wilk Test Statistic	0.832
5% Shapiro Wilk Critical Value	0.942	5% Shapiro Wilk Critical Value	0.942
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	82.62	Mean	3.899
SD	66.11	SD	1.201
95% DL/2 (t) UCL	99.57	95% H-Stat (DL/2) UCL	164.2
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	68.97	Mean in Log Scale	3.911
SD	84.97	SD in Log Scale	1.185
95% MLE (t) UCL	90.77	Mean in Original Scale	82.75
95% MLE (Tiku) UCL	92.47	SD in Original Scale	65.96
		95% t UCL	99.67
		95% Percentile Bootstrap UCL	99.5
		95% BCA Bootstrap UCL	100.8
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.082	Data do not follow a Discernable Distribution (0.05)	
Theta Star	77.96		
nu star	90.92		
A-D Test Statistic	1.095	Nonparametric Statistics	
5% A-D Critical Value	0.775	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.775	Mean	82.66
5% K-S Critical Value	0.14	SD	65.29
Data not Gamma Distributed at 5% Significance Level		SE of Mean	10.08
		95% KM (t) UCL	99.61
Assuming Gamma Distribution		95% KM (z) UCL	99.23
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	99.6
Minimum	4.3	95% KM (bootstrap t) UCL	101
Maximum	210	95% KM (BCA) UCL	100.6
Mean	82.59	95% KM (Percentile Bootstrap) UCL	99.45
Median	76	95% KM (Chebyshev) UCL	126.6
SD	66.14	97.5% KM (Chebyshev) UCL	145.6
k star	1.039	99% KM (Chebyshev) UCL	182.9
Theta star	79.51		
Nu star	89.32	Potential UCLs to Use	
AppChi2	68.53	95% KM (Chebyshev) UCL	**126.6**
95% Gamma Approximate UCL	107.6		
95% Adjusted Gamma UCL	108.6		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Tetrachloroethene

General Statistics			
Number of Valid Data	43	Number of Detected Data	16
Number of Distinct Detected Data	16	Number of Non-Detect Data	27
		Percent Non-Detects	62.79%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.64	Minimum Detected	-0.446
Maximum Detected	270	Maximum Detected	5.598
Mean of Detected	56.37	Mean of Detected	2.822
SD of Detected	79.79	SD of Detected	1.763
Minimum Non-Detect	1.4	Minimum Non-Detect	0.336
Maximum Non-Detect	110	Maximum Non-Detect	4.7
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	39
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	4
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	90.70%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.722	Shapiro Wilk Test Statistic	0.939
5% Shapiro Wilk Critical Value	0.887	5% Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	25.86	Mean	1.84
SD	54.28	SD	1.622
95% DL/2 (t) UCL	39.78	95% H-Stat (DL/2) UCL	51.46
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	0.912
		SD in Log Scale	2.008
		Mean in Original Scale	21.77
		SD in Original Scale	54.78
		95% t UCL	35.82
		95% Percentile Bootstrap UCL	36.23
		95% BCA Bootstrap UCL	40.75
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.465	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	121.1		
nu star	14.89		
A-D Test Statistic	0.814	Nonparametric Statistics	
5% A-D Critical Value	0.794	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.794	Mean	22.24
5% K-S Critical Value	0.227	SD	54.05
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	8.53
		95% KM (t) UCL	36.58
Assuming Gamma Distribution		95% KM (z) UCL	36.27
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	35.39
Minimum	1.00E-12	95% KM (bootstrap t) UCL	44.45
Maximum	270	95% KM (BCA) UCL	39.38
Mean	43.4	95% KM (Percentile Bootstrap) UCL	36.53
Median	26.58	95% KM (Chebyshev) UCL	59.42
SD	56.86	97.5% KM (Chebyshev) UCL	75.51
k star	0.145	99% KM (Chebyshev) UCL	107.1
Theta star	298.6		
Nu star	12.5	Potential UCLs to Use	
AppChi2	5.558	95% KM (t) UCL	**36.58**
95% Gamma Approximate UCL	97.61		
95% Adjusted Gamma UCL	100.5		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

2-Hexanone

General Statistics			
Number of Valid Data	43	Number of Detected Data	17
Number of Distinct Detected Data	14	Number of Non-Detect Data	26
		Percent Non-Detects	60.47%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.3	Minimum Detected	0.262
Maximum Detected	480	Maximum Detected	6.174
Mean of Detected	44.48	Mean of Detected	1.825
SD of Detected	121.8	SD of Detected	1.644
Minimum Non-Detect	0.82	Minimum Non-Detect	-0.198
Maximum Non-Detect	130	Maximum Non-Detect	4.868
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	41
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	2
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	95.35%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.406	Shapiro Wilk Test Statistic	0.764
5% Shapiro Wilk Critical Value	0.892	5% Shapiro Wilk Critical Value	0.892
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	21.76	Mean	1.303
SD	78.14	SD	1.544
95% DL/2 (t) UCL	41.8	95% H-Stat (DL/2) UCL	24.94
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	0.264
		SD in Log Scale	1.886
		Mean in Original Scale	18.12
		SD in Original Scale	78.24
		95% t UCL	38.19
		95% Percentile Bootstrap UCL	39.98
		95% BCA Bootstrap UCL	55.78
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.321	Data do not follow a Discernable Distribution (0.05)	
Theta Star	138.5		
nu star	10.92		
A-D Test Statistic	3.113	Nonparametric Statistics	
5% A-D Critical Value	0.832	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.832	Mean	18.75
5% K-S Critical Value	0.226	SD	77.19
Data not Gamma Distributed at 5% Significance Level		SE of Mean	12.14
		95% KM (t) UCL	39.16
Assuming Gamma Distribution		95% KM (z) UCL	38.71
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	38.75
Minimum	1.00E-12	95% KM (bootstrap t) UCL	370.7
Maximum	595.3	95% KM (BCA) UCL	40.99
Mean	69.87	95% KM (Percentile Bootstrap) UCL	40.81
Median	3.9	95% KM (Chebyshev) UCL	71.65
SD	132	97.5% KM (Chebyshev) UCL	94.53
k star	0.105	99% KM (Chebyshev) UCL	139.5
Theta star	664.5		
Nu star	9.043	Potential UCLs to Use	
AppChi2	3.353	95% KM (Chebyshev) UCL	71.65
95% Gamma Approximate UCL	188.4		
95% Adjusted Gamma UCL	195.4		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Ethyl benzene

General Statistics			
Number of Valid Data	43	Number of Detected Data	24
Number of Distinct Detected Data	19	Number of Non-Detect Data	19
		Percent Non-Detects	44.19%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.4	Minimum Detected	0.336
Maximum Detected	24	Maximum Detected	3.178
Mean of Detected	9.2	Mean of Detected	1.853
SD of Detected	7.164	SD of Detected	0.939
Minimum Non-Detect	2.2	Minimum Non-Detect	0.788
Maximum Non-Detect	91	Maximum Non-Detect	4.511

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	43
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.887	Shapiro Wilk Test Statistic	0.922
5% Shapiro Wilk Critical Value	0.916	5% Shapiro Wilk Critical Value	0.916
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	8.324	Mean	1.72
SD	8.548	SD	0.893
95% DL/2 (t) UCL	10.52	95% H-Stat (DL/2) UCL	11.34
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	1.557
		SD in Log Scale	0.803
		Mean in Original Scale	6.653
		SD in Original Scale	6.08
		95% t UCL	8.213
		95% Percentile Bootstrap UCL	8.135
		95% BCA Bootstrap UCL	8.45

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.349	Data appear Gamma Distributed at 5% Significance Level
Theta Star	6.822	
nu star	64.73	

A-D Test Statistic	0.577	Nonparametric Statistics	
5% A-D Critical Value	0.761	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.761	Mean	6.846
5% K-S Critical Value	0.181	SD	6.261
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	1.046
		95% KM (t) UCL	8.606
Assuming Gamma Distribution		95% KM (z) UCL	8.567
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	8.601
Minimum	1.4	95% KM (bootstrap t) UCL	8.827
Maximum	24	95% KM (BCA) UCL	8.559
Mean	9.255	95% KM (Percentile Bootstrap) UCL	8.534
Median	9.42	95% KM (Chebyshev) UCL	11.41
SD	5.384	97.5% KM (Chebyshev) UCL	13.38
k star	2.375	99% KM (Chebyshev) UCL	17.26
Theta star	3.897		
Nu star	204.2	Potential UCLs to Use	
AppChi2	172.2	95% KM (t) UCL	**8.606**
95% Gamma Approximate UCL	10.98		
95% Adjusted Gamma UCL	11.04		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician

p, & m-Xylene

General Statistics			
Number of Valid Data	42	Number of Detected Data	33
Number of Distinct Detected Data	25	Number of Non-Detect Data	9
Number of Missing Values	1	Percent Non-Detects	21.43%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.6	Minimum Detected	0.956
Maximum Detected	59	Maximum Detected	4.078
Mean of Detected	19.25	Mean of Detected	2.623
SD of Detected	16.86	SD of Detected	0.824
Minimum Non-Detect	7.1	Minimum Non-Detect	1.96
Maximum Non-Detect	86	Maximum Non-Detect	4.454

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	42
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.785	Shapiro Wilk Test Statistic	0.952
5% Shapiro Wilk Critical Value	0.931	5% Shapiro Wilk Critical Value	0.931
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	17.06	Mean	2.438
SD	16.51	SD	0.886
95% DL/2 (t) UCL	21.34	95% H-Stat (DL/2) UCL	23.11
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	2.446
		SD in Log Scale	0.817
		Mean in Original Scale	16.48
		SD in Original Scale	15.87
		95% t UCL	20.6
		95% Percentile Bootstrap UCL	20.73
		95% BCA Bootstrap UCL	21.04
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.513	Data appear Lognormal at 5% Significance Level	
Theta Star	12.73		
nu star	99.87		
A-D Test Statistic	1.022	Nonparametric Statistics	
5% A-D Critical Value	0.763	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.763	Mean	16.65
5% K-S Critical Value	0.156	SD	15.84
Data not Gamma Distributed at 5% Significance Level		SE of Mean	2.516
		95% KM (t) UCL	20.88
Assuming Gamma Distribution		95% KM (z) UCL	20.79
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	20.87
Minimum	2.6	95% KM (bootstrap t) UCL	21.63
Maximum	59	95% KM (BCA) UCL	20.93
Mean	17.44	95% KM (Percentile Bootstrap) UCL	20.81
Median	11.5	95% KM (Chebyshev) UCL	27.62
SD	15.63	97.5% KM (Chebyshev) UCL	32.36
k star	1.573	99% KM (Chebyshev) UCL	41.68
Theta star	11.09		
Nu star	132.1	Potential UCLs to Use	
AppChi2	106.6	95% KM (BCA) UCL	**20.93**
95% Gamma Approximate UCL	21.62		
95% Adjusted Gamma UCL	21.79		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

o-Xylene

General Statistics			
Number of Valid Data	43	Number of Detected Data	39
Number of Distinct Detected Data	26	Number of Non-Detect Data	4
		Percent Non-Detects	9.30%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.8	Minimum Detected	0.588
Maximum Detected	47	Maximum Detected	3.85
Mean of Detected	15.33	Mean of Detected	2.329
SD of Detected	13.01	SD of Detected	0.959
Minimum Non-Detect	2.2	Minimum Non-Detect	0.788
Maximum Non-Detect	86	Maximum Non-Detect	4.454
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	43
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.849	Shapiro Wilk Test Statistic	0.93
5% Shapiro Wilk Critical Value	0.939	5% Shapiro Wilk Critical Value	0.939
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	15.25	Mean	2.288
SD	13.41	SD	1.009
95% DL/2 (t) UCL	18.69	95% H-Stat (DL/2) UCL	23.72
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	2.252
		SD in Log Scale	0.973
		Mean in Original Scale	14.43
		SD in Original Scale	12.73
		95% t UCL	17.69
		95% Percentile Bootstrap UCL	17.62
		95% BCA Bootstrap UCL	17.59
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.301	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	11.79		
nu star	101.5		
A-D Test Statistic	0.825	Nonparametric Statistics	
5% A-D Critical Value	0.769	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.769	Mean	14.59
5% K-S Critical Value	0.144	SD	12.72
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	1.994
		95% KM (t) UCL	17.94
Assuming Gamma Distribution		95% KM (z) UCL	17.87
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	17.93
Minimum	1.00E-12	95% KM (bootstrap t) UCL	18.26
Maximum	47	95% KM (BCA) UCL	18.31
Mean	14.76	95% KM (Percentile Bootstrap) UCL	18.06
Median	13	95% KM (Chebyshev) UCL	23.28
SD	12.67	97.5% KM (Chebyshev) UCL	27.04
k star	0.563	99% KM (Chebyshev) UCL	34.42
Theta star	26.21		
Nu star	48.41	Potential UCLs to Use	
AppChi2	33.44	95% KM (Chebyshev) UCL	**23.28**
95% Gamma Approximate UCL	21.36		
95% Adjusted Gamma UCL	21.64		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Styrene

General Statistics			
Number of Valid Data	43	Number of Detected Data	31
Number of Distinct Detected Data	21	Number of Non-Detect Data	12
		Percent Non-Detects	27.91%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.3	Minimum Detected	0.262
Maximum Detected	23	Maximum Detected	3.135
Mean of Detected	8.339	Mean of Detected	1.812
SD of Detected	6.046	SD of Detected	0.857
Minimum Non-Detect	2.1	Minimum Non-Detect	0.742
Maximum Non-Detect	86	Maximum Non-Detect	4.454
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	43
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.893	Shapiro Wilk Test Statistic	0.92
5% Shapiro Wilk Critical Value	0.929	5% Shapiro Wilk Critical Value	0.929
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	8.463	Mean	1.776
SD	7.905	SD	0.871
95% DL/2 (t) UCL	10.49	95% H-Stat (DL/2) UCL	11.64
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	1.645
		SD in Log Scale	0.792
		Mean in Original Scale	6.995
		SD in Original Scale	5.585
		95% t UCL	8.427
		95% Percentile Bootstrap UCL	8.51
		95% BCA Bootstrap UCL	8.576
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.619	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	5.15		
nu star	100.4		
A-D Test Statistic	0.769	Nonparametric Statistics	
5% A-D Critical Value	0.761	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.761	Mean	7.124
5% K-S Critical Value	0.16	SD	5.729
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	0.93
		95% KM (t) UCL	8.688
Assuming Gamma Distribution		95% KM (z) UCL	8.653
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	8.686
Minimum	1.158	95% KM (bootstrap t) UCL	8.848
Maximum	23	95% KM (BCA) UCL	8.648
Mean	8.071	95% KM (Percentile Bootstrap) UCL	8.57
Median	7.422	95% KM (Chebyshev) UCL	11.18
SD	5.336	97.5% KM (Chebyshev) UCL	12.93
k star	1.966	99% KM (Chebyshev) UCL	16.38
Theta star	4.106		
Nu star	169.1	Potential UCLs to Use	
AppChi2	140	95% KM (Percentile Bootstrap) UCL	8.57
95% Gamma Approximate UCL	9.747		
95% Adjusted Gamma UCL	9.811		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

4-Ethyl Toluene

General Statistics			
Number of Valid Data	43	Number of Detected Data	23
Number of Distinct Detected Data	20	Number of Non-Detect Data	20
		Percent Non-Detects	46.51%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.7	Minimum Detected	0.531
Maximum Detected	12	Maximum Detected	2.485
Mean of Detected	4.661	Mean of Detected	1.4
SD of Detected	2.618	SD of Detected	0.536
Minimum Non-Detect	2.5	Minimum Non-Detect	0.916
Maximum Non-Detect	100	Maximum Non-Detect	4.605
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	43
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.89	Shapiro Wilk Test Statistic	0.967
5% Shapiro Wilk Critical Value	0.914	5% Shapiro Wilk Critical Value	0.914
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	6.15	Mean	1.519
SD	7.734	SD	0.676
95% DL/2 (t) UCL	8.134	95% H-Stat (DL/2) UCL	7.103
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	1.324
		SD in Log Scale	0.433
		Mean in Original Scale	4.144
		SD in Original Scale	2.059
		95% t UCL	4.672
		95% Percentile Bootstrap UCL	4.697
		95% BCA Bootstrap UCL	4.758
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	3.287	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	1.418		
nu star	151.2		
A-D Test Statistic	0.419	Nonparametric Statistics	
5% A-D Critical Value	0.749	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.749	Mean	4.314
5% K-S Critical Value	0.182	SD	2.376
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.46
		95% KM (t) UCL	5.088
Assuming Gamma Distribution		95% KM (z) UCL	5.07
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	5.091
Minimum	1.143	95% KM (bootstrap t) UCL	5.175
Maximum	12	95% KM (BCA) UCL	5.122
Mean	4.728	95% KM (Percentile Bootstrap) UCL	5.083
Median	5.089	95% KM (Chebyshev) UCL	6.319
SD	2.108	97.5% KM (Chebyshev) UCL	7.187
k star	4.699	99% KM (Chebyshev) UCL	8.892
Theta star	1.006		
Nu star	404.1	Potential UCLs to Use	
AppChi2	358.5	95% KM (t) UCL	**5.088**
95% Gamma Approximate UCL	5.329		
95% Adjusted Gamma UCL	5.351		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

1,2,4-Trimethyl benzene

General Statistics			
Number of Valid Data	43	Number of Detected Data	14
Number of Distinct Detected Data	12	Number of Non-Detect Data	29
		Percent Non-Detects	67.44%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.3	Minimum Detected	0.833
Maximum Detected	7.6	Maximum Detected	2.028
Mean of Detected	4.921	Mean of Detected	1.513
SD of Detected	1.936	SD of Detected	0.429
Minimum Non-Detect	2	Minimum Non-Detect	0.693
Maximum Non-Detect	190	Maximum Non-Detect	5.247
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	43
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.903	Shapiro Wilk Test Statistic	0.894
5% Shapiro Wilk Critical Value	0.874	5% Shapiro Wilk Critical Value	0.874
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	9.063	Mean	1.708
SD	15.08	SD	0.898
95% DL/2 (t) UCL	12.93	95% H-Stat (DL/2) UCL	11.28
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	1.219
		SD in Log Scale	0.422
		Mean in Original Scale	3.696
		SD in Original Scale	1.631
		95% t UCL	4.114
		95% Percentile Bootstrap UCL	4.112
		95% BCA Bootstrap UCL	4.132
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	5.051	Data appear Normal at 5% Significance Level	
Theta Star	0.974		
nu star	141.4		
A-D Test Statistic	0.595	Nonparametric Statistics	
5% A-D Critical Value	0.737	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.737	Mean	3.957
5% K-S Critical Value	0.229	SD	1.86
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.403
		95% KM (t) UCL	4.635
Assuming Gamma Distribution		95% KM (z) UCL	4.62
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	4.608
Minimum	2.3	95% KM (bootstrap t) UCL	4.69
Maximum	7.6	95% KM (BCA) UCL	4.745
Mean	5.231	95% KM (Percentile Bootstrap) UCL	4.689
Median	5.593	95% KM (Chebyshev) UCL	5.714
SD	1.343	97.5% KM (Chebyshev) UCL	6.474
k star	12.31	99% KM (Chebyshev) UCL	7.967
Theta star	0.425		
Nu star	1059	Potential UCLs to Use	
AppChi2	984.1	95% KM (t) UCL	**4.635**
95% Gamma Approximate UCL	5.627	95% KM (Percentile Bootstrap) UCL	4.689
95% Adjusted Gamma UCL	5.641		
Note: DL/2 is not a recommended method.			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.