AERIALLY DEPOSITED LEAD SURVEY U.S. 101/PALO COMADO CANYON ROAD INTERCHANGE PROJECT CITY OF AGOURA HILLS, CALIFORNIA GDC PROJECT NUMBER LA1143

PREPARED FOR

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NOVEMBER 7, 2013



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November 7, 2013

Parsons Road & Highway Division 2201 Dupont Drive, Suite 200 Irvine, California 92612

Attention: Mr. Thomas Sardo

Subject: Aerially Deposited Lead Study

U.S. 101/Palo Comado Canyon Road Interchange Project

City of Agoura Hills, California, Group Delta Project No. LA1143

Dear Mr. Sardo,

Group Delta Consultants, Inc. (Group Delta) is pleased to submit to Parsons this report on the results of an Aerially Deposity Lead Study for the U.S. 101/Palo Comado Canyon Road Interchange Project in Agoura Hills, California (Site) (Figure 1).

This project includes the widening of the Palo Comado Canyon Road Overcrossing with a median turn lane, sidewalks, and modification of the ramps. The purpose of the Aerially Deposited Lead Study is to evaluate the lead content of unpaved soil along the U.S. 101 on-ramp and off-ramp at Palo Comado Canyon Road and to assess the requirements for management of this soil. The Aerially Deposited Lead Study included the submission of a Work Plan and approval of the Work Plan by Caltrans, the collection of soil samples, laboratory analysis, data evaluation, statistical analysis of the analytical results, and preparation of this report.

Should you have any questions regarding this report, please feel free to call us at 949-450-2100.

Yours Sincerely,

GROUP DELTA CONS

Glenn Burks, Ph. D., P.E

Director of Environ. Services

Jack Packwood

Senior Project Manager

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1.0 INTRODUCTION

1.1 <u>Project Description</u>

This report has been prepared to summarize the procedures and results of an aerially deposited lead (ADL) survey conducted for the U.S. 101/Palo Comado Canyon Road Interchange Project. The California Department of Transportation (Caltrans) in association with the City of Agoura Hills is proposing to construct this project. The project understanding is based on the Request for Proposal (RFP) sent by Parsons. Based on the RFP, Group Delta understands that this project includes the widening of the Palo Comado Canyon Road overcrossing with a median turn lane, sidewalks, and modification of the northbound ramps in order to improve traffic circulation, safety, and bicycle/pedestrian access (Figure 1).

The U.S. 101/Palo Comado Canyon Road overcrossing structure was built in 1963. It provides one 12-foot lane and a 4-foot shoulder in each direction. A 5-foot sidewalk is provided on the west side of the overcrossing. The interchange is configured with tight diamond ramps on the northbound side and hook ramps on the southbound side located on the southwest quadrant of the interchange.

Proposed project construction may involve disturbance of near surface soils along the existing freeway on-ramp and off-ramp that have the potential to contain ADL. Therefore, GDC performed soil testing for ADL in unpaved areas along the northbound ramps where future soil disturbance is anticipated.

1.2 Project Objective and Scope of Work

The ADL testing followed the procedures presented in the ADL Work Plan reviewed and approved by Caltrans, named "Work Plan, Aerially Deposited Lead Study, U.S. 101/Palo Comado Canyon Road Interchange Project, City of Agoura Hills, California", dated September 18, 2013. This Work Plan was developed in accordance with Caltrans Aerially Deposited Lead Guidance, dated June 2007.

The objective of the investigation is to evaluate soil for the presence of ADL due to the historical use of leaded fuels by freeway and other roadway traffic. The information obtained from the limited soil sampling and laboratory testing is intended to inform Caltrans of potential health and safety issues for workers at the site during the project construction or landscaping activities, to assess the potential for reuse of the soil, to assist Caltrans in separating non-hazardous soil from potentially hazardous soil, and reduce disposal costs.

The Project included testing of soil for ADL within the zone of potential soil excavation in unpaved portions of the existing Caltrans Right-of-Way (ROW) along the northbound U.S. 101 off-ramp and on-ramp at Palo Comado Canyon Road. The Project also included

performing statistical analyses with the data collected during this investigation using the 95% upper confidence limit (UCL) on the mean by using ProUCL computer software.

The reuse of California non-Resource Recovery and Conservation Act (non-RCRA) hazardous soil on the project is permitted under a Variance issued to Caltrans by the Department of Toxic Substances Control (DTSC) if the soil meets chemical criteria specified by the Variance and is reused in a manner consistent with the Variance. The Variance allows reuse of non-RCRA hazardous soil beneath either one foot of clean soil or beneath an asphalt/concrete cover depending on the disposition of the soil. The soil will be classified in accordance with Caltrans soil classification presented in Table A below:

Table A - Caltrans Soil Classification

	AERIA	LLY DE	POSITED LEAD SOIL MANAGEMENT
SOLUBLE LEAD (mg/l)	TOTAL LEAD (mg/kg)	SOIL TYPE	HANDLING
CALI	FORNIA TESTING	T man	MANAGEMENT OF THE PROPERTY OF
STLC <5.0	TTLC <1000	Х	Non-hazardous Waste. Notify and require Lead Compliance Plan for worker safety.
	1000 – 1411 and DI WET < 1.5 mg/l	Y1	Hazardous Waste. Variance applies – cover with minimum 1 foot of clean soil.*
	1411 – 3397 and DI WET < 150 mg/l	Y2	Hazardous Waste. Variance applies – cover with pavement structure. *
	1000 - 3397 but Surplus	Z2	Hazardous Waste - Surplus. Dispose at Class 1 disposal site.
	> 3397 or 1000 – 3397 & DI WET > 150 mg/l	Z2	Hazardous Waste – not reusable under Variance. Dispose at Class 1 disposal site.
STLC >5.0	TTLC < 1411 and DI WET < 1.5 mg/l	YI	Hazardous Waste. Variance applies – cover with minimum of 1 foot of clean soil.*
	1411 – 3397 and DI WET < 150 mg/l	Y2	Hazardous Waste. Variance applies – cover with pavement structure.*
	< 3397 and DI WET < 150 mg/l but Surplus	Z2	Hazardous Waste - Surplus. Dispose at Class 1 disposal site.
	> 3397 or DI WET > 150 mg/l	Z2	Hazardous Waste - not reusable under Variance. Dispose at Class 1 disposal site.
	DERAL TESTING		
TCLP > 5.0 mg/l	N/A	Z3	RCRA Hazardous Waste Dispose at Class 1 disposal site as a RCRA waste regardless of TTLC and STLC result

^{*}Note: For hazardous waste levels of lead - if pH is less than 5.5 soil must be placed under a pavement structure. If pH is less than 5.0 variance can not be used and the soil must be disposed as Z-2 material.

DTSC - California Department of Toxic Substances Control

mg/kg - milligrams per kilogram mg/L - milligrams per liter

RCRA - Resource Conservation and Recovery Act STLC - soluble threshold limit concentration

TCLP - toxicity characteristic leaching procedure TTLC - total threshold limit concentration

WET - waste extraction test

WET-DI - waste extraction test using deionized water as leaching agent

2.0 FIELD INVESTIGATION

Group Delta tested unpaved soil assumed to be disturbed during future construction activities. The soil disturbance zone is estimated to be shallow in the zone where ADL would typically be encountered. Construction activities may include soil excavation and recompaction for shoulder pavement construction and for reconstruction of portions of the off-ramp and on-ramp.

The field investigation consisted of performing 15 hand auger borings, borings B-1 to B-15, down to 2.5 feet (ft) below ground surface (bgs) for testing of ADL. Boring locations are presented on Figures 2A and 2B.

2.1 <u>Pre-Field Activities</u>

2.1.1 Project Approvals

Group Delta prepared and submitted a Work Plan including a Health and Safety Plan titled "Work Plan, Aerially Deposited Lead Study, U.S. 101/Palo Comado Canyon Road Interchange Project, City of Agoura Hills, California", dated September 18, 2013. The Plan addressed potential hazards on the project, emergency procedures and contacts, and provided directions to the nearest hospital. The Work Plan was approved by Caltrans on September 20, 2013.

A Caltrans Encroachment Permit application was prepared by the City of Agoura Hills and submitted to Caltrans on June 13, 2013. The Encroachment Permit (713-NSV-1297) was approved on July 2, 2013. Prior to the start of work, Caltrans was notified in accordance with the conditions of the Encroachment Permit.

2.1.2 Utility Clearance

Prior to conducting the Site investigation, an initial Site reconnaissance was conducted with Caltrans Encroachment Permit Inspector Mr. Elias Fayad to ensure accessibility and safety of sampling locations. The locations of the borings were marked in the field with paint and the Underground Service Alert of Southern California was notified of the field work more than 48 hours prior to start to confirm an absence of subsurface utilities at the investigation locations.

2.2 <u>Soil Sampling</u>

Soil sampling was performed on September 26, 2013 within the zone of potential future soil disturbance in unpaved areas along the northbound U.S. 101 off-ramp and on-ramp at Palo Comado Canyon Road. The ADL boring locations are presented in Figures 2A and 2B.

Fifteen borings were spaced at regular intervals along either side of the ramps. The soil samples were collected at 0-0.5 ft, 1.0-1.5 ft, and 2.0-2.5 ft sampling intervals.

A total of 50 samples were collected during the field investigation. Within the 50 samples, Group Delta collected five soil Quality Assurance/Quality Control (QA/QC) field duplicate samples and one equipment rinseate water sample.

2.2.1 Field Sampling Equipment

The following equipment was used during field sampling activities:

- 1. A hand-held 3-inch diameter stainless steel auger;
- 2. 4-ounce sealed glass jars with Teflon lined lids for collection of soil samples and a 750 milliliter amber glass jar for collection of a rinseate water sample (to be provided by the analytical laboratory);
- 3. Three 5-gallon buckets;
- 4. Tap water;
- 5. Deionized water:
- 6. Trisodium phosphate;
- 7. Plastic sheeting, or linen cloth, for placement of the clean hand auger;
- 8. A box cooler for storage and transport of the collected samples, and;
- 9. Self-adhesive jar labels and chain-of-custody sheets.

2.2.2 Sampling Procedures

Presented below is the procedure followed in the field:

- 1. Initiate a boring with a hand-held 3-inch diameter stainless steel auger;
- 2. Advance the boring to the first sampling depth;
- 3. Transfer the sample from the hand-auger directly into two sealable 4-ounce glass jars;
- 4. Place a self-adhesive label on each jar marked with the boring number, sample depth, and time and date of sample collection;
- 5. Place sample jars on ice in a cooler box;
- 6. Repeat the procedure for remaining sample depths:
- 7. Clean and the rinse hand auger after each sample is collected by washing the hand auger with a solution of Trisodium Phosphate followed by tap water and deionized water rinses:
- 8. Collect five duplicate samples from five boring locations as QA/QC field duplicate samples; assign the same tests for the original and the duplicate sample;
- 9. After field sampling equipment (i.e., auger) decontamination was completed, rinse the equipment with deionized water and collect the rinseate/equipment blank for laboratory analysis, and;
- 10. Backfill the borings with soil cuttings.

A chain-of-custody sheet recording all collected samples and assigned analyses was filled out before the samples were transported on ice to American Environmental Testing Laboratory in Burbank. The laboratory is certified by the California Department of Health Services an Environmental Laboratory Accreditation Program (ELAP) laboratory. The chain-of-custody sheet is included in Appendix A.

3.0 RESULTS

3.1 <u>Laboratory Analyses</u>

ADL testing was performed in general accordance with the DTSC Variance that consists of several steps based on the results of the analysis:

- All surface samples collected were analyzed for total lead using the Environmental Protection Agency (EPA) Test Method 6010B;
- All soil samples with total lead concentrations greater or equal to 50 milligrams per kilogram (mg/kg) were analyzed for comparison to the Soluble Threshold Limit Concentration (STLC) for lead using the Waste Extraction Test (WET) with citric acid extraction, and EPA Test Method 7000 for leachable lead;
- All samples with results greater than or equal to 5 milligrams per liter (mg/L) of extractable lead using the WET (citric acid) were analyzed using the WET with deionized water extraction (WET-DI) and EPA Test Method 7000 series for DI extractable lead, and;
- All samples with results greater than or equal to 1000 mg/kg of total lead, or greater than or equal to 5 mg/l of extractable lead using the WET (citric acid) were analyzed using the EPA Toxic Characteristic Leaching Procedure (TCLP) and EPA Test Method 7000 for leachable lead.

3.2 <u>ADL Analytical Results</u>

The results of this investigation are described in the following subsections. The analytical results for total and soluble lead analyses, as well as pH, are summarized in Table 1, and the sampling locations with corresponding data are shown in Figures 2A and 2B. Laboratory analytical reports and the chain-of-custody record are included in Appendix A.

3.2.1 Total Lead

A total of 50 soil samples were analyzed for total lead. These samples were collected at 15 locations with sample depths at 0-0.5 ft, 1.0-1.5 ft, and 2.0-2.5 ft bgs. Lead was detected in all but one sample. The maximum total lead concentration was 381 mg/kg. The minimum detected total lead concentration was 2.58 mg/kg ("J" flagged) (Table 1). "J" indicates the analyte was detected; however, the analyte concentration is an estimated value which is between the method detection limit (MDL) and the practical quantitation limit (PQL). Lead was detected in twelve of 50 samples at concentrations in excess of 50 mg/kg.

An equipment decontamination rinseate water sample was also collected and analyzed for total lead, it did not contain a reportable concentration of lead.

3.2.2. Soluble Threshold Limit Concentration (WET-Citrate)

Twelve of the 50 samples contained total lead at concentrations greater than 50 mg/kg. The twelve samples were analyzed for soluble lead with a citric acid extract using the WET analysis. The maximum detected concentration was 15.5 mg/L and the minimum was 2.38 mg/L.

Six samples collected from six borings exceeded the STLC of 5 mg/L. Soil represented by these samples meets the criteria for hazardous waste in California or non-RCRA hazardous waste. These samples were collected from the 0-0.5 ft. and 1-1.5 ft. depth intervals.

Ten additional samples with detected total lead concentrations below 50 mg/kg also underwent WET analysis. The results were used to provide supplemental WET data for samples with lower concentrations of lead for use in statistical analysis. The analytical results for these samples are available in Table 1.

3.2.3 Toxicity Characteristic Leaching Procedure (TCLP)

All tested samples that contained soluble lead (via the WET) at a concentration greater than or equal to 5.0 mg/L were analyzed for soluble lead using the TCLP Method. The maximum reported concentration was 0.410 mg/L. The minimum detected concentration was 0.0876 mg/L ("J" flagged). The TCLP threshold was not exceeded; therefore soil represented by these samples would not meet the criteria for Federal RCRA hazardous waste.

3.2.4 Soluble Lead (WET-DI)

All samples that contained soluble lead (via the WET) at concentrations greater than or equal to 5.0 mg/L were analyzed for soluble lead by WET using deionized water in order to determine if the soil can be reused under the DTSC Variance. None of the samples analyzed were reported to contain lead at concentrations exceeding the laboratory PQL of 0.05 mg/L. Under the DTSC Variance, additional reuse restrictions (i.e., placement under pavement) apply to non-RCRA hazardous soil with WET-DI results greater than 1.5 mg/L and soil with WET-DI results greater than 150 mg/L may not be reused; these restrictions do not apply to the project.

3.2.5 pH

Ten samples were analyzed for pH. The values ranged from 8.07 to 6.19. The importance of pH is based upon the DTSC Variance. Additional reuse restrictions (i.e., placement under pavement) apply to non-RCRA hazardous soil with pH less than 5.5 and soil with pH less than 5.0 may not be reused; these restrictions do not apply to the project.

4.0 STATISTICAL EVALUATION

The following subsections describe the statistical methods utilized to evaluate the ADL data set for the site.

4.1 Statistical Evaluation Methods

The analytical results were evaluated statistically to recommend the appropriate method of on-site reuse or off-site disposal of excavated soil during project construction activities. Prior to calculations, concentrations below the laboratory reporting limit were assigned values equal to the reporting limit. Statistical calculations were made using the software program ProUCL (version 5.0). Analysis using this program has been the preference of DTSC for evaluating contaminant statistics and for input for project risk assessment. The outputs for the ProUCL calculations are presented in Appendix B.

All samples contained less than 1000 mg/kg total lead, or less than the TTLC threshold, so the statistical evaluation using ProUCL v5.0 focused upon STLC values. Soil containing hazardous levels of lead, greater than the STLC, were limited to samples collected at the surface-0.5 ft and 1.0-1.5 ft depth intervals and the analysis focused upon these intervals. The data set was first evaluated by dividing the project into two sides:

- 1. West of Palo Comado Canyon Road (West Side) including Borings B-1 through B-7, and;
- 2. East of Palo Comado Canyon Road (East Side) including Borings B-8 through B-15.

These sides are shown on Figure 2A (West Side) and Figure 2B (East Side).

Based on data distribution and statistical results, the project was further segmented to evaluate and characterize two segments per side. Samples collected from each side of the project site (i.e., West and East Side) were segmented into ramp samples and freeway-level samples. Hazardous levels of lead were only detected in samples collected from freeway-level borings, providing further justification for dividing the project into the selected segments. The Project was divided into four segments as follows:

- 1. West Side freeway-level (Borings B-1 and B-2)
- 2. West Side on-ramp (Borings B-3 through B-7)
- 3. East Side off-ramp (Borings B-8 through B-11)
- 4. East Side freeway-level (Borings B-12 through B-15)

Statistical analyses were completed with the data collected during this investigation using the 95% upper confidence limit (UCL) on the mean in consideration of side or segment of the project, depth interval, and concentrations of soluble lead.

4.2 95% Upper Confidence Limit Analysis

4.2.1 West Side - Samples B-1 through B-7

The 95% UCLs of the mean for use on the project are presented as results from the ProUCL analyses. It should be noted that the results for the individual depth intervals is influenced by the limited number of samples within each interval. A Normal distribution applied to a Student's-t UCL was recommended by ProUCL for use on this project based upon an analysis of the inputted analytical data.

All results display the UCL reported as the 95% Student's-t UCL. The results are as follows:

TABLE B
95% UCL of Mean for Soluble Lead
West Side

SAMPLE	DEPTH	SOLUBLE LEAD	COMMENTS
	Surface – 0.5 ft	3.781 mg/L	
West Side	1.0-1.5 ft	3.576 mg/L	
(B-1 through B-7)	2.0-2.5 ft	<5 mg/L	WET not conducted
	Surface – 1.5 ft	2.643 mg/L	
West Side	Surface – 0.5 ft	7.905 mg/L	> STLC / hazardous
Freeway-Level	1.0-1.5 ft	7.69 mg/L	> STLC / hazardous
(B-1 and B-2)	2.0-2.5 ft	<5 mg/L	WET not conducted
	Surface – 1.5 ft	7.059 mg/L	> STLC / hazardous
West Side	Surface – 0.5 ft	1.839 mg/L	
On-Ramp	1.0-1.5 ft	0.622 mg/L	
(B-3 through B-7)	2.0-2.5 ft	<5 mg/L	WET not conducted
(B 5 through B 7)	Surface – 1.5 ft	1.182 mg/L	

mg/L - milligrams per Liter

STLC - soluble threshold limit concentration

WET - waste extraction test

All of the above UCL evaluations for soluble lead showed concentrations less than 5.0 mg/L with the exception of samples from ground surface to 1.5 ft bgs collected at freeway-level (Borings B-1 and B-2). Samples that contain <5.0 mg/L can be classified as soil type "X" based on the Caltrans soil classifications provided in Table A. Soil type "X" is classified as non-hazardous waste. Soil from ground surface to 1.5 ft at freeway level represented by borings B-1 and B-2 yielded results >5.0 mg/L which classifies the soil as type "Y1." "Y1" soils are classified as hazardous waste, but may be reused under the Variance.

4.2.2 East side - Samples B-8 through B-15

The 95% UCLs of the mean for use on the project are presented as results from the ProUCL analyses. It should be noted that the results for the individual depth intervals is influenced by the limited number of samples within each interval. A Normal distribution applied to a Student's-t UCL was recommended by ProUCL for use on this project based upon an analysis of the inputted analytical data.

All results display the UCL reported as the 95% Student's-t UCL. The results are as follows:

TABLE C 95% UCL of Mean for Soluble Lead East Side

SAMPLE	DEPTH	SOLUBLE LEAD	COMMENTS
	Surface – 0.5 ft	6.763 mg/L	>STLC / hazardous
East Side	1.0-1.5 ft	6.796 mg/L	>STLC / hazardous
(B-8 through B-15)	2.0-2.5 ft	<5 mg/L	WET not conducted
	Surface – 1.5 ft	5.288 mg/L	>STLC / hazardous
East Side	Surface – 0.5 ft	<5 mg/L	WET not conducted
Off-Ramp	1.0-1.5 ft	<5 mg/L	WET not conducted
(B-8 through B-11)	2.0-2.5 ft	<5 mg/L	WET not conducted
(B o through B 11)	Surface – 1.5 ft	<5 mg/L	WET not conducted
East Side	Surface – 0.5 ft	9.023 mg/L	>STLC / hazardous
Freeway-Level	1.0-1.5 ft	13.76 mg/L	>STLC / hazardous
(B-12 through B-15)	2.0-2.5 ft	<5 mg/L	WET not conducted
(2 12 till ough 2 13)	Surface – 1.5 ft	9.474 mg/L	>STLC / hazardous

mg/L - milligrams per Liter

STLC - soluble threshold limit concentration

WET - waste extraction test

The above UCL evaluations for samples collected to 1.5 ft bgs, including the combined East Side data and the free-way level segment, showed soluble lead concentrations >5.0 mg/L, classifying the soil as type "Y1." "Y1" soils are classified as hazardous waste, but may be reused under the Variance. By evaluating samples from the off-ramp segment only, including borings B-8 through B-11 from the ground surface to 1.5 ft, the soil can be classified as type "X" or non-hazardous waste.

5.0 CONCLUSIONS

Based on the analytical results and statistical analyses, conclusions and recommendations for the Project are summarized below.

5.1 Summary

Utilizing the laboratory results and calculated UCLs the following scenarios were evaluated for soil on both the West Side and East Side.

West Side (Borings B-1 through B-7)

Scenario I: In Scenario I, the West Side is analyzed as a whole, ignoring the distribution of lead concentrations. Soil on the West Side is statistically classified as non-hazardous. This scenario may not be appropriate as two distinct segments in terms of both lead concentrations and location/elevation have been identified.

Scenario II: The West Side is divided into two segments: freeway-level (represented by Borings B-1 and B-2) and the on-ramp (represented by Borings B-3 through B-7). Soil to a depth of 1.5 ft bgs represented by freeway-level elevation borings was statistically classified as California non-RCRA hazardous or soil type "Y1". All other soil is statistically classified as type "X" or non-hazardous.

A block diagram representing Scenario II is provided on the following page.

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Block Diagram for Recommended Soil Classification on Caltrans Right-of Way West Side

(95% UCL Calculated by Pro-UCL)

Freeway-Level: B-1 and B-2

0 ft 0.5 ft 1.0	Total Lead 160.6 mg/kg	Soluble Lead _(WET-Citric) 7.905 mg/L	
1.5 ft 2.0	Total Lead 98.16 mg/kg	Soluble Lead (WET-Citric) 7.69 mg/L	
ft 2.5 ft	Total Lead 52.67 mg/kg	Soluble Lead (WET-Citric) < 5 mg/L*	

On-Ramp: B-3 through B-7

0 ft		
0.5		
ft	Total Lead 54.92 mg/kg	Soluble Lead (WET-Citric) 1.839 mg/L
1.0		
ft		<u> </u>
1.5		
ft	Total Lead 16.32 mg/kg	Soluble Lead (WET-Citric) 0.622 mg/L
2.0		
ft		
2.5		
ft	Total Lead 8.595 mg/kg	Soluble Lead (WET-Citric) < 5 mg/L*

Non-Hazardous waste
Hazardous Waste (Reuse Condition: Cover with minimum 1 foot clean soil)

UCL - Upper Confidence Limit
WET Citric - Soluble Lead using the Waste Extraction Test with citric acid
mg/kg - milligrams per kilogram
mg/L - milligrams per liter
* - Not analyzed with WET

East Side (B-8 through B-15)

Scenario I: In Scenario I, the East Side is analyzed as a whole, ignoring the distribution of lead concentrations. Soil on the East Side down to 1.5 ft bgs is statistically classified as California non-RCRA hazardous waste and soil type "Y1". This scenario may not be appropriate as two distinct segments in terms of both lead concentrations and location/elevation have been identified.

Scenario II: The east side is divided into two segments: the off-ramp (represented by Borings B-8 through B-11) and freeway-level (represented by Borings B-12 through B-15). Soil to a depth of 1.5 ft bgs represented by freeway-level borings was statistically classified as California non-RCRA hazardous or soil type "Y1". All other soil is statistically classified as type "X" or non-hazardous.

A block diagram representing Scenario II is provided on the following page.

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Block Diagram for Recommended Soil Classification on Caltrans Right-of Way East Side

(95% UCL Calculated by Pro-UCL)

Off-Ramp: B-8 through B-11

0 ft		
0.5 ft	Total Lead 31.45 mg/kg	Soluble Lead (WET-Citric) < 5 mg/L*
1.0 ft	<u></u>	
ft 1.5 ft	Total Lead 12.99 mg/kg	Soluble Lead (WET-Citric) < 5 mg/L*
2.0	10001 20000 121.77 11.97 11.97	Solution Bound (WEI-Chile) to III. 2
1t 2.5		
ft	Total Lead 5.434 mg/kg	Soluble Lead (WET-Citric) < 5 mg/L*

Freeway-Level: B-12 through B-15

0 ft					
0.5					
ft		Total Lead 208.6 mg/kg		Soluble Lead (WET-Citric) 9.023 mg/L	
1.0					
ft					
1.5					
ft		Total Lead 343.4 mg/kg		Soluble Lead (WET-Citric) 13.76 mg/L	
2.0					
ft 2.5			_		
2.5	1				
ft		Total Lead 22.64 mg/kg		Soluble Lead (WET-Citric) < 5 mg/L*	

Non-Hazardous waste

Hazardous Waste (Reuse Condition: Cover with minimum 1 foot clean soil)

UCL – Upper Confidence Limit
WET Citric - Soluble Lead using the Waste Extraction Test with citric acid
mg/kg – milligrams per kilogram
mg/L – milligrams per liter
* – Not analyzed with WET

5.2 Conclusions

Two soil classifications under the DTSC Variance, "X" and "Y1", were identified on both the East and West Sides of the Project. Soil type "X" has been identified along the sloped onramp and off-ramp above freeway-level elevations. "Y1" soils identified on the Project at freeway elevations extend from ground surface to the 1.5 ft sampling depth interval. Below this interval, the soil is non-hazardous or type "X."

Soil type "X" contains total lead less than 1000 mg/kg (TTLC) and soluble lead less than 5.0 mg/L (STLC) and is deemed non-hazardous waste if disposed offsite. The soil may be reused as necessary on the Project.

Soil type "Y1" contains soluble lead greater than 5.0 mg/L (STLC) and is deemed California non-RCRA hazardous waste if disposed offsite. Soil type "Y1" contains total lead less than 1411 mg/kg, soluble lead using WET-DI less than 1.5 mg/L, and pH greater than 5.5 per the DTSC Variance. Under the DTSC Variance type "Y1" soil may be reused on a project provided it is covered with a minimum of 1 ft of clean soil.

All soil at the site is suitable for on-site reuse with respect to total and soluble lead concentrations provided the conditions of the DTSC Variance are adhered to. A Caltrans approved Lead Compliance Plan for worker safety must be developed for the management of all soil on the Site and appropriate Caltrans and DTSC notifications must be made prior to excavation and reuse activities.

6.0 HEALTH EFFECTS OF LEAD

Concentrations of lead in soil at the site represent a potential threat to the health of site workers performing earthwork activities. Lead in its elemental form is a heavy, ductile, soft, gray metal. The permissible exposure limit (PEL) for lead is 0.05 milligrams per cubic meter (mg/m^3) in air based on an eight-hour time-weighted average (TWA). The Immediately Dangerous to Life and Health (IDLH) exposure limit is $100 \, mg/m^3$ as established by the National Institute of Occupational Safety and Health (NIOSH).

Exposure may produce several symptoms including weakness, eye irritation, facial pallor, pale eyes, lassitude, insomnia, anemia, tremors, malnutrition, constipation, paralysis of the wrists and ankles, abdominal pain, colic, nephropathy, encephalopathy, gingival lead line, hypertension, anorexia, and weight loss. Target organs are the central nervous system, kidneys, eyes, blood, gingival tissue, and the gastrointestinal tract. Because of the potential hazard from exposure to lead-contaminated soil, a Health and Safety Plan (HSP) and Lead Compliance Plan for site work should be prepared by a Certified Industrial Hygienist (CIH). In addition, all site workers (earthwork) should have completed a training program meeting the requirements of 29 CFR/910.120 and 8 CCR 1532.1. The plan developed by the CIH should include a hazard analysis, dust control measures, air monitoring, signage, work practices, emergency response plans, personal protective equipment, decontamination, and documentation.

- 16 -

7.0 REFERENCES

Caltrans, "Caltrans Aerially Deposited Lead Guidance", dated June 2007.

Department of Toxic Substances Control, "Variance No. V09HQSCD006 issued to State of California Department of Transportation", dated June 30, 2009.

Group Delta Consultants, "Work Plan for Aerially Deposited Lead Study, U.S. 101/Palo Comado Canyon Road Interchange Project, City of Agoura Hills, California, Group Delta Project No. LA-1143", dated September 13, 2013, prepared for PARSONS, Road and Highway Division.

FIGURES





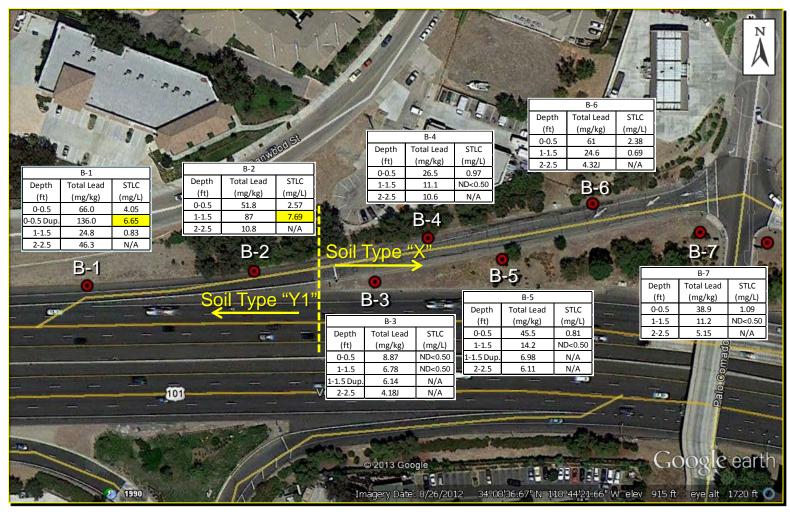


GROUP DELTA CONSULTANTS, INC. ENGINEERS AND GEOLOGISTS

PROJECT NAME:. U.S. 101/Palo Comado Canyon Road Interchange Project FIGURE NUMBER.

PROJECT NUMBER LA1143

DELTA SITE VICINITY & PROJECT LOCATION MAP



<u>Legend</u>



ADL Sampling Location

Note: Highlighted values exceed California Soluble Threshold Limit Criteria for hazardous waste (5 mg/L)

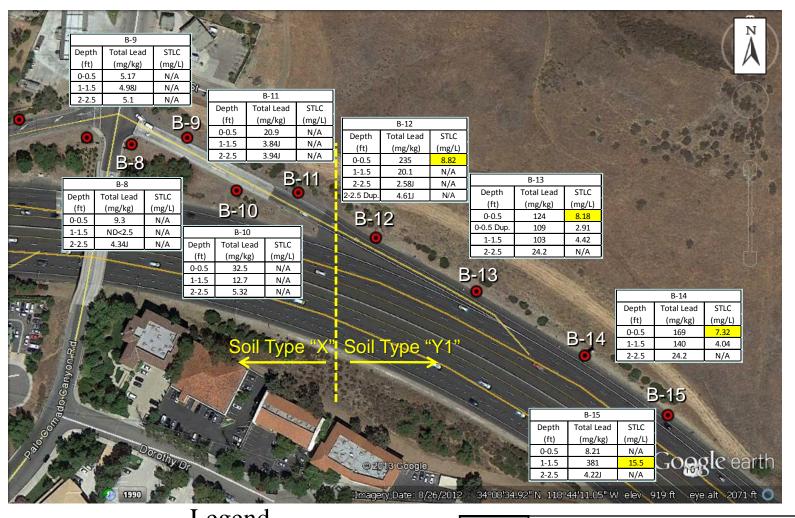


GDC Project No. LA1143

U.S. 101/Palo Comado Canyon Road Interchange Project Agoura Hills, California

ADL Sample Location Plan - West Side

Figure 2A



Legend



ADL Sampling Location

Note: Highlighted values exceed California Soluble Threshold Limit Criteria for hazardous waste (5 mg/L)



GDC Project No. LA1143

U.S. 101/Palo Comado Canyon Road Interchange Project Agoura Hills, California

ADL Sample Location Plan - East Side

Figure 2B

TABLES

TABLE 1

Summary of ADL Laboratory Test Results

U.S. 101 / Palo Comado Canyon Road Interchange Project Group Delta Consultants Project Number LA1143

Sample	Sampling Depth (feet) From To		Danillanta	Total Lead		TLCP	STLC WET-DI	рН
Location			Samples		***		WE! D!	
	feet			mg/kg		mg/L		
	0.00	0.50		66.0	4.05	NM	NM	8.05
B-1	0.00	0.50	Duplicate	136	6.65	0.148	ND<0.05	7.82
D-1	1.00	1.50		24.80	0.834J	NM	NM	NM
	2.00	2.50		46.3	NM	NM	NM	NM
	0.00	0.50		51.8	2.57	NM	NM	NM
B-2	1.00	1.50		87.0	7.69	0.149	ND<0.05	NM
	2.00	2.50		10.8	NM	NM	NM	NM
	0.00	0.50		8.87	ND<0.50	NM	NM	NM
B-3	1.00	1.50		6.78	ND<0.50	NM	NM	7.96
20	1.00	1.50	Duplicate	6.14	NM	NM	NM	8.07
	2.00	2.50		4.18J	NM	NM	NM	NM
	0.00	0.50		26.5	0.972J	NM	NM	NM
B-4	1.00	1.50		11.1	ND<0.50	NM	NM	NM
	2.00	2.50		10.6	NM	NM	NM	NM
	0.00	0.50		45.5	0.812J	NM	NM	NM
B-5	1.00	1.50		14.2	ND<0.50	NM	NM	7.46
	1.00	1.50	Duplicate	6.98	NM	NM	NM	7.56
	2.00	2.50		6.11	NM	NM	NM	NM
Б.0	0.00	0.50		61.0	2.38	NM	NM	NM
B-6	1.00	1.50		24.6	0.694J	NM	NM	NM
	2.00	2.50		4.32J	NM	NM	NM	NM
B-7	0.00	0.50		38.9	1.09	NM	NM	NM
	1.00	1.50		11.2	ND<0.50	NM	NM	NM
	2.00	2.50		5.15	NM	NM	NM	NM
B-8	0.00	0.50		9.30 ND<2.5	NM NM	NM NM	NM NM	NM NM
D-0	1.00	1.50						
	2.00	2.50		4.34J	NM	NM	NM	NM
B-9	0.00 1.00	0.50 1.50		5.17 4.98J	NM NM	NM NM	NM NM	NM NM
D-9	2.00	2.50		5.10	NM	NM	NM	NM
	0.00	0.50		32.5	NM	NM	NM	NM
B-10	1.00	1.50		12.7	NM	NM	NM	NM
D-10	2.00	2.50		5.32	NM	NM	NM	NM
	0.00	0.50		20.9	NM	NM	NM	NM
B-11	1.00	1.50		3.84J	NM	NM	NM	NM
	2.00	2.50		3.94J	NM	NM	NM	NM
	0.00	0.50		235	8.82	0.0876J	ND<0.05	NM
B-12	1.00	1.50		20.1	NM	NM	NM	NM
D-12	2.00	2.50		2.58J	NM	NM	NM	7.07
	2.00	2.50	Duplicate	4.61J	NM	NM	NM	6.19
	0.00	0.50		124	8.18	ND<0.05	ND<0.05	6.60
B-13	0.00	0.50	Duplicate	109	2.91	NM	NM	6.59
	1.00	1.50		103	4.42	NM	NM	NM
	2.00	2.50		24.2	NM 732	0.0894J	NM ND 40.05	NM
B-14	0.00	0.50		169 140	7.32 4.04	NM NM	ND<0.05 NM	NM
D-14	1.00 2.00	1.50 2.50		24.2	4.04 NM	NM	NM	NM NM
	0.00	0.50		8.21	NM	NM	NM	NM
B-15	1.00	1.50		381	15.5	0.410	ND<0.05	NM
2 10	2.00	2.50		4.22J	NM	NM	NM	NM
Rinseate	N/A	N/A		ND<0.05	N/A	NM	NM	7.61

Notes: STLC Soluble Threshold Limit Concentration

WET Waste Extraction Test

TCLP Toxicity Characteristic Leaching Procedure

WET-DI WET using DI water

J Analyte was detected, however the concentration is an estimated value between the

Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)

pH Measure of the acidity or basicity of an aqueous solution

ND Not detected NM Not measured

APPENDIX ALaboratory Analytical Reports



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Group Delta Consultants 32 Mauchly Suite B Irvine, CA 92618-

Telephone: (949)450-2100 Attention: Jack Packwood Number of Pages 22

Date Received 10/02/2013
Date Reported 10/04/2013

Job Number	Order Date	Client
70833	10/02/2013	GROUP

Project ID: LA-1143-2
Project Name: Palo Comado

Site: Chesebro Road/ US 101

Enclosed please find results of analyses of 29 soil samples which were analyzed as specified on the attached chain of custody. If there are any questions, please do not hesitate to call.

Checked By: _____ Approved By: _____

Cyrus Razmara, Ph.D. Laboratory Director

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CHAIN OF CUSTODY RECORD

61551 o Z

TEST INSTRUCTIONS & COMMENTS 7 50 -က *- Added 19/8 2.0A/STAT X-AMEN 1/2 2 SPAYS TAT Page_ RELINQUISHED BY: RECEIVED BY LABORATORY: Printed Name: Date: ζį AETL JOB No. 70833 Time: Time: **ANALYSIS REQUESTED** RELINQUISHED BY: RECEIVED BY: rinted Name: Printed Name X * Signature: × * rarra DISTRIBUTION: WHITE - Laboratory, CANARY - Laboratory, PINK - Project/Account Manager, YELLOW - Sampler/Originator Time: 2 - 43 2 Sh0b 80109 Date: 10-2-13 RELINGUISHED BY SAMPLER: PRES. Sex RECEIVED BY: Printed Name rinted Name: 14-1143-2 CONTAINER NUMBER/SIZE PHONE 949-450-2100 Yok Class Jar 2 DAYS PROJECT # PROJECT MANAGER SAMPLE RECEIPT - TO BE FILLED BY LABORATORY MATRIX FAX 8 Y/NA SAMPLES INTAGE Y/N / NA SAMPLES ACCEPTED 4/N SAME DAY NEXT DAY 32 Marchly Sunte B, Invine CA 2007.500 PROPERLY COOLED TIME 33 7:07 7:12 545 25 <u>|</u>35 1:36 1:37 1:30 3: 1:15 **TURN AROUND TIME** 61-92-6 DATE Cheecon Rd / US. (0) N RUSH COMPANY Group Delta Consultants 70.833.02 01.8826 70833.12 8833.13 S33 08 F233.09 20133-03 70833.65 73.833 73.23.17 70233.0 F 233.54 X833. A Palo Comado LAB ID RECEIVED IN GOOD COND. /Y / N FOTAL NUMBER OF CONTAINERS CUSTODY SEALS Y/ NANA 8-4-0.5 8-1-0.56 8-3-0.5 B-3-1a COMPANY ADDRESS B-1-0.5a 8-2-0.5 12-4-8 3-7-9 1-2-8 3-1-19 8-1-2 1-4-8 SAMPLE ID □ NORMAL 1-2-8 9-1-9 PROJECT NAME SITE NAME AND ADDRESS



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CHAIN OF CUSTODY RECORD

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Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840 • www.aetlab.com	L • (818) 8	.45-8200 • Fax	r. (818) 845-	8840 • www.a	etlab.com		l.	22000	Ne 83148
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RECEIVED IN GOOD COND. Y /N		SAMPLES ACCEPTED Y	702	N	Date:	Date: [0-1-1]	Time: 3:40 Date:	Time:	Date: Time:
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DISTRIBUTION: WHITE - Laboratory, CANARY - Laboratory, PINK - Project/Account Manager, YELLOW - Sampler/Originator	atory, CAN	ARY - Labora	tory, PINK -	Project/Acc	unt Manager, N	'ELLOW - San	pler/Originator		



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Group Delta Consultants
32 Mauchly Suite B

Irvine, CA 92618-

Telephone: (949)450-2100 Attention: Jack Packwood Project ID: LA-1143-2

Date Received 10/02/2013
Date Reported 10/04/2013

Job Number	Order Date	Client
70833	10/02/2013	GROUP

CERTIFICATE OF ANALYSIS CASE NARRATIVE

AETL received 29 samples with the following specification on 10/02/2013.

La	ab ID	Sample ID	Sample Dat	e Matr	ix		Quantity Of	Containers
70833	3.01	B-1-0.5a	09/26/2013	Soil			1	
	Method	l ^ Submethod	Re	eq Date	Priority	TAT	Units	
	(6010B-	STLC) ^ STLC-PB	10	0/04/2013	3	Rush	mg/L	
	(6010B.)	LEAD)	10	0/04/2013	3	Rush	mg/Kg	
	9045C			0/04/2013	3	Rush	pH unit	
7083		B-1-0.5b	09/26/2013				1	
		d ^ Submethod	Re	eq Date	Priority	TAT	Units	
	`	000TCLP) ^ PB		0/04/2013	3	Rush	mg/L	
	(6010B-	STLC) ^ STLC-DI-PB	10	0/04/2013	3	Rush	mg/L	
	_ `	STLC) ^ STLC-PB	10	0/04/2013	3	Rush	mg/L	
	(6010B.)	LEAD)	10	0/04/2013	3	Rush	mg/Kg	
	9045C			0/04/2013	3	Rush	pH unit	
7083	3.03	B-1-1	09/26/2013	3 Soil			1	
70833	3.04	B-1-2	09/26/2013	Soil			1	
70833	3.07	B-2-2	09/26/2013	Soil			1	
70833	3.08	B-3-0.5	09/26/2013	Soil			1	
70833	3.11	B-3-2	09/26/2013	Soil			1	
70833	3.12	B-4-0.5	09/26/2013	Soil			1	
70833	3.13	B-4-1	09/26/2013	Soil			1	
70833	3.14	B-4-2	09/26/2013	Soil			1	
70833	3.15	B-5-0.5	09/26/2013	Soil			1	
70833	3.18	B-5-2	09/26/2013	Soil			1	
70833	3.20	B-6-1	09/26/2013				1	
7083	3.21	B-6-2	09/26/2013				1	
7083	3.22	B-7-0.5	09/26/2013	Soil			1	

Continued



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Telephone: (949)450-2100 Attention: Jack Packwood Project ID: LA-1143-2

Date Received 10/02/2013 Date Reported 10/04/2013

Job Number	Order Date	Client
70833	10/02/2013	GROUP

CERTIFICATE OF ANALYSIS CASE NARRATIVE

CADE IMMENTIVE									
70833	3.23	B-7-1	09/26/2	013	Soil			1	
70833	3.24	B-7-2	09/26/2	013	Soil			1	
70833	3.25	B-8-0.5	09/26/2	013	Soil			1	
70833	3.26	B-8-1	09/26/2	013	Soil			1	
70833	3.27	B-8-2	09/26/2	013	Soil			1	
70833	3.28	B-9-0.5	09/26/2	013	Soil			1	
70833	3.29	B-9-1	09/26/2	013	Soil			1	
	Method	! ^ Submethod		Req	Date	Priority	TAT	Units	
	(6010B.I	LEAD)		10/0	4/2013	3	Rush	mg/Kg	
70833	3.05	B-2-0.5	09/26/2	013	Soil			1	
70833	3.19	B-6-0.5	09/26/2	013	Soil			1	
	Method	! ^ Submethod		Req	Date	Priority	TAT	Units	
	(6010B-	STLC) ^ STLC-PB		10/0	4/2013	3	Rush	mg/L	
	(6010B.I	LEAD)			4/2013	3	Rush	mg/Kg	
70833		B-2-1	09/26/2	013	Soil			1	
	Method	! ^ Submethod		Req	Date	Priority	TAT	Units	
	(6010/70	000TCLP) ^ PB		10/0	4/2013	3	Rush	mg/L	
	(6010B-	STLC) ^ STLC-DI-PB		10/0	4/2013	3	Rush	mg/L	
	(6010B-	STLC) ^ STLC-PB		10/0	4/2013	3	Rush	mg/L	
	(6010B.I	LEAD)			4/2013	3	Rush	mg/Kg	
70833	3.09	B-3-1a	09/26/2		Soil			1	
70833	3.10	B-3-1b	09/26/2	013	Soil			1	
70833	3.16	B-5-1a	09/26/2	013	Soil			1	
70833	3.17	B-5-1b	09/26/2	013	Soil			1	
	Method	! ^ Submethod		Req	Date	Priority	TAT	Units	
	(6010B.I	LEAD)		10/0	4/2013	3	Rush	mg/Kg	
	9045C			10/0	4/2013	3	Rush	pH unit	

Continued



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Telephone: (949)450-2100 Attention: Jack Packwood Project ID: LA-1143-2

Date Received 10/02/2013
Date Reported 10/04/2013

Job Number	Order Date	Client
70833	10/02/2013	GROUP

CERTIFICATE OF ANALYSIS CASE NARRATIVE

The samples were analyzed as specified on the enclosed chain of custody. Analytical non-conformances have been noted on the report.

Checked By: _____ Approved By: _____

Cyrus Razmara, Ph.D. Laboratory Director



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ANALYTICAL RESULTS

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Group Delta Consultants

32 Mauchly Suite B

Irvine, CA 92618-

Telephone: (949)450-2100 Attn: Jack Packwood

Page: 2

Project ID: LA-1143-2
Project Name: Palo Comado

Site

Chesebro Road/ US 101

AETL Job Number	Submitted	Client
70833	10/02/2013	GROUP

Method: (6010B.LEAD), Lead, ICP
QC Batch No: 1003132C3

	40 Batch 140. 100013233							
Our Lab I.D.			Method Blank	70833.01	70833.02	70833.03	70833.04	
Client Sample I.D.				B-1-0.5a	B-1-0.5b	B-1-1	B-1-2	
Date Sampled				09/26/2013	09/26/2013	09/26/2013	09/26/2013	
Date Prepared			10/03/2013	10/03/2013	10/03/2013	10/03/2013	10/03/2013	
Preparation Method			3050B	3050B	3050B	3050B	3050B	
Date Analyzed			10/04/2013	10/04/2013	10/04/2013	10/04/2013	10/04/2013	
Matrix			Soil	Soil	Soil	Soil	Soil	
Units			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	
Dilution Factor			1	1	1	1	1	
Analytes	MDL	PQL	Results	Results	Results	Results	Results	
Lead	2.5	5.0	ND	66.0	136	24.8	46.3	



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ANALYTICAL RESULTS

Ordered By

Group Delta Consultants

32 Mauchly Suite B

Irvine, CA 92618-

Telephone: (949)450-2100 Attn: Jack Packwood

Page: 3

Project ID: LA-1143-2
Project Name: Palo Comado

Site

Chesebro Road/ US 101

AETL Job Number	Submitted	Client
70833	10/02/2013	GROUP

Method: (6010B.LEAD), Lead, ICP

QC Batch No: 1003132C3

40 Batch No. 100313203							
Our Lab I.D.			70833.05	70833.06	70833.07	70833.08	70833.09
Client Sample I.D.			B-2-0.5	B-2-1	B-2-2	B-3-0.5	B-3-1a
Date Sampled			09/26/2013	09/26/2013	09/26/2013	09/26/2013	09/26/2013
Date Prepared			10/03/2013	10/03/2013	10/03/2013	10/03/2013	10/03/2013
Preparation Method			3050B	3050B	3050B	3050B	3050B
Date Analyzed			10/04/2013	10/04/2013	10/04/2013	10/04/2013	10/04/2013
Matrix			Soil	Soil	Soil	Soil	Soil
Units			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Dilution Factor			1	1	1	1	1
Analytes	MDL	PQL	Results	Results	Results	Results	Results
Lead	2.5	5.0	51.8	87.0	10.8	8.87	6.78



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Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Road/ US 101

Site

AETL Job Number	Submitted	Client
70833	10/02/2013	GROUP

40 Batoli No. 100010200							
Our Lab I.D.			70833.10	70833.11	70833.12	70833.13	70833.14
Client Sample I.D.			B-3-1b	B-3-2	B-4-0.5	B-4-1	B-4-2
Date Sampled			09/26/2013	09/26/2013	09/26/2013	09/26/2013	09/26/2013
Date Prepared			10/03/2013	10/03/2013	10/03/2013	10/03/2013	10/03/2013
Preparation Method			3050B	3050B	3050B	3050B	3050B
Date Analyzed			10/04/2013	10/04/2013	10/04/2013	10/04/2013	10/04/2013
Matrix			Soil	Soil	Soil	Soil	Soil
Units			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Dilution Factor			1	1	1	1	1
Analytes	MDL	PQL	Results	Results	Results	Results	Results
Lead	2.5	5.0	6.14	4.18J	26.5	11.1	10.6



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Project ID: LA-1143-2

Project Name: Palo Comado

Site

Chesebro Road/ US 101

AETL Job Number	Submitted	Client
70833	10/02/2013	GROUP

Our Lab I.D.			70833.15	70833.16	70833.17	70833.18	70833.19
Client Sample I.D.			B-5-0.5	B-5-1a	B-5-1b	B-5-2	B-6-0.5
Date Sampled			09/26/2013	09/26/2013	09/26/2013	09/26/2013	09/26/2013
Date Prepared			10/03/2013	10/03/2013	10/03/2013	10/03/2013	10/03/2013
Preparation Method			3050B	3050B	3050B	3050B	3050B
Date Analyzed			10/04/2013	10/04/2013	10/04/2013	10/04/2013	10/04/2013
Matrix			Soil	Soil	Soil	Soil	Soil
Units			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Dilution Factor			1	1	1	1	1
Analytes	MDL	PQL	Results	Results	Results	Results	Results
Lead	2.5	5.0	45.5	14.2	6.98	6.11	61.0



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Project ID: LA-1143-2
Project Name: Palo Comado

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Site

AETL Job Number	Submitted	Client
70833	10/02/2013	GROUP

QC BAICH NO. 1003132C3							
Our Lab I.D.			70833.20				
Client Sample I.D.			B-6-1				
Date Sampled			09/26/2013				
Date Prepared			10/03/2013				
Preparation Method			3050B				
Date Analyzed			10/04/2013				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			1				
Analytes	MDL	PQL	Results				
Lead	2.5	5.0	24.6				



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Project ID: LA-1143-2
Project Name: Palo Comado

Site

Chesebro Road/ US 101

AETL Job Number	Submitted	Client
70833	10/02/2013	GROUP

Method: (6010B.LEAD), Lead, ICP

40 2000 1000 1000 1000 1000 1000 1000 10							
Our Lab I.D.			Method Blank	70833.21	70833.22	70833.23	70833.24
Client Sample I.D.				B-6-2	B-7-0.5	B-7-1	B-7-2
Date Sampled				09/26/2013	09/26/2013	09/26/2013	09/26/2013
Date Prepared			10/03/2013	10/03/2013	10/03/2013	10/03/2013	10/03/2013
Preparation Method			3050B	3050B	3050B	3050B	3050B
Date Analyzed			10/04/2013	10/04/2013	10/04/2013	10/04/2013	10/04/2013
Matrix			Soil	Soil	Soil	Soil	Soil
Units			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Dilution Factor			1	1	1	1	1
Analytes	MDL	PQL	Results	Results	Results	Results	Results
Lead	2.5	5.0	ND	4.32J	38.9	11.2	5.15



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Project ID: LA-1143-2
Project Name: Palo Comado

Site

Chesebro Road/ US 101

AETL Job Number	Submitted	Client
70833	10/02/2013	GROUP

Method: (6010B.LEAD), Lead, ICP

Our Lab I.D.			70833.25	70833.26	70833.27	70833.28	70833.29
Client Sample I.D.			B-8-0.5	B-8-1	B-8-2	B-9-0.5	B-9-1
Date Sampled			09/26/2013	09/26/2013	09/26/2013	09/26/2013	09/26/2013
Date Prepared			10/03/2013	10/03/2013	10/03/2013	10/03/2013	10/03/2013
Preparation Method			3050B	3050B	3050B	3050B	3050B
Date Analyzed			10/04/2013	10/04/2013	10/04/2013	10/04/2013	10/04/2013
Matrix			Soil	Soil	Soil	Soil	Soil
Units			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Dilution Factor			1	1	1	1	1
Analytes	MDL	PQL	Results	Results	Results	Results	Results
Lead	2.5	5.0	9.30	ND	4.34J	5.17	4.98J



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Project ID: LA-1143-2
Project Name: Palo Comado

Site Chesebro Road/ US 101

AETL Job Number	Submitted	Client
70833	10/02/2013	GROUP

Method: 9045C, Soil and Waste pH

QC Batch No: 100413-1

40 - 100 100 100 100 100 100 100 100 100							
Our Lab I.D.			70833.01				
Client Sample I.D.			B-1-0.5a				
Date Sampled			09/26/2013				
Date Prepared			10/04/2013				
Preparation Method			9045C				
Date Analyzed			10/04/2013				
Matrix			Soil				
Units			pH unit				
Dilution Factor			1				
Analytes	MDL	PQL	Results				
pH	1.00	1.00	8.05				



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Project ID: LA-1143-2
Project Name: Palo Comado

Site Chesebro Road/ US 101

AETL Job Number Submitted Client
70833 10/02/2013 GROUP

Method: 9045C, Soil and Waste pH

QC Balcii NO. 100313-1								
Our Lab I.D.			70833.10					
Client Sample I.D.			B-3-1b					
Date Sampled			09/26/2013					
Date Prepared			10/03/2013					
Preparation Method			9045C					
Date Analyzed	Date Analyzed		10/03/2013					
Matrix			Soil					
Units			pH unit					
Dilution Factor			1					
Analytes	MDL	PQL	Results					
pH	1.00	1.00	8.07					



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Project ID: LA-1143-2
Project Name: Palo Comado

Site

Chesebro Road/ US 101

AETL Job Number Submitted Client
70833 10/02/2013 GROUP

Method: 9045C, Soil and Waste pH

QC Batch No: 100413-1

QC Batch NO. 100413-1								
Our Lab I.D.			70833.16	70833.17				
Client Sample I.D.			B-5-1a	B-5-1b				
Date Sampled			09/26/2013	09/26/2013				
Date Prepared			10/04/2013	10/04/2013				
Preparation Method			9045C	9045C				
Date Analyzed			10/04/2013	10/04/2013				
Matrix			Soil	Soil				
Units			pH unit	pH unit				
Dilution Factor			1	1				
Analytes	MDL	PQL	Results	Results				
pH	1.00	1.00	7.46	7.56				



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Project ID: LA-1143-2 Project Name: Palo Comado Chesebro Road/ US 101

Site

AETL Job Number	Submitted	Client
70833	10/02/2013	GROUP

Method: (6010B-STLC), Soluble Threshold Limit Concentration (STLC) QC Batch No: 1004132C12

QO BAIGII NO. 1004102012								
Our Lab I.D.			Method Blank					
Client Sample I.D.								
Date Sampled								
Date Prepared			10/04/2013					
Preparation Method			TITLE 22					
Date Analyzed			10/07/2013					
Matrix			Soil					
Units			mg/L					
Dilution Factor			1					
Analytes	MDL	PQL	Results					
Lead (STLC)	0.05	0.10	ND					



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Project ID: LA-1143-2
Project Name: Palo Comado

Site

Chesebro Road/ US 101

AETL Job Number Submitted Client
70833 10/02/2013 GROUP

Method: (6010B-STLC), Soluble Threshold Limit Concentration (STLC)

Our Lab I.D.			70833.01	70833.02	70833.05	70833.06	70833.19
Client Sample I.D.			B-1-0.5a	B-1-0.5b	B-2-0.5	B-2-1	B-6-0.5
Date Sampled			09/26/2013	09/26/2013	09/26/2013	09/26/2013	09/26/2013
Date Prepared			10/04/2013	10/04/2013	10/04/2013	10/04/2013	10/04/2013
Preparation Method			TITLE 22				
Date Analyzed			10/07/2013	10/07/2013	10/07/2013	10/07/2013	10/07/2013
Matrix			Soil	Soil	Soil	Soil	Soil
Units			mg/L	mg/L	mg/L	mg/L	mg/L
Dilution Factor			10	10	10	10	10
Analytes	MDL	PQL	Results	Results	Results	Results	Results
Lead (STLC)	0.50	1.00	4.05	6.65	2.57	7.69	2.38



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Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Road/ US 101

Site

AETL Job Number	Submitted	Client
70833	10/02/2013	GROUP

Method: (6010B-STLC), DI Soluble Threshold Limit Concentration (DI-STLC) for Lead QC Batch No: 1008132C4

Our Lab I.D.			Method Blank	70833.02	70833.06	
Client Sample I.D.				B-1-0.5b	B-2-1	
Date Sampled				09/26/2013	09/26/2013	
Date Prepared			10/08/2013	10/08/2013	10/08/2013	
Preparation Method			TITLE 22	TITLE 22	TITLE 22	
Date Analyzed			10/10/2013	10/10/2013	10/10/2013	
Matrix			Soil	Soil	Soil	
Units			mg/L	mg/L	mg/L	
Dilution Factor			1	1	1	
Analytes	MDL	PQL	Results	Results	Results	
Lead (STLC-DI)	0.05	0.10	ND	ND	ND	



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Project ID: LA-1143-2 Project Name: Palo Comado Chesebro Road/ US 101

AETL Job Number Submitted Client
70833 10/02/2013 GROUP

Method: (6010/7000TCLP), Toxicity Characteristic Leaching Procedure (TCLP,EPA 1311) QC Batch No: 1008132C3

Our Lab I.D.			Method Blank	70833.02	70833.06	
Client Sample I.D.				B-1-0.5b	B-2-1	
Date Sampled				09/26/2013	09/26/2013	
Date Prepared			10/08/2013	10/08/2013	10/08/2013	
Preparation Method			1311	1311	1311	
Date Analyzed			10/09/2013	10/09/2013	10/09/2013	
Matrix			Soil	Soil	Soil	
Units			mg/L	mg/L	mg/L	
Dilution Factor			1	1	1	
Analytes	MDL	PQL	Results	Results	Results	
Lead (TCLP)	0.05	0.10	ND	0.148	0.149	



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Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Road/ US 101

Site

AETL Job Number Submitted Client
70833 10/02/2013 GROUP

Method: (6010/7000TCLP), Toxicity Characteristic Leaching Procedure (TCLP,EPA 1311)

QC Batch No: 1008132C3; Dup or Spiked Sample: 70833.02; LCS: Clean Sand; LCS Prepared: 10/08/2013; LCS Analyzed: 10/09/2013; Units: mg/L

	SM	SM DUP	RPD	SM RPD	LCS	LCS	LCS	LCS/LCSD	
Analytes	Result	Result	%	% Limit	Concen	Recov	% REC	% Limit	
Lead (TCLP)	0.148	0.081	58.5	<20	1.00	0.970	97.2	80-120	



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Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Road/ US 101

Site

AETL Job 1	Number	Submitted	Client
7083	3	10/02/2013	GROUP

Method: (6010B-STLC), DI Soluble Threshold Limit Concentration (DI-STLC) for Lead

QC Batch No: 1008132C4; Dup or Spiked Sample: 70833.02; LCS: Clean Sand; LCS Prepared: 10/08/2013; LCS Analyzed: 10/10/2013; Units: mg/L

	SM	SM DUP	RPD	SM RPD	LCS	LCS	LCS	LCS/LCSD	
Analytes	Result	Result	%	% Limit	Concen	Recov	% REC	% Limit	
Lead (STLC-DI)	ND	ND	<1	<20	1.00	0.900	90.0	80-120	



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Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Road/ US 101

Site

AETL Job Numb	er Submitted	Client
70833	10/02/2013	GROUP

Method: (6010B-STLC), Soluble Threshold Limit Concentration (STLC)

QC Batch No: 1004132C12; Dup or Spiked Sample: 70833.01; LCS: Clean Sand; LCS Prepared: 10/04/2013; LCS Analyzed: 10/07/2013; Units: mg/L

	SM	SM DUP	RPD	SM RPD	LCS	LCS	LCS	LCS/LCSD	
Analytes	Result	Result	%	% Limit	Concen	Recov	% REC	% Limit	
Lead (STLC)	4.05	4.28	5.5	<20	1.00	0.880	87.8	80-120	



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Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Road/ US 101

Site

AETL Job Number Submitted Client
70833 10/02/2013 GROUP

Method: (6010B.LEAD), Lead, ICP

QC Batch No: 1003132C3; Dup or Spiked Sample: 70833.01; LCS: Clean Sand; QC Prepared: 10/03/2013; QC Analyzed: 10/04/2013; Units: mg/Kg

	Sample	MS	MS	MS	MS DUP	MS DUP	MS DUP	RPD	MS/MSD	MS RPD
Analytes	Result	Concen	Recov	% REC	Concen	Recov	% REC	%	% Limit	% Limit
Lead	66.0	50.0	78.6 M	25.2	50.0	84.4 M	36.8	37.4	75-125	<15

QC Batch No: 1003132C3; Dup or Spiked Sample: 70833.01; LCS: Clean Sand; QC Prepared: 10/03/2013; QC Analyzed: 10/04/2013; Units: mg/Kg

	LCS	LCS	LCS	LCS DUP	LCS DUP	LCS DUP	LCS RPD	LCS/LCSD	LCS RPD	
Analytes	Concen	Recov	% REC	Concen	Recov	% REC	% REC	% Limit	% Limit	
Lead	50.0	48.2	96.4	50.0	47.4	94.8	1.67	75-125	<15	



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Project ID: LA-1143-2
Project Name: Palo Comado

Site Chesebro Road/ US 101

AETL Job Number Submitted Client
70833 10/02/2013 GROUP

Method: (6010B.LEAD), Lead, ICP

QC Batch No: 1003132C4; Dup or Spiked Sample: 70833.21; LCS: Clean Sand; QC Prepared: 10/03/2013; QC Analyzed: 10/04/2013; Units: mg/Kg

	Sample	MS	MS	MS	MS DUP	MS DUP	MS DUP	RPD	MS/MSD	MS RPD
Analytes	Result	Concen	Recov	% REC	Concen	Recov	% REC	%	% Limit	% Limit
Lead	4.32	50.0	43.4	78.2	50.0	44.1	79.6	1.77	75-125	<15

QC Batch No: 1003132C4; Dup or Spiked Sample: 70833.21; LCS: Clean Sand; QC Prepared: 10/03/2013; QC Analyzed: 10/04/2013; Units: mg/Kg

	LCS	LCS	LCS	LCS DUP	LCS DUP	LCS DUP	LCS RPD	LCS/LCSD	LCS RPD	
Analytes	Concen	Recov	% REC	Concen	Recov	% REC	% REC	% Limit	% Limit	
Lead	50.0	47.8	95.6	50.0	47.6	95.2	<1	75-125	<15	



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Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Road/ US 101

Site

AETL Job Number	Submitted	Client
70833	10/02/2013	GROUP

Method: 9045C, Soil and Waste pH

QC Batch No: 100313-1; Dup or Spiked Sample: 70833.02; LCS: Clean Sand; LCS Prepared: 10/03/2013; LCS Analyzed: 10/03/2013; Units: pH unit

	SM	SM DUP	RPD	SM RPD	LCS	LCS	LCS	LCS/LCSD	
Analytes	Result	Result	%	% Limit	Concen	Recov	% REC	% Limit	
pH	7.82	7.85	<1	<15	7.00	7.00	100	80-120	



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Project ID: LA-1143-2
Project Name: Palo Comado

Site Chesebro Road/ US 101

AETL Job Number Submitted Client
70833 10/02/2013 GROUP

Method: 9045C, Soil and Waste pH

QC Batch No: 100413-1; Dup or Spiked Sample: 70842.01; LCS: Clean Sand; LCS Prepared: 10/04/2013; LCS Analyzed: 10/04/2013; Units: pH unit

	SM	SM DUP	RPD	SM RPD	LCS	LCS	LCS	LCS/LCSD	
Analytes	Result	Result	%	% Limit	Concen	Recov	% REC	% Limit	
рН	7.29	7.25	<1	<15	7.00	7.00	100	80-120	



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Data Qualifiers and Descriptors

Data Qualifier:

#: Recovery is not within acceptable control limits.

*: In the QC section, sample results have been taken directly from the ICP reading. No preparation factor has

been applied.

B: Analyte was present in the Method Blank.

D: Result is from a diluted analysis.

E: Result is beyond calibration limits and is estimated.

H: Analysis was performed over the allowed holding time due to circumstances which were beyond laboratory

control.

J: Analyte was detected. However, the analyte concentration is an estimated value, which is between the Method

Detection Limit (MDL) and the Practical Quantitation Limit (PQL).

M: Matrix spike recovery is outside control limits due to matrix interference. Laboratory Control Sample recovery

was acceptable.

MCL: Maximum Contaminant Level

NS: No Standard Available

S6: Surrogate recovery is outside control limits due to matrix interference.

S8: The analysis of the sample required a dilution such that the surrogate concentration was diluted below the

method acceptance criteria.

X: Results represent LCS and LCSD data.

Definition:

%Limi: Percent acceptable limits.

%REC: Percent recovery.

Con.L: Acceptable Control Limits

Conce: Added concentration to the sample.

LCS: Laboratory Control Sample

MDL: Method Detection Limit is a statistically derived number which is specific for each instrument, each method,

and each compound. It indicates a distinctively detectable quantity with 99% probability.



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Data Qualifiers and Descriptors

MS:

Matrix Spike

MS DU:

Matrix Spike Duplicate

ND:

Analyte was not detected in the sample at or above MDL.

PQL:

Practical Quantitation Limit or ML (Minimum Level as per RWQCB) is the minimum concentration that can

be quantified with more than 99% confidence. Taking into account all aspects of the entire analytical

instrumentation and practice.

Recov:

Recovered concentration in the sample.

RPD:

Relative Percent Difference



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Group Delta Consultants 32 Mauchly Suite B Irvine, CA 92618-

Telephone: (949)450-2100 Attention: Jack Packwood Number of Pages 27

Date Received 10/02/2013
Date Reported 10/04/2013

Job Number	Order Date	Client
70834	10/02/2013	GROUP

Project ID: LA-1143-2
Project Name: Palo Comado

Site: Chesebro Rd/ US 101

Enclosed please find results of analyses of 1 water and 21 soil samples which were analyzed as specified on the attached chain of custody. If there are any questions, please do not hesitate to call.

Checked By: _____ Approved By: _____ C. Raymana

Cyrus Razmara, Ph.D. Laboratory Director

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CHAIN OF CUSTODY RECORD

83149

2

TEST INSTRUCTIONS & COMMENTS S Sull *-Added 10/8 2 09/5 TRET Page $\frac{2}{2}$ of $\frac{4}{2}$ ij 2 PAYS TAT X-Added 1% RELINQUISHED BY RECEIVED BY LABORATORY: Printed Name: Signature: Date lime: AETL JOB NO. 70834 ANALYSIS REQUESTED RELINGUISHED BY RECEIVED BY: rinted Name: Printed Name \Rightarrow Signature: Date: * るとと 8.40 80109 イベスシ Date: 10-2-13 RELINQUISHED BY SAMPLER: PRES. Now RECEIVED BY: rinted Name: PROJECT # LA - 1143-2 0012-05h-6hb NUMBER/SIZE CONTAINER 462 5(85 22/ DATA DELIVERABLE REQUIRED SAMPLE RECEIPT - TO BE FILLED BY LABORATORY PROJECT MANAGER PHONE MATRIX # Od FAX ☐ HARD COPY
☐ PDF
☐ GEOTRACKER (GLOBAL ID) ___ PROPERLY COOLED Y/N/NA SAMPLES INTACT Y/ N/ NA SAMPLES ACCEPTED Y/N 10:40 TIME 0:50 (0:55 00 |-11:45 (0; 32 11:30 9:1 10:20 10:25 11:05 2:1 11:3 01:10 -19 61-22-6 DATE Chesebro Rd US 101 COMPANY ADDRESS 32 M auchly, Suit 12618 Group Delta Consultants SAME DAY

NEXT DAY

Z DAYS

3 DAYS 0 Palo Comado 724-05 S1-2582 WHERAL 20324-10 2834.61 70834.03 81.4880E 子2834-19 1097.01 10334.11 10834.05 Co-Koot かられるのろ であるか 7834.A LAB ID TURN AROUND TIME TOTAL NUMBER OF CONTAINERS RECEIVED IN GOOD COND. Y M ☐ NORMAL 区 RUSH CUSTODY SEALS (/ N/NA B-12-2a B-13-0.5b B-13-0.5a B-12-25 B-12-0.5 SAMPLE ID 8-10-0.5 3-11-0,5 1-11-8 8-11-2 1-21-8 1-61-8 B-10-2 1-01-9 1-11-8 PROJECT NAME 8-4-2 SITE NAME AND COMPANY ADDRESS

DISTRIBUTION: WHITE - Laboratory, CANARY - Laboratory, PINK - Project/Account Manager, YELLOW - Sampler/Originator

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CHAIN OF CUSTODY RECORD

83150 e Z

TEST INSTRUCTIONS & COMMENTS 0757.m ر س Page 4 of 4 RECEIVED BY AE! Ç) RELINQUISHED BY: Printed Name: Signature Date Time: 75894 ANALYSIS REQUESTED RELINQUISHED BY RECEIVED BY: Printed Name Printed Name X Signature: * AETL JOB No. n Georgia 2 Shob Hd 80109 1007 Date: (07 - (3 RELINQUISHED BY SAMPLER; PRES. **対立** 73 RECEIVED BY: Printed Name. rinted Name -A-1143-2 0012-054-64b NUMBER/SIZE 462. Gluss jar CONTAINER Juntur I for DATA DELIVERABLE REGUIRED PROJECT MANAGER SAMPLE RECEIPT - TO BE FILLED BY LABORATORY PROJECT PHONE MATRIX # Od ☐ HARD COPY
☐ PDF
☐ GEOTRACKER (GLOBAL ID)
☐ OTHER (PLEASE SPECIFY) W/N/WA SAMPLES ACCEPTER Y N 75:11 1.54 12:05 2;30 =: |-|-12.15 12:10 PROPERLY COOLED SAMPLES INTACT 101.5.0 9.26-13 9-26-13 DATE □ NORMAL □ RUSH □ SAME DAY
□ NEXT DAY
□ AS DAYS
□ 3 DAYS COMPANY Group Delta Consultants 32 Mauchly, Suite B れったしん M 10821.16 chescon Rd 25. 45.20 12-16894 4583419 01-15BA 75834 LAB ID Palo Comado TURN AROUND TIME TOTAL NUMBER OF CONTAINERS RECEIVED IN GOOD COND. Y IN CUSTODY SEALS Y / N/ NA COMPANY ADDRESS B-15-0.5 6-15-2 SAMPLE ID 8-14-0.5 2-41-8 1-51-9 8-14-1 PROJECT NAME Rinse SITE NAME AND ADDRESS

DISTRIBUTION: WHITE - Laboratory, CANARY - Laboratory, PINK - Project/Account Manager, YELLOW - Sampler/Originator



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Telephone: (949)450-2100 Attention: Jack Packwood Project ID: LA-1143-2

Date Received 10/02/2013
Date Reported 10/04/2013

Job Number	Order Date	Client
70834	10/02/2013	GROUP

CERTIFICATE OF ANALYSIS CASE NARRATIVE

AETL received 22 samples with the following specification on 10/02/2013.

La	b ID	Sample ID	Sample Date	Matr:	ix		Quantity Of	Containers
70834		Rinse	09/26/2013	Aque	ous		1	
	Method	^ Submethod	Req	Date	Priority	TAT	Units	
	6010B.L	EAD		1/2013	3	Rush	mg/L	
	9040B		10/04	1/2013	3	Rush	pH unit	
La	b ID	Sample ID	Sample Date	Matr:	ix		Quantity Of	Containers
70834	4.01	B-9-2	09/26/2013	Soil			1	
70834	4.02	B-10-0.5	09/26/2013	Soil			1	
70834	1.03	B-10-1	09/26/2013	Soil			1	
70834	1.04	B-10-2	09/26/2013	Soil			1	
70834	4.05	B-11-0.5	09/26/2013	Soil			1	
70834	1.06	B-11-1	09/26/2013	Soil			1	
70834	4.07	B-11-2	09/26/2013	Soil			1	
70834	4.09	B-12-1	09/26/2013	Soil			1	
70834	4.15	B-13-2	09/26/2013	Soil			1	
70834	4.18	B-14-2	09/26/2013	Soil			1	
70834	4.19	B-15-0.5	09/26/2013	Soil			1	
70834	4.21	B-15-2	09/26/2013	Soil			1	
	Method	^ Submethod	Req	Date	Priority	TAT	Units	
	(6010B.I	LEAD)	10/04	1/2013	3	Rush	mg/Kg	
70834	1.08	B-12-0.5	09/26/2013	Soil			1	
70834	4.16	B-14-0.5	09/26/2013	Soil			1	
70834	1.20	B-15-1	09/26/2013	Soil			1	
	Method	^ Submethod	Req	Date	Priority	TAT	Units	
	(6010/70	00TCLP) ^ PB	10/04	1/2013	3	Rush	mg/L	
	(6010B-S	STLC) ^ STLC-DI-PB	10/04	1/2013	3	Rush	mg/L	
	(6010B-S	STLC) ^ STLC-PB	10/04	1/2013	3	Rush	mg/L	

Continued



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Page: 1 B
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Group Delta Consultants

32 Mauchly Suite B Irvine, CA 92618-

Telephone: (949)450-2100 Attention: Jack Packwood Project ID: LA-1143-2

Date Received 10/02/2013
Date Reported 10/04/2013

Job Number	Order Date	Client
70834	10/02/2013	GROUP

CERTIFICATE OF ANALYSIS CASE NARRATIVE

70834	1.20	B-15-1	09/26/2	013	Soil			1
	Method	^ Submethod		Req	Date	Priority	TAT	Units
	(6010B.I	LEAD)		10/04	4/2013	3	Rush	mg/Kg
70834	1.10	B-12-2a	09/26/2	013	Soil			1
70834	1.11	B-12-2b	09/26/2	013	Soil			1
	Method	^ Submethod		Req	Date	Priority	TAT	Units
[(6010B.I	LEAD)		10/04	4/2013	3	Rush	mg/Kg
	9045C			10/04	4/2013	3	Rush	pH unit
70834	1.12	B-13-0.5a	09/26/2	013	Soil			1
	Method	^ Submethod		Req	Date	Priority	TAT	Units
	(6010/70	00TCLP) ^ PB		10/04	4/2013	3	Rush	mg/L
	(6010B-S	STLC) ^ STLC-DI-PB		10/04	4/2013	3	Rush	mg/L
	(6010B-S	STLC) ^ STLC-PB		10/04	4/2013	3	Rush	mg/L
	(6010B.I	LEAD)		10/04	4/2013	3	Rush	mg/Kg
	9045C			- 0, 0	4/2013	3	Rush	pH unit
70834	1.13	B-13-0.5b	09/26/2	013	Soil			1
	Method	^ Submethod		Req	Date	Priority	TAT	Units
	(6010B-S	STLC) ^ STLC-PB		10/04	4/2013	3	Rush	mg/L
	(6010B.I	LEAD)		10/04	4/2013	3	Rush	mg/Kg
	9045C				4/2013	3	Rush	pH unit
70834	1.14	B-13-1	09/26/2	013	Soil			1
70834	1.17	B-14-1	09/26/2	013	Soil			1
	Method	^ Submethod		Req	Date	Priority	TAT	Units
[(6010B-S	STLC) ^ STLC-PB		10/04	4/2013	3	Rush	mg/L
	(6010B.I	LEAD)		10/04	4/2013	3	Rush	mg/Kg

The samples were analyzed as specified on the enclosed chain of custody. No analytical non-conformances were encountered.

		C. Raymana
Checked By:	Approved By:	J

Cyrus Razmara, Ph.D. Laboratory Director



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ANALYTICAL RESULTS

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Telephone: (949)450-2100 Attn: Jack Packwood

Page: 2

Project ID: LA-1143-2
Project Name: Palo Comado

Site

Chesebro Rd/ US 101

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

	40 Batch 110. 100012200							
Our Lab I.D.			Method Blank	70834.01	70834.02	70834.03	70834.04	
Client Sample I.D.				B-9-2	B-10-0.5	B-10-1	B-10-2	
Date Sampled				09/26/2013	09/26/2013	09/26/2013	09/26/2013	
Date Prepared			10/03/2013	10/03/2013	10/03/2013	10/03/2013	10/03/2013	
Preparation Method			3050B	3050B	3050B	3050B	3050B	
Date Analyzed			10/04/2013	10/04/2013	10/04/2013	10/04/2013	10/04/2013	
Matrix			Soil	Soil	Soil	Soil	Soil	
Units			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	
Dilution Factor			1	1	1	1	1	
Analytes	MDL	PQL	Results	Results	Results	Results	Results	
Lead	2.5	5.0	ND	5.10	32.5	12.7	5.32	



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ANALYTICAL RESULTS

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Page: 3

Project ID: LA-1143-2
Project Name: Palo Comado

Site

Chesebro Rd/ US 101

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

Method: (6010B.LEAD), Lead, ICP

	40 Editi 10. 100313203							
Our Lab I.D.			70834.05	70834.06	70834.07	70834.08	70834.09	
Client Sample I.D.			B-11-0.5	B-11-1	B-11-2	B-12-0.5	B-12-1	
Date Sampled			09/26/2013	09/26/2013	09/26/2013	09/26/2013	09/26/2013	
Date Prepared			10/03/2013	10/03/2013	10/03/2013	10/03/2013	10/03/2013	
Preparation Method			3050B	3050B	3050B	3050B	3050B	
Date Analyzed			10/04/2013	10/04/2013	10/04/2013	10/04/2013	10/04/2013	
Matrix			Soil	Soil	Soil	Soil	Soil	
Units			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	
Dilution Factor			1	1	1	1	1	
Analytes	MDL	PQL	Results	Results	Results	Results	Results	
Lead	2.5	5.0	20.9	3.84J	3.94J	235	20.1	



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ANALYTICAL RESULTS

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Telephone: (949)450-2100 Attn: Jack Packwood Page: 4

Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Rd/ US 101

Site

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

Method: (6010B.LEAD), Lead, ICP

	40 Batch 110. 100010200						
Our Lab I.D.			70834.10	70834.11	70834.12	70834.13	70834.14
Client Sample I.D.			B-12-2a	B-12-2b	B-13-0.5a	B-13-0.5b	B-13-1
Date Sampled			09/26/2013	09/26/2013	09/26/2013	09/26/2013	09/26/2013
Date Prepared			10/03/2013	11/03/2013	11/03/2013	11/03/2013	11/03/2013
Preparation Method			3050B	3050B	3050B	3050B	3050B
Date Analyzed			10/04/2013	10/04/2013	10/04/2013	10/04/2013	10/04/2013
Matrix			Soil	Soil	Soil	Soil	Soil
Units			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Dilution Factor			1	1	1	1	1
Analytes	MDL	PQL	Results	Results	Results	Results	Results
Lead	2.5	5.0	2.58J	4.61J	124	109	103



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Page: 5

Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Rd/ US 101

AETL Job Number Submitted Client
70834 10/02/2013 GROUP

Method: (6010B.LEAD), Lead, ICP

	40 Batch 110. 100010200							
Our Lab I.D.			70834.15	70834.16	70834.17	70834.18	70834.19	
Client Sample I.D.			B-13-2	B-14-0.5	B-14-1	B-14-2	B-15-0.5	
Date Sampled			09/26/2013	09/26/2013	09/26/2013	09/26/2013	09/26/2013	
Date Prepared			11/03/2013	11/03/2013	11/03/2013	11/03/2013	11/03/2013	
Preparation Method			3050B	3050B	3050B	3050B	3050B	
Date Analyzed			10/04/2013	10/04/2013	10/04/2013	10/04/2013	10/04/2013	
Matrix			Soil	Soil	Soil	Soil	Soil	
Units			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	
Dilution Factor			1	1	1	1	1	
Analytes	MDL	PQL	Results	Results	Results	Results	Results	
Lead	2.5	5.0	24.2	169	140	24.2	8.21	



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Telephone: (949)450-2100 Attn: Jack Packwood Page: 6

Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Rd/ US 101

Site

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

QC DAICH NO. 100313263							
Our Lab I.D.			70834.20				
Client Sample I.D.			B-15-1				
Date Sampled			09/26/2013				
Date Prepared			11/03/2013				
Preparation Method			3050B				
Date Analyzed			10/04/2013				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			1				
Analytes	MDL	PQL	Results				
Lead	2.5	5.0	381				



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ANALYTICAL RESULTS

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Page: 7

Project ID: LA-1143-2
Project Name: Palo Comado

Site

Chesebro Rd/ US 101

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

Method: (6010B.LEAD), Lead, ICP

	40 Buton No. 100313204						
Our Lab I.D.			Method Blank	70834.21			
Client Sample I.D.				B-15-2			
Date Sampled				09/26/2013			
Date Prepared			10/03/2013	10/03/2013			
Preparation Method			3050B	3050B			
Date Analyzed	Date Analyzed		10/04/2013	10/04/2013			
Matrix			Soil	Soil			
Units			mg/Kg	mg/Kg			
Dilution Factor			1	1			
Analytes	MDL	PQL	Results	Results			
Lead	2.5	5.0	ND	4.22J			



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ANALYTICAL RESULTS

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Telephone: (949)450-2100 Attn: Jack Packwood Page: 8

Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Rd/ US 101

Site

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

Method: (6010B-STLC), Soluble Threshold Limit Concentration (STLC) QC Batch No: 1004132C12

QC Balcii NO. 1004132C12						
Our Lab I.D.			Method Blank			
Client Sample I.D.						
Date Sampled						
Date Prepared			10/04/2013			
Preparation Method			TITLE 22			
Date Analyzed			10/07/2013			
Matrix			Soil			
Units			mg/L			
Dilution Factor			1			
Analytes	MDL	PQL	Results			
Lead (STLC)	0.05	0.10	ND			



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ANALYTICAL RESULTS

Ordered By

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Telephone: (949)450-2100 Attn: Jack Packwood Page: 9

Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Rd/ US 101

Site

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

Method: (6010B-STLC), Soluble Threshold Limit Concentration (STLC)

Our Lab I.D.			70834.08	70834.12	70834.13	70834.14	70834.16
Client Sample I.D.			B-12-0.5	B-13-0.5a	B-13-0.5b	B-13-1	B-14-0.5
Date Sampled			09/26/2013	09/26/2013	09/26/2013	09/26/2013	09/26/2013
Date Prepared			10/04/2013	10/04/2013	10/04/2013	10/04/2013	10/04/2013
Preparation Method			TITLE 22				
Date Analyzed			10/07/2013	10/07/2013	10/07/2013	10/07/2013	10/07/2013
Matrix			Soil	Soil	Soil	Soil	Soil
Units			mg/L	mg/L	mg/L	mg/L	mg/L
Dilution Factor			10	10	10	10	10
Analytes	MDL	PQL	Results	Results	Results	Results	Results
Lead (STLC)	0.50	1.00	8.82	8.18	2.91	4.42	7.32



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Project ID: LA-1143-2 Project Name: Palo Comado Chesebro Rd/ US 101

Site

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

Method: (6010B-STLC), Soluble Threshold Limit Concentration (STLC) QC Batch No: 1004132C12

	QO BULUI 110. 1004102012						
Our Lab I.D.			70834.17	70834.20			
Client Sample I.D.			B-14-1	B-15-1			
Date Sampled			09/26/2013	09/26/2013			
Date Prepared			10/04/2013	10/04/2013			
Preparation Method			TITLE 22	TITLE 22			
Date Analyzed			10/07/2013	10/07/2013			
Matrix			Soil	Soil			
Units			mg/L	mg/L			
Dilution Factor			10	10			
Analytes	MDL	PQL	Results	Results			
Lead (STLC)	0.50	1.00	4.04	15.5			



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Project ID: LA-1143-2 Project Name: Palo Comado Chesebro Rd/ US 101

Site

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

Method: (6010B-STLC), DI Soluble Threshold Limit Concentration (DI-STLC) for Lead QC Batch No: 1008132C4

Our Lab I.D.			Method Blank	70834.08	70834.12	70834.16	70834.20
Client Sample I.D.				B-12-0.5	B-13-0.5a	B-14-0.5	B-15-1
Date Sampled				09/26/2013	09/26/2013	09/26/2013	09/26/2013
Date Prepared			10/08/2013	10/08/2013	10/08/2013	10/08/2013	10/08/2013
Preparation Method			TITLE 22	TITLE 22	TITLE 22	TITLE 22	TITLE 22
Date Analyzed			10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013
Matrix			Soil	Soil	Soil	Soil	Soil
Units			mg/L	mg/L	mg/L	mg/L	mg/L
Dilution Factor			1	1	1	1	1
Analytes	MDL	PQL	Results	Results	Results	Results	Results
Lead (STLC-DI)	0.05	0.10	ND	ND	ND	ND	ND



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Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Rd/ US 101

Site

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

Method: (6010/7000TCLP), Toxicity Characteristic Leaching Procedure (TCLP,EPA 1311)

QC Batch No: 1008132C3

Our Lab I.D.			Method Blank	70834.08	70834.12	70834.16	70834.20
Client Sample I.D.				B-12-0.5	B-13-0.5a	B-14-0.5	B-15-1
Date Sampled				09/26/2013	09/26/2013	09/26/2013	09/26/2013
Date Prepared			10/08/2013	10/08/2013	10/08/2013	10/08/2013	10/08/2013
Preparation Method			1311	1311	1311	1311	1311
Date Analyzed			10/09/2013	10/09/2013	10/09/2013	10/09/2013	10/09/2013
Matrix			Soil	Soil	Soil	Soil	Soil
Units			mg/L	mg/L	mg/L	mg/L	mg/L
Dilution Factor			1	1	1	1	1
Analytes	MDL	PQL	Results	Results	Results	Results	Results
Lead (TCLP)	0.05	0.10	ND	0.0876J	ND	0.0894J	0.410



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Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Rd/ US 101

Site

Į	AETL JOD Number	Submitted	Client
	70834	10/02/2013	GROUP

T Tab Manula and Carlon State 3 | C1 Same

Method: 9045C, Soil and Waste pH
OC Batch No: 100413-1

	QC Batch No: 100413-1						
Our Lab I.D.			70834.10				
Client Sample I.D.			B-12-2a				
Date Sampled			09/26/2013				
Date Prepared			10/04/2013				
Preparation Method			9045C				
Date Analyzed			10/04/2013				
Matrix			Soil				
Units			pH unit				
Dilution Factor			1				
Analytes	MDL	PQL	Results				
рН	1.00	1.00	7.07				



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Project ID: LA-1143-2
Project Name: Palo Comado

Site

Chesebro Rd/ US 101

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

Method: 9045C, Soil and Waste pH
QC Batch No: 100313-1

QC Batch No. 100315-1							
Our Lab I.D.			70834.11				
Client Sample I.D.			B-12-2b				
Date Sampled			09/26/2013				
Date Prepared			10/03/2013				
Preparation Method			9045C				
Date Analyzed			10/03/2013				
Matrix			Soil				
Units			pH unit				
Dilution Factor			1				
Analytes	MDL	PQL	Results				
pH	1.00	1.00	6.19				



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Project ID: LA-1143-2 Project Name: Palo Comado Site Chesebro Rd/ US 101

AETL Job Number Submitted Client
70834 10/02/2013 GROUP

Method: 9045C, Soil and Waste pH

QC Batch No: 100413-1

Q0 20001101 100110 1							
Our Lab I.D.			70834.12				
Client Sample I.D.			B-13-0.5a				
Date Sampled			09/26/2013				
Date Prepared			10/04/2013				
Preparation Method			9045C				
Date Analyzed			10/04/2013				
Matrix			Soil				
Units			pH unit				
Dilution Factor			1				
Analytes	MDL	PQL	Results				
pH	1.00	1.00	6.60				



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Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Rd/ US 101

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

Method: 9045C, Soil and Waste pH

QC Batch No: 100313-1

40 Batch No. 100315-1							
Our Lab I.D.			70834.13				
Client Sample I.D.			B-13-0.5b				
Date Sampled			09/26/2013				
Date Prepared			10/03/2013				
Preparation Method			9045C				
Date Analyzed			10/03/2013				
Matrix			Soil				
Units			pH unit				
Dilution Factor			1				
Analytes	MDL	PQL	Results				
pH	1.00	1.00	6.59				



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Project ID: LA-1143-2
Project Name: Palo Comado

Site Chesebro Rd/ US 101

AETL Job Number Submitted Client
70834 10/02/2013 GROUP

Method: 6010B.LEAD, Lead, ICP QC Batch No: 1003132C1

Our Lab I.D.			Method Blank	70834.22		
Client Sample I.D.				Rinse		
Date Sampled				09/26/2013		
Date Prepared			10/03/2013	10/03/2013		
Preparation Method			3005A	3005A		
Date Analyzed			10/03/2013	10/03/2013		
Matrix			Aqueous	Aqueous		
Units			mg/L	mg/L		
Dilution Factor			1	1		
Analytes	MDL	PQL	Results	Results		
Lead	0.05	0.10	ND	ND		



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Project ID: LA-1143-2 Project Name: Palo Comado Site Chesebro Rd/ US 101

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

Method: 9040B, pH Electrometric Measurement

QC Batch No: 100213-1

Our Lab I.D.			70834.22			
Client Sample I.D.			Rinse			
Date Sampled			09/26/2013			
Date Prepared			10/02/2013			
Preparation Method			9040B			
Date Analyzed			10/02/2013			
Matrix			Aqueous			
Units			pH unit			
Dilution Factor			1			
Analytes	MDL	PQL	Results			
pH	0.01	0.01	7.61			



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Project ID: LA-1143-2
Project Name: Palo Comado

Site Chesebro Rd/ US 101

AETL Job Number Submitted Client
70834 10/02/2013 GROUP

Method: 6010B.LEAD, Lead, ICP

QC Batch No: 1003132C1; Dup or Spiked Sample: 70834.22; LCS: Clean Water; QC Prepared: 10/03/2013; QC Analyzed: 10/03/2013; Units: mg/L

	Sample	MS	MS	MS	MS DUP	MS DUP	MS DUP	RPD	MS/MSD	MS RPD
Analytes	Result	Concen	Recov	% REC	Concen	Recov	% REC	%	% Limit	% Limit
Lead	0.00	1.00	0.910	91.4	1.00	0.920	92.0	<1	75-125	<15

QC Batch No: 1003132C1; Dup or Spiked Sample: 70834.22; LCS: Clean Water; QC Prepared: 10/03/2013; QC Analyzed: 10/03/2013; Units: mg/L

	LCS	LCS	LCS	LCS/LCSD			
Analytes	Concen	Recov	% REC	% Limit			
Lead	1.00	0.870	87.0	75-125			



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Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Rd/ US 101

Site

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

Method: 9040B, pH Electrometric Measurement

QC Batch No: 100213-1; Dup or Spiked Sample: 70824.01; LCS: Clean Water; LCS Prepared: 10/02/2013; LCS Analyzed: 10/02/2013; Units: pH unit

	SM	SM DUP	RPD	SM RPD	LCS	LCS	LCS	LCS/LCSD	
Analytes	Result	Result	%	% Limit	Concen	Recov	% REC	% Limit	
pH	1.80	1.76	2.2	<15	7.00	7.00	100	80-120	



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Telephone: (949)450-2100 Attn: Jack Packwood Page: **21**

Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Rd/ US 101

Site

AETL Job Nu	mber Submitted	Client
70834	10/02/2013	GROUP

Method: (6010/7000TCLP), Toxicity Characteristic Leaching Procedure (TCLP,EPA 1311)

QC Batch No: 1008132C3; Dup or Spiked Sample: 70833.02; LCS: Clean Sand; LCS Prepared: 10/08/2013; LCS Analyzed: 10/09/2013; Units: mg/L

	SM	SM DUP	RPD	SM RPD	LCS	LCS	LCS	LCS/LCSD	
Analytes	Result	Result	%	% Limit	Concen	Recov	% REC	% Limit	
Lead (TCLP)	0.148	0.087	51.9	<20	1.00	0.972	97.2	80-120	



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Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Rd/ US 101

Site

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

Method: (6010B-STLC), DI Soluble Threshold Limit Concentration (DI-STLC) for Lead

QC Batch No: 1008132C4; Dup or Spiked Sample: 70833.02; LCS: Clean Sand; LCS Prepared: 10/08/2013; LCS Analyzed: 10/10/2013; Units: mg/L

	SM	SM DUP	RPD	SM RPD	LCS	LCS	LCS	LCS/LCSD	
Analytes	Result	Result	%	% Limit	Concen	Recov	% REC	% Limit	
Lead (STLC-DI)	ND	ND	<1	<20	1.00	0.900	90.0	80-120	



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Project ID: LA-1143-2 Project Name: Palo Comado Chesebro Rd/ US 101

Site

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

Method: (6010B-STLC), Soluble Threshold Limit Concentration (STLC)

QC Batch No: 1004132C12; Dup or Spiked Sample: 70833.01; LCS: Clean Sand; LCS Prepared: 10/04/2013; LCS Analyzed: 10/07/2013; Units: mg/L

	SM	SM DUP	RPD	SM RPD	LCS	LCS	LCS	LCS/LCSD	
Analytes	Result	Result	%	% Limit	Concen	Recov	% REC	% Limit	
Lead (STLC)	4.05	4.28	5.5	<20	1.00	0.880	87.8	80-120	



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Project ID: LA-1143-2
Project Name: Palo Comado

Site Chesebro Rd/ US 101

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

Method: (6010B.LEAD), Lead, ICP

QC Batch No: 1003132C4; Dup or Spiked Sample: 70833.21; LCS: Clean Sand; QC Prepared: 10/03/2013; QC Analyzed: 10/04/2013; Units: mg/Kg

	Sample	MS	MS	MS	MS DUP	MS DUP	MS DUP	RPD	MS/MSD	MS RPD
Analytes	Result	Concen	Recov	% REC	Concen	Recov	% REC	%	% Limit	% Limit
Lead	4.32	50.0	43.4	78.2	50.0	44.1	79.6	1.77	75-125	<15

QC Batch No: 1003132C4; Dup or Spiked Sample: 70833.21; LCS: Clean Sand; QC Prepared: 10/03/2013; QC Analyzed: 10/04/2013; Units: mg/Kg

	LCS	LCS	LCS	LCS DUP	LCS DUP	LCS DUP	LCS RPD	LCS/LCSD	LCS RPD	
Analytes	Concen	Recov	% REC	Concen	Recov	% REC	% REC	% Limit	% Limit	
Lead	50.0	47.8	95.6	50.0	47.6	95.2	<1	75-125	<15	



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Project ID: LA-1143-2 Project Name: Palo Comado Chesebro Rd/ US 101

Site

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

Method: (6010B.LEAD), Lead, ICP

QC Batch No: 1003132C5; Dup or Spiked Sample: 70834.11; LCS: Clean Sand; QC Prepared: 11/03/2013; QC Analyzed: 10/04/2013; Units: mg/Kg

	Sample	MS	MS	MS	MS DUP	MS DUP	MS DUP	RPD	MS/MSD	MS RPD
Analytes	Result	Concen	Recov	% REC	Concen	Recov	% REC	%	% Limit	% Limit
Lead	4.61	50.0	43.3	77.4	50.0	43.1	77.0	<1	75-125	<15

QC Batch No: 1003132C5; Dup or Spiked Sample: 70834.11; LCS: Clean Sand; QC Prepared: 11/03/2013; QC Analyzed: 10/04/2013; Units: mg/Kg

	LCS	LCS	LCS	LCS DUP	LCS DUP	LCS DUP	LCS RPD	LCS/LCSD	LCS RPD	
Analytes	Concen	Recov	% REC	Concen	Recov	% REC	% REC	% Limit	% Limit	
Lead	50.0	44.1	88.2	50.0	43.6	87.2	1.1	75-125	<15	



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Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Rd/ US 101

Site

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

Method: 9045C, Soil and Waste pH

QC Batch No: 100313-1; Dup or Spiked Sample: 70833.02; LCS: Clean Sand; LCS Prepared: 10/03/2013; LCS Analyzed: 10/03/2013; Units: pH unit

	SM	SM DUP	RPD	SM RPD	LCS	LCS	LCS	LCS/LCSD	
Analytes	Result	Result	%	% Limit	Concen	Recov	% REC	% Limit	
pH	7.82	7.85	<1	<15	7.00	7.00	100	80-120	



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Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Rd/ US 101

Site

AETL Job Number	Submitted	Client
70834	10/02/2013	GROUP

Method: 9045C, Soil and Waste pH

QC Batch No: 100413-1; Dup or Spiked Sample: 70842.01; LCS: Clean Sand; LCS Prepared: 10/04/2013; LCS Analyzed: 10/04/2013; Units: pH unit

	SM	SM DUP	RPD	SM RPD	LCS	LCS	LCS	LCS/LCSD	
Analytes	Result	Result	%	% Limit	Concen	Recov	% REC	% Limit	
pH	7.29	7.25	<1	<15	7.00	7.00	100	80-120	



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Data Qualifiers and Descriptors

Data Qualifier:

#: Recovery is not within acceptable control limits.

*: In the QC section, sample results have been taken directly from the ICP reading. No preparation factor has

been applied.

B: Analyte was present in the Method Blank.

D: Result is from a diluted analysis.

E: Result is beyond calibration limits and is estimated.

H: Analysis was performed over the allowed holding time due to circumstances which were beyond laboratory

control.

J: Analyte was detected. However, the analyte concentration is an estimated value, which is between the Method

Detection Limit (MDL) and the Practical Quantitation Limit (PQL).

M: Matrix spike recovery is outside control limits due to matrix interference. Laboratory Control Sample recovery

was acceptable.

MCL: Maximum Contaminant Level

NS: No Standard Available

S6: Surrogate recovery is outside control limits due to matrix interference.

S8: The analysis of the sample required a dilution such that the surrogate concentration was diluted below the

method acceptance criteria.

X: Results represent LCS and LCSD data.

Definition:

%Limi: Percent acceptable limits.

%REC: Percent recovery.

Con.L: Acceptable Control Limits

Conce: Added concentration to the sample.

LCS: Laboratory Control Sample

MDL: Method Detection Limit is a statistically derived number which is specific for each instrument, each method,

and each compound. It indicates a distinctively detectable quantity with 99% probability.



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Data Qualifiers and Descriptors

MS:

Matrix Spike

MS DU:

Matrix Spike Duplicate

ND:

Analyte was not detected in the sample at or above MDL.

PQL:

Practical Quantitation Limit or ML (Minimum Level as per RWQCB) is the minimum concentration that can

be quantified with more than 99% confidence. Taking into account all aspects of the entire analytical

instrumentation and practice.

Recov:

Recovered concentration in the sample.

RPD:

Relative Percent Difference



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Date Received 10/02/2013
Date Reported 10/14/2013

Job Number	Order Date	Client
70937	10/10/2013	GROUP

Project ID: LA-1143-2
Project Name: Palo Comado

Site: Chesebro Road/ US 101

Enclosed please find results of analyses of 10 soil samples which were analyzed as specified on the attached chain of custody. If there are any questions, please do not hesitate to call.

Checked By: _____ Approved By: _____ C. Raymana

Cyrus Razmara, Ph.D. Laboratory Director



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CHAIN OF CUSTODY RECORD

1 AETL JOB No. 708/37

61551 5051

TEST INSTRUCTIONS & COMMENTS 89-Added 19/10 20MSTAT က် (7) 7 0 2 DAYS TRY 2 SAYS TAY -ime: Page 子のおから 70937.0Y 70437.03 で、七万万十 20437.0 RELINQUISHED BY: RECEIVED BY LABORATORY: X-Atled *-Atled Printed Name: Date Ilme: lme: ANALYSIS REQUESTED 9ਰ D7LS (3) ***** BB RELINGUISHED BY: RECEIVED BY: rinted Name rinted Name Signature: * ** * Parre Time: 2 - 45 2 Shob Lead 60108 Date: (0-2-13 RELINGUISHED BY SAMPLER: PRES. SOK RECEIVED BY: rinted Name: rinted Name 14-11+3-2 Signature: CONTAINER NUMBER/SIZE PHONE 944-450-200 Yor Class Jar Z2 DAYS □ 3 DAYS PROJECT # PROJECT MANAGER SAMPLE RECEIPT - TO BE FILLED BY LABORATORY MATRIX FAX * Od Y/N/NA SAMPLES INTAGE YHY INA SAMPLES ACCEPTED YIN SAME DAY 32 Marchiy Stute B, Invince CAS 0012.000 TIME PROPERLY COOLED 25 2:00 2107 2:12 145 25: ا چ**و** 36 1:30 1:37 ? <u>S</u> TURN AROUND TIME 6-1-97-6 DATE Chuseboo Rd / US. (0) RUSH X Group Deta Consultant かかかか 7832 03.863 2633.19 1983 C 120833.05 70133.02 Sept. 19 20833.cb 70833.14 Je 75804 2833-17 70833.0 7233.04 Palo Comado LAB ID RECEIVED IN GOOD COND. Y / N TOTAL NUMBER OF CONTAINERS CUSTODY SEALS Y/N/NA B-1-0.5a 8-1-0.56 9-3-0.5 8-4-0.5 3-3-19 COMPANY ADDRESS 3-7-2 3-4-2 8-2-0.5 6-3-16 8-1-2 1-4-8 SAMPLE ID NORMAL 1-2-8 6-1-1 PROJECT NAME SITE NAME AND ADDRESS COMPANY

DISTRIBUTION: WHITE - Laboratory, CANARY - Laboratory, PINK - Project/Account Manager, YELLOW - Sampler/Originator



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CHAIN OF CUSTODY RECORD 70/37-5 Nº 83148

83148

4, 6,	Tage of	TEST INSTRUCTIONS & COMMENTS					70937.06	70937.03				20,28,02		7-6837-09	10437.10							2. RELINQUISHED BY: 3	Signature:	Printed Name:	Time: Date:	A TRECEIVED BY AGE TO 3.		Printed Nagre: Carelle	Time: Date:/o/c/2//2 Time://5%
AETL JOB No. TO	ANIAI VOIG GIOCIANA	ANALYSIS RECOES ED		9d 9d 05P0	つ し	115 172 172	***************************************	***			×	8		ℜ	*							1, RELINQUISHED BY:	Signature:	Printed Names	Time: C. 4.0. Date:	\	Signature:		Time: Date:
	201 m may - 200		4-1143-2			CONTAINER PRES.	s, jar Nowe														>	SAMPLER:	Signature:	Printed Name:	Date: 10-7-17	1 <u>*</u>	Signature:	Printed Name:	Date:
PROJECT MANAGER	PHONE BUCHE		PROJECT#	# Od		MATRIX CONT	yor Glass Jav												j		>	SORATORY	X /N I NA	AN	Z	ABLE REQUIRED		BAL ID	ECIFY)
PRC				101		TIME TIME	-13 12:54	15:28	12:59	F0:1	12:40	(2:45	12:50	02:2)	12126	12:34	4145	4:52	101.00	60:04	<i>ት1:01</i>	ILLED BY LAE	PROPERLY COOLED	SAMPLES INTACT (Y/ N/	SAMPLES ACCEPTED Y	DATA DELIVERABLE	HARD COPY	GEOTHACKER (GLOBAL ID)	
7	COUSE (FRATE)	Irvine, CA 92618	Š	NO Pal 105		LAB ID DATE	5-12- 6-13	3-16	13.13	3.68	61.89	70833.20	3.27	3.2	3.13	3.27	3.55	90833.26	3.29	70833.28	7033,29	IPT - TO BE F	PHO SI	SAN	SAN	JE .		MEXI DAY	
COMPANY Ower Orline	COMPANY ADDRESS 22 A 1.		PROJECT NAME DA LO (Actual Control of the	٥		B	B-9-14 70833.17	8-5-2 7883.18	8-6-0.5 7582		B-6-2 70833,2				B-8-0.5 70833.45		8-8-2 AC833.29	5.	B-9-1 17083	SAMPLE RECEIPT - TO BE FILLED BY LABORATORY	TOTAL NUMBER OF CONTAINERS	CUSTODY SEALS Y (N/ NA	RECEIVED IN GOOD COND. Y /N	TURN ARÓUND TIME	☐ NORMAL MY RUSH E		

JIM LIN

From:

Jack Packwood [jackp@groupdelta.com]

Sent:

Thursday, October 10, 2013 1:33 PM

To:

'JIM LIN'

Subject:

RE: Summary Table results of analysis of samples from project "Chesebro Road / US 101,

Palo Comado, CA"

Hi Jim,

We need additional citric STLCs run for our statistical analysis:

B-1-1

B-3-.5

B-3-1

B-4-.5

B-4-1

B-5-.5

B-5-1

B-6-1

B-7-.5

B-7-1

You can begin these immediately.

Thanks,

Jack Packwood

From: JIM LIN [mailto:jiml@aetlab.com]
Sent: Tuesday, October 08, 2013 12:54 PM

To: Jack Packwood (Group Delta) **Cc:** Kevin Garcia (Group Delta)

Subject: Summary Table results of analysis of samples from project "Chesebro Road / US 101, Palo Comado, CA"

Dear Jack & Kevin,

Herewith please find Summary Table results of analysis of samples from project ID LA-1143-2 "Chesebro Road / US 101, Palo Comado, CA"

AETL Job No: 70833 & 70834 (STLC-DI & TCLP Lead in process for a two days TAT)

Thank you.

Should you have additional question, please feel free to contact us.

Jim Lin Operations Manager AETL 818-845-8200



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Page: 1 A Ordered By

Group Delta Consultants 32 Mauchly Suite B

Irvine, CA 92618-

(6010B-STLC) ^ STLC-PB

Telephone: (949)450-2100 Attention: Jack Packwood Project ID: LA-1143-2

Date Received 10/02/2013
Date Reported 10/14/2013

Rush

Job Number	Order Date	Client
70937	10/10/2013	GROUP

CERTIFICATE OF ANALYSIS CASE NARRATIVE

AETL received 10 samples with the following specification on 10/10/2013.

Lab ID	Sample ID	Sample Date	Matrix	Quantity Of Containers
70937.01	B-1-1	09/26/2013	Soil	1
70937.02	B-3-0.5	09/26/2013	Soil	1
70937.03	B-3-1a	09/26/2013	Soil	1
70937.04	B-4-0.5	09/26/2013	Soil	1
70937.05	B-4-1	09/26/2013	Soil	1
70937.06	B-5-0.5	09/26/2013	Soil	1
70937.07	B-5-1a	09/26/2013	Soil	1
70937.08	B-6-1	09/26/2013	Soil	1
70937.09	B-7-0.5	09/26/2013	Soil	1
70937.10	B-7-1	09/26/2013	Soil	1
Metho	od ^ Submethod	Req I	Date Prior	ity TAT Units

The samples were analyzed as specified on the enclosed chain of custody. No analytical non-conformances were encountered.

10/14/2013

		C. Raymana	
Checked By:	Approved By:	3	

Cyrus Razmara, Ph.D. Laboratory Director

mg/L



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Site

ANALYTICAL RESULTS

Ordered By

Group Delta Consultants

32 Mauchly Suite B

Irvine, CA 92618-

Telephone: (949)450-2100 Attn: Jack Packwood

Page: 2

Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Road/ US 101		

AETL Job Number Submitted Client 70937 10/02/2013 GROUP

Method: (6010B-STLC), Soluble Threshold Limit Concentration (STLC) QC Batch No: 1010132C1

		QO Daton III	J. 101010E01		
Our Lab I.D.			Method Blank		
Client Sample I.D.					
Date Sampled					
Date Prepared			10/10/2013		
Preparation Method			TITLE 22		
Date Analyzed			10/14/2013		
Matrix			Soil		
Units			mg/L		
Dilution Factor			1		
Analytes	MDL	PQL	Results		
Lead (STLC)	0.05	0.10	ND		



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ANALYTICAL RESULTS

Ordered By

Site

Group Delta Consultants

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Irvine, CA 92618-

Telephone: (949)450-2100 Attn: Jack Packwood

Page: 3

Project ID: LA-1143-2 Project Name: Palo Comado Chesebro Road/ US 101

AETL Job Number	Submitted	Client
70937	10/02/2013	GROUP

Method: (6010B-STLC), Soluble Threshold Limit Concentration (STLC)

QC Batch No: 1010132C1

Our Lab I.D.			70937.01	70937.02	70937.03	70937.04	70937.05
Client Sample I.D.			B-1-1	B-3-0.5	B-3-1a	B-4-0.5	B-4-1
Date Sampled			09/26/2013	09/26/2013	09/26/2013	09/26/2013	09/26/2013
Date Prepared			10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013
Preparation Method			TITLE 22				
Date Analyzed			10/14/2013	10/14/2013	10/14/2013	10/14/2013	10/14/2013
Matrix			Soil	Soil	Soil	Soil	Soil
Units			mg/L	mg/L	mg/L	mg/L	mg/L
Dilution Factor			10	10	10	10	10
Analytes	MDL	PQL	Results	Results	Results	Results	Results
Lead (STLC)	0.50	1.00	0.834J	ND	ND	0.972J	ND



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ANALYTICAL RESULTS

Ordered By

Group Delta Consultants

32 Mauchly Suite B

Irvine, CA 92618-

Telephone: (949)450-2100 Attn: Jack Packwood Page: 4

Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Road/ US 101

Site

AETL Job Number	Submitted	Client
70937	10/02/2013	GROUP

Method: (6010B-STLC), Soluble Threshold Limit Concentration (STLC)

QC Batch No: 1010132C1

Our Lab I.D.			70937.06	70937.07	70937.08	70937.09	70937.10
Client Sample I.D.			B-5-0.5	B-5-1a	B-6-1	B-7-0.5	B-7-1
Date Sampled			09/26/2013	09/26/2013	09/26/2013	09/26/2013	09/26/2013
Date Prepared			10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013
Preparation Method			TITLE 22				
Date Analyzed			10/14/2013	10/14/2013	10/14/2013	10/14/2013	10/14/2013
Matrix			Soil	Soil	Soil	Soil	Soil
Units			mg/L	mg/L	mg/L	mg/L	mg/L
Dilution Factor			10	10	10	10	10
Analytes	MDL	PQL	Results	Results	Results	Results	Results
Lead (STLC)	0.50	1.00	0.812J	ND	0.694J	1.09	ND



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QUALITY CONTROL RESULTS

Ordered By

Group Delta Consultants

32 Mauchly Suite B

Irvine, CA 92618-

Telephone: (949)450-2100 Attn: Jack Packwood Page: 5

Project ID: LA-1143-2
Project Name: Palo Comado

Chesebro Road/ US 101

Site

AETL Job Number Submitted Client
70937 10/02/2013 GROUP

Method: (6010B-STLC), Soluble Threshold Limit Concentration (STLC)

QC Batch No: 1010132C1; Dup or Spiked Sample: 70937.01; LCS: Clean Sand; LCS Prepared: 10/10/2013; LCS Analyzed: 10/14/2013; Units: mg/L

	SM	SM DUP	RPD	SM RPD	LCS	LCS	LCS	LCS/LCSD	
Analytes	Result	Result	%	% Limit	Concen	Recov	% REC	% Limit	
Lead (STLC)	0.834	0.760	9.3	<20	50.0	45.4	90.8	80-120	



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Data Qualifiers and Descriptors

Data Qualifier:

#; Recovery is not within acceptable control limits.

*: In the QC section, sample results have been taken directly from the ICP reading. No preparation factor has

been applied.

B: Analyte was present in the Method Blank.

D: Result is from a diluted analysis.

E: Result is beyond calibration limits and is estimated.

H: Analysis was performed over the allowed holding time due to circumstances which were beyond laboratory

control.

J: Analyte was detected. However, the analyte concentration is an estimated value, which is between the Method

Detection Limit (MDL) and the Practical Quantitation Limit (PQL).

M: Matrix spike recovery is outside control limits due to matrix interference. Laboratory Control Sample recovery

was acceptable.

MCL: Maximum Contaminant Level

NS: No Standard Available

S6: Surrogate recovery is outside control limits due to matrix interference.

S8: The analysis of the sample required a dilution such that the surrogate concentration was diluted below the

method acceptance criteria.

X: Results represent LCS and LCSD data.

Definition:

%Limi: Percent acceptable limits.

%REC: Percent recovery.

Con.L: Acceptable Control Limits

Conce: Added concentration to the sample.

LCS: Laboratory Control Sample

MDL: Method Detection Limit is a statistically derived number which is specific for each instrument, each method,

and each compound. It indicates a distinctively detectable quantity with 99% probability.



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Data Qualifiers and Descriptors

MS:

Matrix Spike

MS DU:

Matrix Spike Duplicate

ND:

Analyte was not detected in the sample at or above MDL.

PQL:

Practical Quantitation Limit or ML (Minimum Level as per RWQCB) is the minimum concentration that can

be quantified with more than 99% confidence. Taking into account all aspects of the entire analytical

instrumentation and practice.

Recov:

Recovered concentration in the sample.

RPD:

Relative Percent Difference

APPENDIX B Statistical Analysis of Lead Results

	A B C	D E	F	G H I J K	L
1		Normal UCL Sta	atistics for	Uncensored Full Data Sets	
2					
3	User Selected Options				
4	Date/Time of Computation	10/18/2013 1:38:48 PM			
5	From File	C:\Users\keving\Desktop\	Palo Coma	do Analytical Data\Palo Lead_101413.wst	
6	Full Precision	OFF			
7	Confidence Coefficient	95%			
8					
9	STLC				
10	West 0.0-0.5				
11					
12				Statistics	
13	I otal	Number of Observations	8		8
14				Number of Missing Observations	0
15		Minimum	0.5		2.378
16		Maximum	6.65		1.735
17		SD	2.094	1 1 39 1 1 1	0.883
18		Coefficient of Variation	0.881	Skewness	1.395
19					
20		• •		re collected using ISM approach, you should use	
21	= -	_		SM (ITRC, 2012) to compute statistics of interest.	
22				/shev UCL to estimate EPC (ITRC, 2012).	
23	Chebyshe	V UCL can be computed us	sing the No	nparametric and All UCL Options of ProUCL 5.0	
24			NI I -	2057	
25		Shaniya Wills Tank Chakinkia		GOF Test Shapiro Wilk GOF Test	
26		Shapiro Wilk Test Statistic hapiro Wilk Critical Value	0.846	Data appear Normal at 5% Significance Level	
27	5% 5	Lilliefors Test Statistic	0.616	Lilliefors GOF Test	
28	5	% Lilliefors Critical Value	0.231	Data appear Normal at 5% Significance Level	
29	3			t 5% Significance Level	
30		Data appea	i Nominai a	1 3 % Significance Level	
31		Δες	uming Nor	mal Distribution	
32	95% N	ormal UCL	annig 1401	95% UCLs (Adjusted for Skewness)	
33	55 /6 TW	95% Student's-t UCL	3.781	, ,	3.986
34		3370 Student S-t GOL	5.751		3.842
35				5575 MSS.MSS (55E (65MBSM 1576)	J.J 12
36			Suggested	UCL to Use	
37		95% Student's-t UCL	3.781		
38					
39	Note: Suggestions regard	ling the selection of a 95%	UCL are pr	ovided to help the user to select the most appropriate 95% UCL.	
40				mulation studies summarized in Singh, Singh, and laci (2002)	
41				ons results will not cover all Real World data sets.	
42				nay want to consult a statistician.	
43					
44					

	A B C	D E	F	G H I J K	L
1		Normal UCL Sta	atistics for l	Incensored Full Data Sets	
2					
3	User Selected Options	3			
4	Date/Time of Computation	10/18/2013 1:41:53 PM			
5	From File	C:\Users\keving\Desktop\	Palo Comad	do Analytical Data\Palo Lead_101413.wst	
6	Full Precision	OFF			
7	Confidence Coefficient	95%			
8					
9	STLC				
10	West 1.0-1.5				
11					
12			General	Statistics	
13	Total	Number of Observations	7	Number of Distinct Observations	4
14				Number of Missing Observations	0
15		Minimum	0.5	Mean	1.603
16		Maximum	7.69	Median	0.5
17		SD	2.687	SD of logged Data	1.001
18		Coefficient of Variation	1.677	Skewness	2.633
19			Į.		
20	Note: Sam	ple size is small (e.g., <10), if data are	e collected using ISM approach, you should use	
21	guidance pr	rovided in ITRC Tech Reg	Guide on IS	SM (ITRC, 2012) to compute statistics of interest.	
22	For	example, you may want to	use Cheby	shev UCL to estimate EPC (ITRC, 2012).	
23	Chebyshe	v UCL can be computed us	sing the No	nparametric and All UCL Options of ProUCL 5.0	
24					
25			Normal G	GOF Test	
26		Shapiro Wilk Test Statistic	0.49	Shapiro Wilk GOF Test	
27	5% S	hapiro Wilk Critical Value	0.803	Data Not Normal at 5% Significance Level	
28		Lilliefors Test Statistic	0.47	Lilliefors GOF Test	
29	5	% Lilliefors Critical Value	0.335	Data Not Normal at 5% Significance Level	
30		Data Not I	Normal at 5	% Significance Level	
31					
32		Ass	uming Norn	nal Distribution	
32	95% N	Ass ormal UCL	uming Norn	nal Distribution 95% UCLs (Adjusted for Skewness)	
	95% No		uming Norn 3.576	95% UCLs (Adjusted for Skewness) 95% Adjusted-CLT UCL (Chen-1995)	4.353
33	95% No	ormal UCL		95% UCLs (Adjusted for Skewness)	4.353 3.745
33 34	95% No	95% Student's-t UCL	3.576	95% UCLs (Adjusted for Skewness) 95% Adjusted-CLT UCL (Chen-1995) 95% Modified-t UCL (Johnson-1978)	
33 34 35		95% Student's-t UCL	3.576 Suggested	95% UCLs (Adjusted for Skewness) 95% Adjusted-CLT UCL (Chen-1995) 95% Modified-t UCL (Johnson-1978) UCL to Use	
33 34 35 36		95% Student's-t UCL	3.576 Suggested	95% UCLs (Adjusted for Skewness) 95% Adjusted-CLT UCL (Chen-1995) 95% Modified-t UCL (Johnson-1978)	
33 34 35 36 37	Data	95% Student's-t UCL 95% In the state of the	3.576 Suggested	95% UCLs (Adjusted for Skewness) 95% Adjusted-CLT UCL (Chen-1995) 95% Modified-t UCL (Johnson-1978) UCL to Use on, May want to try Nonparametric UCLs	
33 34 35 36 37 38	Data Note: Suggestions regard	95% Student's-t UCL 95% In the selection of a 95%	3.576 Suggested le Distributi UCL are pro	95% UCLs (Adjusted for Skewness) 95% Adjusted-CLT UCL (Chen-1995) 95% Modified-t UCL (Johnson-1978) UCL to Use on, May want to try Nonparametric UCLs evided to help the user to select the most appropriate 95% UCL.	
33 34 35 36 37 38 39	Data Note: Suggestions regard	95% Student's-t UCL 95% In the selection of a 95%	3.576 Suggested le Distributi UCL are pro	95% UCLs (Adjusted for Skewness) 95% Adjusted-CLT UCL (Chen-1995) 95% Modified-t UCL (Johnson-1978) UCL to Use on, May want to try Nonparametric UCLs	
33 34 35 36 37 38 39 40	Note: Suggestions regard These recommendatio	95% Student's-t UCL 95% Student's-t UCL a do not follow a Discernib	3.576 Suggested le Distributi UCL are pro	95% UCLs (Adjusted for Skewness) 95% Adjusted-CLT UCL (Chen-1995) 95% Modified-t UCL (Johnson-1978) UCL to Use on, May want to try Nonparametric UCLs evided to help the user to select the most appropriate 95% UCL.	
33 34 35 36 37 38 39 40 41	Note: Suggestions regard These recommendatio	95% Student's-t UCL 95% Student's-t UCL a do not follow a Discernib ding the selection of a 95% ns are based upon the result and Singh (2003). However	3.576 Suggested III UCL are products of the sire, simulation	95% UCLs (Adjusted for Skewness) 95% Adjusted-CLT UCL (Chen-1995) 95% Modified-t UCL (Johnson-1978) UCL to Use on, May want to try Nonparametric UCLs evided to help the user to select the most appropriate 95% UCL. mulation studies summarized in Singh, Singh, and laci (2002)	

	А	В	С	D	l E	l F	G	Н	<u> </u>	T 1	I K I	1			
1						Statistics for			ets	J 3	IX	L			
2															
3		User Sele	cted Options												
4	Da	te/Time of C	omputation	10/18/2013	1:43:30 PM										
5			From File	C:\Users\ke	ving\Deskto	o\Palo Coma	do Analytica	l Data\Palo L	.ead_101413	3.wst					
6		Fu	III Precision	OFF											
7		Confidence	Coefficient	95%											
8															
9	STLC														
10	West 0.0-1	.5													
11															
12							Statistics								
13			Total	Number of C	Observations	14					Observations	10			
14									Numbe	r of Missing (Observations	0			
15					Minimum						Mean	1.685			
16					Maximum						Median	0.823			
17					SD				SD of logged Data 0.89						
18				Coefficient	t of Variation	1.201					Skewness	2.376			
19															
20							GOF Test								
21				Shapiro Wilk			·								
22			5% S	hapiro Wilk C				Data No		_	nce Level				
23					Test Statistic			D-t- N-		GOF Test	11				
24			5	% Lilliefors C		0.237 t Normal at 5	O/ Cianifica		t Normai at	5% Significar	nce Level				
25					Data No	t Normai at t	o% Significat	ice Levei							
26					۸۵	suming Nor	mal Distribut	ion							
27			05% N	ormal UCL	As	Sulling Non	IIIai Distribut		LICLe (Adir	sted for Ske	wneee)				
28			90 /0 140		dent's-t UCL	2.643					(Chen-1995)	2.942			
29				33 % Old	dent 3-t OOL	2.040				ed-t UCL (Jo		2.701			
30												2.701			
31						Suggested	UCL to Use								
32			D	ata appear A	Approximate			try Loanorn	nal Distributi	ion					
33					P.F. 27		,	.,		1					
34		Note: Sugge	estions regard	ling the selec	ction of a 95%	6 UCL are pr	ovided to hel	p the user to	select the n	nost appropri	ate 95% UCL				
35	These recommendations are based upon the results of the simulation studies summerized in Singh, Singh, and Josi (2002)														
36 37				and Singh (2	•						. ,				
38				• ,	· ·	ht the user m									
38															
აყ															

	Α	В	С	D	Е		F	G	Н		ı		J	K		L
1					Normal U	CL S	tatistics for	Uncensored	l Full Da	ata Set	S					
2																
3		User Selec	·													
4	Dat	te/Time of Co	mputation	10/18/201	13 2:49:55	PM										
5			From File	WorkShe	et.xls											
6		Full	Precision	OFF												
7		Confidence C	Coefficient	95%												
8				•												
9	TTLC															
10	B-1 and B-2	2 0.0-0.5 ft														
11																
12								Statistics								
13			Total	Number o	f Observat	ions	3							Observations	_	
14											Numb	ber o	f Missing (Observations		
15					Minir		51.8							Mean		
16					Maxir		136							Median		
17						SD	45.08						SD of	logged Data		.502
18				Coefficie	ent of Varia	ation	0.533							Skewness	1.	.541
19																
20				-			·	re collected								
21		Ç	-			_		SM (ITRC, 2	-	-				!.		
22								yshev UCL t								
23			Chebyshe	/ UCL can	be compu	ited u	sing the No	nparametric	and Al	IUCL	Options	of Pı	roUCL 5.0			
24																
25								GOF Test								
26				Shapiro Wil			0.872				•		GOF Test			
27			5% S	hapiro Will			0.767		Data	appea			•	ance Level		
28					s Test Stat		0.327						OF Test			
29			5	% Lilliefors			0.512	- F0/ Oiifi-			r ivorma	ıı at s	5% Signific	ance Level		
30					Data a	appea	ar Normai a	t 5% Signific	ance L	evei						
31						۸۵۰	numina Non	mal Distribu	tion							
32			QE% N/	ormal UCL		700	sulling Noi		uon	05% 1		diuet	ed for Ske	wnoec)		
33			95 /6 140		tudent's-t	LICI	160.6				•	-		(Chen-1995)	152) 1
34				90 /0 3	raugiii 5-l	JUL	100.0							hnson-1978)		
35								1			J /U IVIOU	anicu			104	
36							Suggested	UCL to Use	<u> </u>							
37				95% S	student's-t		160.6	002 10 036	•							
38						J J L									<u></u>	
39				F	Recommen	nded l	UCL excee	ds the maxin	num ob	servatio	on					
40				<u> </u>	.5051111101					radi						
41	ı	Note: Sugges	tions regard	ling the sel	ection of a	95%	UCL are no	ovided to be	lp the u	ser to s	elect the	e mo	st appropri	iate 95% UCI	<u> </u>	
42			•	•				mulation stu								
43								ons results w								
44								nay want to c				,				
45				. 3.		او،۔۔		.,								
46																

	Α	В	С		D	Е		F	G		Н	I			J	K	(L	
1					No	ormal U	CL S	tatistics for	Uncensore	d Full (Data S	ets								
2																				
3			ected Options																	
4	Dat	te/Time of C	<u> </u>		10/18/2013 2:22:42 PM															
5			From File	C:\Us	C:\Users\keving\Desktop\Palo Comado Analytical Data\Palo Lead_101413.wst															
6			ıll Precision																	
7		Confidence	Coefficient	95%																
8																				
9	STLC																			
10	B-1 / B-2 0.	0-0.5 ft																		
11									0											
12			- -			.1			Statistics					(D:		<u> </u>		•		
13			lota	al Numb	er of O	bserva	tions	3								Observa		3		
14												Nι	ımber	of Mis	sing C	Observa		0		
15						Minii		2.57		Mean									.423	
16						Maxii		6.65				Median 4.								
17					· · ·		SD	2.065					SD of logged Data 0.476							
18				Coe	efficient	of Varia	ation	0.467								Skew	vness	0	.787	
19								a) is i .							•					
20							-		re collected											
21			-						SM (ITRC,	-		-			terest	•				
22									yshev UCL											
23			Chebyshe	ev UCL	can be	compu	uted (ising the No	onparametri	c and /	All UCL	_ Optio	ns of	ProUC	L 5.0					
24								Mannaal	005 T+											
25			Normal GOF Test Shapiro Wilk Test Statistic 0.975 Shapiro Wilk GOF Test																	
26		Shapiro Wilk Test Statistic 5% Shapiro Wilk Critical Value								Shapiro Wilk GOF Test Data appear Normal at 5% Significance Level										
27			5% 5					0.767		Lilliefors GOF Test										
28																				
29				3 /6 LIIII	eiois C			0.512	t 5% Signifi			ai NOI	IIIai a	1 3 % 31	griilic	ance Le	evei			
30						Data	appe	ai NOIIIIai a	t 3 /0 Olgillin	cance	Levei									
31							Δο	suming Nor	mal Distribu	ıtion										
32		95% Normal UCL							mal Distribution 95% UCLs (Adjusted for Skewness)											
33			007014			dent's-t	LICI	7.905								(Chen-1		6	.964	
34					0 101	~	JUL	7.000					•			hnson-1	,		.996	
35												30 /0 IV	.cam		_ (00)		.0,0)	,	.550	
36								Suggested	UCL to Use											
37				95	5% Stur	dent's-t	UCI	7.905		-										
38																				
39					Rec	comme	nded	UCL excee	ds the maxi	mum ດ	bserva	ition								
40																				
41	1	Note: Suaae	estions regard	rding the	e select	tion of a	95%	UCL are n	ovided to he	elp the	user to	select	the m	nost ap	propri	l ate 95%	6 UCL			
42		• • •	•	parding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. ations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)																
43					n and Singh (2003). However, simulations results will not cover all Real World data sets.															
44			9.						nay want to											
4-																				
45 46																				

	А В С	D E	F	G	Н	II	J	K		L		
1		Normal UCL St	atistics for l	Jncensored I	Full Data Set	s			•			
2												
3	User Selected Options											
4	Date/Time of Computation	10/18/2013 2:50:18 PM										
5	From File	WorkSheet.xls										
6	Full Precision OFF											
7	Confidence Coefficient	95%										
8												
9	TTLC											
10	B-1 and B-2 1.0-1.5 ft											
11												
12			General 3	Statistics								
13	Total	Number of Observations					Observatio		2			
14						Number	of Missing	Observatio	ns	0		
15		Minimum	24.8			an	55.9 55.9					
16		Maximum	87			Median						
17		SD	35.91		SD of logged Data 0							
18		Coefficient of Variation	0.642					Skewne	ss 3.	.142E-16		
19												
20		ple size is small (e.g., <10										
21		ovided in ITRC Tech Reg		<u> </u>				it.				
22		example, you may want to				-						
23	Chebyshev	UCL can be computed u	sing the No	nparametric	and All UCL (Options of F	ProUCL 5.0)				
24												
25			Normal C	GOF Test								
26	Shapiro Wilk Test Statistic 0.731 Shapiro Wilk GOF Test											
27	5% Shapiro Wilk Critical Value 0.748 Data Not Normal at 5% Significance Lev Lilliefors Test Statistic 0.307 Lilliefors GOF Test											
28		Lilliefors Test Statistic	0.307									
29	5'	% Lilliefors Critical Value	0.443		Data appea		5% Signific	cance Leve	· I			
30		Data appear Appr	oximate Noi	mal at 5% S	ignificance L	evel						
31		A		a a I Diadella di								
32	OFO/ No		suming Norn	nal Distributi		IOI = /A di	ata d fan Ok					
33	95% NO	ormal UCL	98.16			JCLs (Adjus			\E\	05.42		
34		95% Student's-t UCL	98.10			5% Adjusted			•	85.43		
35						95% Modifie	a-t UCL (Jo	onnson-197	8)	98.16		
36			Suggested	IICI to Use								
37		95% Student's-t UCL	98.16	OCL 10 086								
38		33 /0 Student S-t UCL	30.10									
39		Recommended I	ICI evened	e the mavim	um oheeneti	on						
40		Vecoumenaga (OOL EXCERC	o uie iliaxiiii	am opacivali	- T						
41	Note: Suggestions record	ing the selection of a 05%	IICL are pro	wided to hole	the user to a	elect the m	net annron	iate 05% U	ICI			
42		s regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. endations are based upon the results of the simulation studies summarized in Singh, Singh, and laci (2002)										
43		and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.										
44	and Singn	For additional insigh					ı uala SEIS.					
45		i or additional insign	it tile usel M	ay wani io co	niouit a StatiSi	uoiail.						
46												

	Α	В	С	D	Е	F	G	Н		J	K	L
1				N	ormal UCL S	tatistics for	Uncensored	Full Data S	ets			
2												
3		User Selec	cted Options									
4	Dat	e/Time of Co	omputation	10/18/2013	2:24:00 PM							
5			From File	C:\Users\ke	ving\Desktop	\Palo Coma	do Analytica	I Data\Palo L	_ead_101413	3.wst		
6		Ful	I Precision	OFF								
7		Confidence	Coefficient	95%								
8												
9	STLC											
10	B-1 and B-2	2 1.0-1.5 ft										
11												
12						General	Statistics					
13			Total	Number of C	bservations	2				of Distinct C		2
14									Number	of Missing C	bservations	0
15					Minimum	0.834					Mean	4.262
16					Maximum	7.69					Median	4.262
17												
18						nis data set o						
19			Dat		mall to comp					ates!		
20					The data set	for variable	C24 was no	ot processed	!			
21												
22					ect at least 8			-				
23		If po	ossible, com	pute and col	lect Data Qu	ality Objecti	ves (DQO) l	based samp	le size and a	nalytical res	ults.	
24												
25												

	А	В	С	D	Е	F	G	Н	1	Т.	J	K	L
1				No	rmal UCL S	tatistics for	Uncensored	Full Data	Sets		•		
2													
3			ected Options										
4	Dat	e/Time of C	computation	10/18/2013 1									
5			From File	C:\Users\kev	ing\Desktop	\Palo Coma	do Analytical	Data\Palo	Lead_1014	413.wst			
6			III Precision	OFF									
7	1	Confidence	Coefficient	95%									
8													
9	STLC												
10	B-1 and B-2	0.0-1.5											
11						General	Statistics						
12			Total	Number of Ob	servations	5	Clausiics		Num	her of Dis	tinct Oh	servations	5
13			Total	Trumber of Ot	osci valions							servations	0
14					Minimum	0.83			- Traini		ong ob	Mean	4.358
15					Maximum	7.69						Median	4.05
16					SD	2.833				;	SD of lo	gged Data	0.896
17				Coefficient of	of Variation	0.65						Skewness	-0.0114
18													
19 20			Note: Sam	ple size is sm	all (e.g., <1	0), if data a	e collected ι	ısing ISM	approach, y	ou shoul	d use		
21			guidance pr	ovided in ITR	C Tech Reg	Guide on I	SM (ITRC, 2	012) to co	mpute stati	stics of in	terest.		
22			For e	example, you	may want to	use Cheb	shev UCL to	estimate	EPC (ITRO	c, 2012).			
23			Chebyshev	/ UCL can be	computed u	sing the No	nparametric	and All U	CL Options	of ProUC	L 5.0		
24													
25						Normal	GOF Test						
26				hapiro Wilk Te		0.958			•	Wilk GOF			
27			5% SI	hapiro Wilk Cr		0.762		Data ap	pear Norma		-	ce Level	
28				Lilliefors Te		0.191				ors GOF T			
29			5	% Lilliefors Cr		0.396			pear Norma	al at 5% Si	ignifican	ce Level	
30					Data appea	ar Normal a	t 5% Signific	ance Leve)I				
31					Λο.	oumina Non	mal Distribut	lon					
32			95% No	ormal UCL	V2	summy Nor			% UCLs (A	diveted fo	r Skowi	10cc)	
33			30 /0 140		ent's-t UCL	7.059						hen-1995)	6.435
34					CITTO TOOL	7.000					•	son-1978)	7.057
35									2370 10100		_ (001111		,,
36						Suggested	UCL to Use						
37 38				95% Stude	ent's-t UCL	7.059							
38							1						
03					<u> </u>								
4∩	N	Note: Sugge	estions regard	ling the selecti	on of a 95%	UCL are pr	ovided to hel	p the user	to select the	e most ap	propriate	e 95% UCL	
40 41	N			ling the selecti				•					
41	N		commendation		ipon the res	ults of the s	mulation stud	dies summ	arized in Si	ngh, Singl	h, and la		
41 42	N		commendation	ns are based u and Singh (20	ipon the res	ults of the si	mulation stud	dies summ	arized in Si r all Real W	ngh, Singl	h, and la		
41	1		commendation	ns are based u and Singh (20	ipon the res	ults of the si	mulation stud	dies summ	arized in Si r all Real W	ngh, Singl	h, and la		
41 42 43	, n	These rec	commendation and Singh	ns are based u and Singh (20	ipon the res 003). Howev	ults of the s er, simulation t the user n	mulation stud ons results wi nay want to c	dies summ Il not cove onsult a st	arized in Si r all Real W atistician.	ngh, Singl	h, and la	aci (2002)	
41 42 43 44		These rec	and Singh	ns are based u and Singh (20 For add	upon the res 103). Howev itional insigh data, confid	ults of the s er, simulation that the user n	mulation studens results with may want to continue (e.g., Chen,	dies summ Il not cove onsult a st	r all Real Watistician.	ngh, Singl orld data	h, and la sets.	aci (2002)	

	А	В	С	D	E	F	G	Н	ı	J	K	L
1			•	Norma	UCL S	tatistics for	Uncensored	Full Data Se	ts			
2												
3		User Sele	cted Options									
4	Dat	e/Time of Co	omputation	10/18/2013 2:50:	40 PM							
5			From File	WorkSheet.xls								
6		Ful	II Precision	OFF								
7		Confidence	Coefficient	95%								
8												
9	TTLC											
10	B-1 and B-2	2 2.0-2.5 ft										
11												
12							Statistics					
13			Total	Number of Obser	vations	4				er of Distinct C		
14									Numbe	r of Missing C		
15					inimum	10.8					Mear	
16				Ma	ximum	46.3					Mediar	
17					SD	20.5				SD of	logged Data	
18				Coefficient of V	ariation	0.718					Skewness	5.634E-16
19												
20				ple size is small (
21			-	ovided in ITRC To	_		=					
22				example, you may								
23			Chebysnev	/ UCL can be com	iputea u	ISING THE NO	nparametric	and All UCL	Options of	ProuCL 5.0		
24						Normal (GOF Test					
25			\$	hapiro Wilk Test S	Statistic	0.731	1631		Shaniro W	ilk GOF Test		
26				hapiro Wilk Critica		0.748			•	5% Significan		
27				Lilliefors Test S		0.307		Data Not		GOF Test		
28			5	% Lilliefors Critica		0.443		Data appe		at 5% Significa	ance Level	
29							rmal at 5% S	Significance L				
30								-				
31					Ass	suming Nor	mal Distribut	tion				
33			95% No	ormal UCL					UCLs (Adju	usted for Ske	wness)	
34				95% Student's	s-t UCL	52.67		9	5% Adjuste	ed-CLT UCL (Chen-1995	45.41
35								!	95% Modifi	ed-t UCL (Joh	nnson-1978	52.67
36												
37						Suggested	UCL to Use					
38				95% Student's	s-t UCL	52.67						
39							1					1
40				Recomn	nended	UCL excee	ds the maxin	num observat	ion			
								1				
41	1	Note: Sugges	stions regard	ling the selection o	of a 95%	UCL are pr	ovided to hel	lp the user to	select the n	nost appropria	ate 95% UC	L.
41 42	1		_			•		•				L.
41 42 43	1		ommendation	ling the selection o	the res	ults of the si	mulation stud	dies summari	zed in Sing	h, Singh, and		L.
41 42	1		ommendation	ling the selection on are based upor and Singh (2003)	the res	ults of the si er, simulation	imulation students with the st	dies summari	zed in Sing I Real Worl	h, Singh, and		L.

	Α	В	С	D	Е	F	G	Н	I	J	K	ı
1	Α						Uncensored		Sets			
2												
3			cted Options									
4	Dat	te/Time of Co		10/18/2013 2								
5				WorkSheet.>	ds							
6			II Precision	OFF								
7		Confidence	Coefficient	95%								
8	TTLO											
9	TTLC B-3 through	B-7 0 0-0 5	: (1									
10	B-3 tillough	1 6-7 0.0-0.3	, it									
11						General	Statistics					
12 13			Total	Number of O	bservations	5			Numbe	r of Distinct C	Observations	5
14									Numbe	r of Missing C	Observations	0
15					Minimum	8.87					Mean	36.15
16					Maximum	61					Median	38.9
17					SD	19.68				SD of	logged Data	0.749
18				Coefficient	of Variation	0.544					Skewness	-0.275
19												
20			-			•			ipproach, you			
21			-		_		-	-	npute statistic		L	
22									EPC (ITRC, 2			
23			Chebyshev	UCL can be	computed u	using the No	nparametric	and All UC	L Options of	ProUCL 5.0		
24						Normal (GOF Test					
25			Si	napiro Wilk T	est Statistic	0.993	JOF Test		Shaniro Wi	ilk GOF Test	<u> </u>	
26				napiro Wilk C		0.762		Data apr	pear Normal a			
27				•	est Statistic	0.155				GOF Test		
28			5	% Lilliefors C	ritical Value	0.396		Data app	ear Normal a	t 5% Signific	ance Level	
30					Data appe	ar Normal a	t 5% Signific	ance Level				
31												
32					As	suming Nor	mal Distribut	ion				
33			95% No	rmal UCL				95%	% UCLs (Adjւ	sted for Ske	wness)	
34				95% Stud	lent's-t UCL	54.92					(Chen-1995)	49.48
35									95% Modifi	ed-t UCL (Jo	hnson-1978)	54.74
36												
37				050/ 0:	I		UCL to Use					
38				95% Stud	lent's-t UCL	54.92		I			_	
39	, ,	Note: Sugar	etione regard	ing the select	tion of a 05%	IICL ara re	ovided to be	n the user t	o salost the s	noet appropri	iate 95% UCL	
40	ľ		ommendation					•				•
41		111030 100							all Real Worl			
42			and onigh				nay want to c					
43				. 5. 24			,					
44 45		Note: For	highly negat	ively-skewed	l data, confi	dence limits	(e.g., Chen,	Johnson, I	_ognormal, a	nd Gamma)	may not be	
46			reliable.	Chen's and J	ohnson's me	ethods provi	de adjustme	nts for posi	itvely skewed	l data sets.		
47												
7/												

	A B C	D E	F	G H I J K	L
1		Normal UCL Sta	atistics for	Uncensored Full Data Sets	
2					
3	User Selected Options				
4	Date/Time of Computation	10/18/2013 2:27:18 PM			
5	From File	C:\Users\keving\Desktop\	Palo Coma	do Analytical Data\Palo Lead_101413.wst	
6	Full Precision	OFF			
7	Confidence Coefficient	95%			
8					
9	STLC				
10	B-3 through B-7 0.0-0.5 ft				
11					
12				Statistics	
13	I otal	Number of Observations	5	Number of Distinct Observations	5
14				Number of Missing Observations	0
15		Minimum	0.5	Mean	1.151
16		Maximum	2.38	Median	0.972
17		SD	0.722	SD of logged Data	0.567
18		Coefficient of Variation	0.627	Skewness	1.702
19					
20		•	*	e collected using ISM approach, you should use	
21	= -	_		SM (ITRC, 2012) to compute statistics of interest.	
22			-	rshev UCL to estimate EPC (ITRC, 2012).	
23	Cnebysne	V UCL can be computed us	sing the No	nparametric and All UCL Options of ProUCL 5.0	
24			Normal (GOF Test	
25	C	Shapiro Wilk Test Statistic	0.831	Shapiro Wilk GOF Test	
26		hapiro Wilk Critical Value	0.831	Data appear Normal at 5% Significance Level	
27	3/03	Lilliefors Test Statistic	0.702	Lilliefors GOF Test	
28		% Lilliefors Critical Value	0.396	Data appear Normal at 5% Significance Level	
29	<u> </u>			5% Significance Level	
30		Бака арреа	i Nomiai a	5% Significance Level	
31		Δες	umina Nori	nal Distribution	
32	95% N	ormal UCL		95% UCLs (Adjusted for Skewness)	
33	3070111	95% Student's-t UCL	1.839	95% Adjusted-CLT UCL (Chen-1995)	1.944
34				95% Modified-t UCL (Johnson-1978)	1.88
35				33 (33	
36			Suggested	UCL to Use	
37		95% Student's-t UCL	1.839		
38 39		-			
40	Note: Suggestions regard	ling the selection of a 95%	UCL are pr	povided to help the user to select the most appropriate 95% UCL.	
41			-	mulation studies summarized in Singh, Singh, and laci (2002)	
42				ns results will not cover all Real World data sets.	
43				ay want to consult a statistician.	
44					

	A B C	D E	F	G H I J K	L
1		Normal UCL St	atistics for	Uncensored Full Data Sets	
2					
3	User Selected Options				
4	Date/Time of Computation	10/18/2013 2:52:56 PM			
5	From File	WorkSheet.xls			
6	Full Precision	OFF			
7	Confidence Coefficient	95%			
8					
9	TTLC				
10	B-3 through B-7 1.0-1.5 ft				
11					
12		_	General	Statistics	
13	Total	Number of Observations	7	Number of Distinct Observations	7
14				Number of Missing Observations	0
15		Minimum	6.14	Mean	11.57
16		Maximum	24.6	Median	11.1
17		SD	6.462	SD of logged Data	0.495
18		Coefficient of Variation	0.558	Skewness	1.61
19					
20		• •	•	e collected using ISM approach, you should use	
21		_		SM (ITRC, 2012) to compute statistics of interest.	
22			-	shev UCL to estimate EPC (ITRC, 2012).	
23	Chebyshev	/ UCL can be computed us	sing the No	nparametric and All UCL Options of ProUCL 5.0	
24					
25				GOF Test	
26		Shapiro Wilk Test Statistic	0.821	Shapiro Wilk GOF Test	
27	5% S	hapiro Wilk Critical Value	0.803	Data appear Normal at 5% Significance Level	
28		Lilliefors Test Statistic	0.237	Lilliefors GOF Test	
29	5	% Lilliefors Critical Value	0.335	Data appear Normal at 5% Significance Level	
30		Data appea	r Normal at	5% Significance Level	
31					
32			uming Nori	nal Distribution	
33	95% No	ormal UCL		95% UCLs (Adjusted for Skewness)	
34		95% Student's-t UCL	16.32	95% Adjusted-CLT UCL (Chen-1995)	17.18
35				95% Modified-t UCL (Johnson-1978)	16.57
36					
37				UCL to Use	
38		95% Student's-t UCL	16.32		
39	N. O	p			
40			-	ovided to help the user to select the most appropriate 95% UCL.	
41				mulation studies summarized in Singh, Singh, and laci (2002)	
42	and Singh			ns results will not cover all Real World data sets.	
43		For additional insigh	t the user m	ay want to consult a statistician.	
44					

	A B C	DE	F	G	н	1	J		K	L	
1	•	Normal UCL St	atistics for	Uncensored	Full Data Sets		•				
2											
3	User Selected Options										
4	Date/Time of Computation	10/18/2013 2:28:06 PM									
5	From File	C:\Users\keving\Desktop\	Palo Coma	do Analytical	Data\Palo Lea	d_101413	3.wst				
6	Full Precision	OFF									
7	Confidence Coefficient	95%									-
8											
9	STLC										
10	B-3 through B-7 1.0-1.5 ft										
11											
12			General	Statistics							
13	Total	Number of Observations	5			Numbe	r of Distinct	Observ	ations	2	
14						Number	of Missing	Observ	ations	0	
15		Minimum	0.5						Mean	0.5	539
16		Maximum	0.694					N	ledian	0.5	5
17		SD	0.0868				SD	of logge	d Data	0.1	147
18		Coefficient of Variation	0.161					Ske	wness	2.2	236
19				Į.							
20	Note: Sam	ple size is small (e.g., <10), if data ar	e collected u	sing ISM appr	oach, you	ı should us	е			
21	guidance pr	ovided in ITRC Tech Reg	Guide on I	SM (ITRC, 20	012) to comput	e statistic	cs of intere	st.			
22	For	example, you may want to	use Cheby	shev UCL to	estimate EPC	(ITRC, 2	2012).				
23	Chebyshev	/ UCL can be computed us	sing the No	nparametric	and All UCL O	ptions of	ProUCL 5.	0			
24											
25			Normal (GOF Test							
26	S	hapiro Wilk Test Statistic	0.552		SI	napiro Wi	lk GOF Te	st			
27	5% S	hapiro Wilk Critical Value	0.762		Data Not N	ormal at §	5% Signific	ance Le	vel		
28		Lilliefors Test Statistic	0.473			Lilliefors	GOF Test				
29	5	% Lilliefors Critical Value	0.396		Data Not N	ormal at §	5% Signific	ance Le	vel		
30		Data Not I	Normal at 5	% Significan	ice Level						
31											
32			uming Nori	mal Distributi							
33	95% No	ormal UCL				• •	sted for Sk		-		
34		95% Student's-t UCL	0.622				ed-CLT UC				644
35					95	% Modifie	ed-t UCL (J	lohnson-	-1978)	0.6	628
36						•					
37				UCL to Use							
38	Data	a do not follow a Discernib	le Distribut	ion, May waı	nt to try Nonpa	rametric I	UCLs				
39											
40		ling the selection of a 95%	-								
41		ns are based upon the resu						•	2002)		
42	and Singh	and Singh (2003). Howeve					d data sets	-			
43		For additional insigh	t the user m	ay want to co	onsult a statistic	cian.					

	А	В	ГС	D	l E	l F	G	Н	1 1	 	K	1 1
1		Ь				Statistics for			ets	<u> </u>	IX	L
2												
3		User Sele	cted Options									
4	Da	te/Time of C	omputation	10/18/2013	1:45:27 PM							
5			From File	C:\Users\ke	ving\Deskto	o\Palo Coma	do Analytica	l Data\Palo I	_ead_10141;	3.wst		
6		Fu	III Precision	OFF								
7		Confidence	Coefficient	95%								
8												
9	STLC											
10		n B-7 0.0-1.	.5 ft									
11												
12						General	Statistics					
13			Total	Number of C	Observations	10			Numbe	er of Distinct (Observations	6
14									Numbe	r of Missing (Observations	0
15					Minimum	0.5					Mean	0.845
16					Maximum	2.38					Median	0.597
17					SD	0.582				SD of	logged Data	0.513
18				Coefficien	t of Variation	0.689					Skewness	2.411
19												
20							GOF Test					
21				Shapiro Wilk					•	ilk GOF Test		
22			5% S	hapiro Wilk C				Data No		5% Significar	nce Level	
23					Test Statistic					GOF Test		
24			5	% Lilliefors C						at 5% Signific	ance Level	
25				Data	appear App	roximate No	rmal at 5% S	Significance	Level			
26												
27			0E0/ N		As	suming Nor	mai Distribut		1101 - (4 4)			
28			95% NO	ormal UCL	-111	1 100				usted for Ske		1 200
29				95% Stu	dent's-t UCL	1.182					(Chen-1995)	1.298
30									90 % IVIOUITI	ed-t UCL (Jo	11115011-1978)	1.206
31						Suggested	UCL to Use					
32				95% \$+11	dent's-t UCL	1.182	OCL IO USE				1	
33				93 /0 SIU	ueni 3-l UCL	1.102						
34		Note: Sugge	etione regard	ling the selec	rtion of a QEO	6 LICL are pr	ovided to bol	n the user to	select the n	nost appropri	ate 95% UCL	
35			commendation									·-
36				and Singh (2							301 (2002)	
37			and omign	- :	•	ht the user m						
38				1 01 44		0.0 0001 11	,	J. IOGIL G OLGI				
39												

	A B C	D E	F	G H I J K	L
1		Normal UCL Sta	atistics for	Uncensored Full Data Sets	
2					
3	User Selected Options				
4	Date/Time of Computation	10/18/2013 2:54:02 PM			
5	From File	WorkSheet.xls			
6	Full Precision	OFF			
7	Confidence Coefficient	95%			
8					
9	TTLC				
10	B-3 through B-7 2.0-2.5 ft				
11					
12	-			Statistics	
13	lotai	Number of Observations	5	Number of Distinct Observations	5
14		N4: :	4.40	Number of Missing Observations	0
15		Minimum	4.18	Mean	6.072
16		Maximum	10.6	Median	5.15 0.378
17		SD SD	2.646	SD of logged Data	
18		Coefficient of Variation	0.436	Skewness	1.797
19	Note: Com	nle sine is small (s.g. <10	\ if dots or	a collected using ICM approach, you should use	
20		•	•	e collected using ISM approach, you should use SM (ITRC, 2012) to compute statistics of interest.	
21	= -	_		rshev UCL to estimate EPC (ITRC, 2012).	
22			-	nparametric and All UCL Options of ProUCL 5.0	
23	Chebyshe	OCL can be computed us	sing the NO	inparametric and Air OCL Options of P1000L 3.0	
24			Normal (GOF Test	
25	S	Shapiro Wilk Test Statistic	0.788	Shapiro Wilk GOF Test	
26		hapiro Wilk Critical Value	0.762	Data appear Normal at 5% Significance Level	
27		Lilliefors Test Statistic	0.294	Lilliefors GOF Test	
28 29	5	% Lilliefors Critical Value	0.396	Data appear Normal at 5% Significance Level	
30		Data appea	r Normal at	5% Significance Level	
31					
32		Ass	uming Nori	nal Distribution	
33	95% No	ormal UCL		95% UCLs (Adjusted for Skewness)	
34		95% Student's-t UCL	8.595	95% Adjusted-CLT UCL (Chen-1995)	9.035
35				95% Modified-t UCL (Johnson-1978)	8.753
36				-1	
37			Suggested	UCL to Use	
38		95% Student's-t UCL	8.595		
39					
40			-	ovided to help the user to select the most appropriate 95% UCL.	
41				mulation studies summarized in Singh, Singh, and laci (2002)	
42	and Singh			ns results will not cover all Real World data sets.	
43		For additional insight	t the user m	ay want to consult a statistician.	
44					

	А В С	D E	F	G H I J K	L
1		Normal UCL Sta	atistics for	Uncensored Full Data Sets	
2					
3	User Selected Options				
4	Date/Time of Computation	10/18/2013 1:46:14 PM			
5	From File	C:\Users\keving\Desktop\	Palo Coma	do Analytical Data\Palo Lead_101413.wst	
6	Full Precision	OFF			
7	Confidence Coefficient	95%			
8					
9	STLC				
10	East 0.0-0.5				
11				0	
12	Tatal	Number of Observations		Statistics	4
13	lotai	Number of Observations	7	Number of Distinct Observations	4
14		B. dississesses	0.5	Number of Missing Observations	0
15		Minimum	0.5 8.82	Mean	3.76 0.5
16		Maximum SD	4.089	Median CD of Legand Date	1.489
17		Coefficient of Variation	1.088	SD of logged Data	
18		Coefficient of variation	1.088	Skewness	0.418
19	Noto: Sam	nlo sizo is small (o.g. <10	\ if data ar	e collected using ISM approach, you should use	
20		• •	•	SM (ITRC, 2012) to compute statistics of interest.	
21		_		rshev UCL to estimate EPC (ITRC, 2012).	
22			-	nparametric and All UCL Options of ProUCL 5.0	
23		. 002 0411 20 0011 pation at	Jg		
24			Normal (GOF Test	
25	S	Shapiro Wilk Test Statistic	0.715	Shapiro Wilk GOF Test	
26		hapiro Wilk Critical Value	0.803	Data Not Normal at 5% Significance Level	
27 28		Lilliefors Test Statistic	0.359	Lilliefors GOF Test	
29	5	i% Lilliefors Critical Value	0.335	Data Not Normal at 5% Significance Level	
30		Data Not I	Normal at 5	i% Significance Level	
31					
32		Ass	uming Nori	mal Distribution	
33	95% No	ormal UCL		95% UCLs (Adjusted for Skewness)	
34		95% Student's-t UCL	6.763	95% Adjusted-CLT UCL (Chen-1995)	6.563
35				95% Modified-t UCL (Johnson-1978)	6.804
36				<u> </u>	
37				UCL to Use	
38	Data	a do not follow a Discernib	le Distribut	ion, May want to try Nonparametric UCLs	
39					
40				ovided to help the user to select the most appropriate 95% UCL.	
41				mulation studies summarized in Singh, Singh, and laci (2002)	
42	and Singh			ns results will not cover all Real World data sets.	
43		For additional insight	t the user m	ay want to consult a statistician.	
44					

	А В С	D E	F	G H I J K	L
1		Normal UCL Sta	atistics for	Uncensored Full Data Sets	
2					
3	User Selected Options				
4	Date/Time of Computation	10/18/2013 1:46:58 PM			
5	From File	C:\Users\keving\Desktop\	Palo Coma	do Analytical Data\Palo Lead_101413.wst	
6	Full Precision	OFF			
7	Confidence Coefficient	95%			
8					
9	STLC				
10	East 1.0-1.5				
11				0	
12	Tatal	North and Observations		Statistics	4
13	lotai	Number of Observations	8	Number of Distinct Observations	4
14		K 411	0.5	Number of Missing Observations	0
15		Minimum	0.5 15.5	Mean	3.308 0.5
16		Maximum SD	5.208	Median	1.388
17		Coefficient of Variation	1.575	SD of logged Data Skewness	
18		Coefficient of variation	1.5/5	Skewness	2.298
19	Noto: Sam	nlo sizo is small (o.g. <10	\ if data a	e collected using ISM approach, you should use	
20		•	•	SM (ITRC, 2012) to compute statistics of interest.	
21		_		/shev UCL to estimate EPC (ITRC, 2012).	
22			-	nparametric and All UCL Options of ProUCL 5.0	
23		. COL cuii so compatou u	Jg 1.10 1.10		
24			Normal (GOF Test	
25	S	hapiro Wilk Test Statistic	0.63	Shapiro Wilk GOF Test	
26		hapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level	
27 28		Lilliefors Test Statistic	0.33	Lilliefors GOF Test	
29	5	% Lilliefors Critical Value	0.313	Data Not Normal at 5% Significance Level	
30		Data Not I	Normal at 5	i% Significance Level	
31					
32		Ass	uming Nor	mal Distribution	
33	95% No	ormal UCL		95% UCLs (Adjusted for Skewness)	
34		95% Student's-t UCL	6.796	95% Adjusted-CLT UCL (Chen-1995)	7.934
35				95% Modified-t UCL (Johnson-1978)	7.045
36					
37				UCL to Use	
38	Data	a do not follow a Discernib	le Distribut	ion, May want to try Nonparametric UCLs	
39					
40				ovided to help the user to select the most appropriate 95% UCL.	
41				mulation studies summarized in Singh, Singh, and laci (2002)	
42	and Singh			ons results will not cover all Real World data sets.	
43		For additional insight	t the user m	nay want to consult a statistician.	
44					

	А	В	С	D	l E	l F	G	Н	<u> </u>	 	l ĸ l	1
1						Statistics for			ets		IX	<u> </u>
2												
3		User Sele	cted Options									
4	Da	te/Time of Co	omputation	10/18/2013	1:47:48 PM							
5			From File	C:\Users\ke	ving\Deskto	o\Palo Coma	do Analytica	l Data\Palo L	_ead_101413	3.wst		
6		Fu	II Precision	OFF								
7		Confidence	Coefficient	95%								
8				1								
9	STLC											
10	East 0.0-1.	5										
11												
12							Statistics					
13			Total	Number of C	Observations	16					Observations	7
14									Number	r of Missing (Observations	0
15					Minimum						Mean	3.33
16					Maximum						Median	0.5
17					SD					SD of	logged Data	1.368
18				Coefficien	t of Variation	1.342					Skewness	1.64
19												
20							GOF Test					
21				hapiro Wilk				5 · N	•	ilk GOF Test		
22			5% S	hapiro Wilk C				Data No		5% Significar	nce Level	
23					Test Statistic			D-t- N-		GOF Test	11	
24			5	% Lilliefors C		0.222 t Normal at 5	O/ Cianifica		ot Normai at :	5% Significar	nce Level	
25					Data No	t Normai at t	o% Significat	nce Level				
26					۸۵	suming Nor	mal Distribut	tion				
27			05% N/	ormal UCL	As	Sulling Non	IIIai Distribut		LICLe (Adiu	sted for Ske	wneee)	
28			35 /0 INC		dent's-t UCL	5.288					(Chen-1995)	5.657
29						0.200					hnson-1978)	5.365
30									55 /5 WIGGIII			0.000
31						Suggested	UCL to Use					
32			Data	a do not follo	w a Discern	ible Distribut			parametric	UCLs		
33							,		,	-		
34		Note: Sugae	stions regard	ling the selec	ction of a 95%	6 UCL are pr	ovided to hel	lp the user to	select the n	l nost appropri	ate 95% UCL	
35			ommendation									
36 37					-	ver, simulatio					. ,	
38				• •	· ·	ht the user m						
39												
১৪												

	А В С	D E	F	G H I J K	L
1		Normal UCL St	atistics for	Uncensored Full Data Sets	
2					
3	User Selected Options				
4	Date/Time of Computation	10/18/2013 2:57:52 PM			
5	From File	WorkSheet.xls			
6	Full Precision	OFF			
7	Confidence Coefficient	95%			
8					
9	TTLC				
10	B-8 thorugh B-11 0.0-0.5 ft				
11					
12				Statistics	
13	Total	Number of Observations	4	Number of Distinct Observations	4
14				Number of Missing Observations	0
15		Minimum	5.17	Mean	16.97
16		Maximum	32.5	Median	15.1
17		SD	12.31	SD of logged Data	0.821
18		Coefficient of Variation	0.726	Skewness	0.613
19					
20		• •	•	e collected using ISM approach, you should use	
21		=		SM (ITRC, 2012) to compute statistics of interest.	
22			-	shev UCL to estimate EPC (ITRC, 2012).	
23	Chebyshev	/ UCL can be computed us	sing the No	nparametric and All UCL Options of ProUCL 5.0	
24					
25				GOF Test	
26		hapiro Wilk Test Statistic	0.945	Shapiro Wilk GOF Test	
27	5% S	hapiro Wilk Critical Value	0.748	Data appear Normal at 5% Significance Level	
28		Lilliefors Test Statistic	0.233	Lilliefors GOF Test	
29	5	% Lilliefors Critical Value	0.443	Data appear Normal at 5% Significance Level	
30		рата арреа	ir Normai a	5% Significance Level	
31		A = -		and Distribution	
32	OEM No	ormal UCL	summing NON	nal Distribution 95% UCLs (Adjusted for Skewness)	
33	95% NO	95% Student's-t UCL	31.45	95% OCLs (Adjusted for Skewness) 95% Adjusted-CLT UCL (Chen-1995)	29.11
34		35 /o Student S-t UCL	31.45	95% Adjusted-CLT UCL (Chen-1995) 95% Modified-t UCL (Johnson-1978)	31.77
35				35 % Woodined-t OCE (JOHNSON-1978)	31.77
36			Suggested	UCL to Use	
37		95% Student's-t UCL	31.45	001.0 000	
38		33 /0 Gludelit S-t OCL	J1.4J		
39	Note: Suggestions regard	ling the selection of a 95%	UCL are nr	ovided to help the user to select the most appropriate 95% UCL.	
40			-	mulation studies summarized in Singh, Singh, and laci (2002)	
41				ns results will not cover all Real World data sets.	
42	and Singin			ay want to consult a statistician.	
43		i oi additional malgin	cuio usei II	a, man to consult a statistician.	
44					

	Α	В	С	D	E	F	G	Н	I	J	K	L
1				No	rmal UCL S	Statistics for	Uncensored	Full Data S	ets			
2												
3		User Sele	cted Options									
4	Da	te/Time of Co		10/18/2013 2								
5			From File	C:\Users\kev	/ing\Deskto	p\Palo Coma	do Analytica	l Data\Palo L	_ead_101413	3.wst		
6			II Precision	OFF								
7		Confidence	Coefficient	95%								
8												
9	STLC											
10	B-8 through	h B-11 0.0-0.	.5 ft									
11												
12						0.01.01.01	Statistics					
13			Tota	Number of O	bservations	4				r of Distinct C		1
14									Numbe	r of Missing C		0
15					Minimum						Mean	0.5
16					Maximum	0.5					Median	0.5
17												
18			Warning:	There is only						0' variance!		
19				•			ould not be u					
20				Th	e data set f	or variable 8	-11 0.5 was	not process	ea!			
21			14.		-114-41					. all - l		
22		16		uggested to c								
23		•		pute and colle						<u> </u>		
24		i ne Project	ı eam may d	ecide to use a	nternative s	site specific v	raiues to est	iiilate enviro	nimentai pai	ameters (e.g	j., EPC, BTV)	•
25												
26												

	Α	В	С	D	E		F	G	Н		ı		J	K		L
1					Normal U	JCL S	tatistics for	Uncensored	Full Dat	a Sets	3					
2																
3			cted Options	3												
4	Dat	te/Time of C	omputation	10/18/201	13 2:58:31	PM										
5			From File	WorkShe	et.xls											
6		Fu	II Precision	OFF												
7		Confidence	Coefficient	95%												
8																
9	TTLC															
10	B-8 thorugh	B-11 1.0-1.	.5 ft													
11																
12								Statistics								
13			Total	Number o	f Observa	tions	4							Observations		4
14											Numb	er of I	Missing (Observations		0
15					Mini	mum	2.5							Mean		7.255
16					Maxi	mum	12.7							Median		6.91
17						SD	4.877						SD of	logged Data		0.772
18				Coefficie	ent of Var	iation	0.672							Skewness	(0.197
19																
20				-	•	_		re collected								
21			-			_		SM (ITRC, 2		-						
22								yshev UCL t								
23			Chebyshe	v UCL can	be comp	uted u	sing the No	onparametric	and All	UCL C	options o	of Pro	UCL 5.0			
24																
25								GOF Test								
26				Shapiro Will			0.906				-		OF Test			
27			5% S	hapiro Wilk			0.748		Data a	appeai			•	ance Level		
28					s Test Sta		0.258				Lilliefor					
29			5	% Lilliefors			0.443	1 F0/ Olifi-			Normal	1 at 5%	Signific	ance Level		
30					Data	appea	ar Normai a	t 5% Signific	ance Le	vei						
31						۸۵۰	numina Nor	mal Distribu	tion							
32			OEO/ NA	ormal UCL		AS	surring Nor)E0/ 11	Cl o (Ad	divoto	d for Ske	wnooo)		
33			90 /0 IN		tudent's-t	LICI	12.99		•		•			(Chen-1995)	1	1.52
34				33 /0 3	,.uuciil 3=l	JUL	12.33							hnson-1978)		3.03
35										J.	o /o ivioui	ou-l	JOL (00			
36							Suggested	UCL to Use	<u> </u>							
37				95% S	Student's-t		12.99								$\overline{}$	
38							12.00								Щ	
39				F	Recomme	nded	UCL excee	ds the maxir	num obs	ervatio	on					
40				•						J. 744C					$\overline{}$	
41	ı	Note: Sugge	stions regard	ling the sel	lection of	a 95%	UCL are n	rovided to he	lp the use	er to se	elect the	most	appropri	ate 95% UC	L.	
42		-	commendation	•			•		•							
43								ons results w						(-30-)		
44			3911					nay want to o								
45								.,								
46																

	Α	В	С	D	E	F	G	Н	I	J	K	L
1				Ne	ormal UCL S	tatistics for	Uncensored	Full Data S	ets			
2												
3		User Sele	cted Options									
4	Dat	te/Time of Co	omputation	10/18/2013	2:38:22 PM							
5			From File	C:\Users\ke	ving\Desktop	\Palo Coma	do Analytica	l Data\Palo I	Lead_101413	3.wst		
6		Ful	II Precision	OFF								
7		Confidence	Coefficient	95%								
8												
9	STLC											
10	B-8 through	B-11 1.0-1.	.5 ft									
11												
12						General	Statistics					
13			Total	Number of C	bservations	4					Observations	1
14									Number	r of Missing C	Observations	0
15					Minimum	0.5					Mean	0.5
16					Maximum	0.5					Median	0.5
17												
18			Warning:	There is only						0' variance!		
19				•	any other se							
20				Th	ne data set fo	or variable 8	-11 1.5 was	not process	ed!			
21												
22				uggested to								
23				pute and coll						<u> </u>		
24	T	he Project 1	Team may d	ecide to use	alternative si	ite specific v	alues to est	imate enviro	onmental par	rameters (e.g	j., EPC, BTV)	·
25												
26												

	Α	В	С	D	E	F	G	Н		J	K	L
1				N	ormal UCL S	tatistics for	Uncensored	Full Data S	ets			
2												
3		User Sele	cted Options									
4	Dat	e/Time of Co	omputation	10/18/2013	1:48:37 PM							
5			From File	C:\Users\ke	ving\Desktop	\Palo Coma	do Analytica	I Data\Palo L	_ead_101413	3.wst		
6		Ful	I Precision	OFF								
7		Confidence	Coefficient	95%								
8												
9	STLC											
10	B-8 through	B-11 0.0-1	.5 ft									
11												
12						General	Statistics					
13			Total	Number of C	bservations	8				of Distinct C		
14									Number	of Missing C	bservations	0
15					Minimum	0.5					Mean	0.5
16					Maximum	0.5					Median	0.5
17												
18			Warning:		one distinct)' variance!		
19				•	r any other s							
20				The da	ata set for va	riable B-8 th	rough B-11	was not pro	cessed!			
21												
22		-					• •			analytical res		
23	Т	he Project 1	Team may de	ecide to use	alternative s	ite specific v	alues to est	imate enviro	nmental par	ameters (e.g	ı., EPC, BTV).
24												
25												

	Α	В	С	D	E Normal UCL \$	F	G	H Full Date 6]	J	K	L
1					Normal UCL 8	Statistics for	Uncensored	Full Data S	ets			
2		Lloor Colo	cted Options	,								
3	Do	te/Time of C	·		3 2:59:01 PM							
4	Da	te/Time of C	From File	WorkShee								
5		Fu	Il Precision	OFF	I.XIS							
6		Confidence		95%								
7		Cormidence	Coemcient	95 /6								
8												
9	TTLC B-8 thorugh	n B-11 2.0-2	5.6									
10	D-0 thorugi	10-112.0-2	.5 10									
11						General	Statistics					
12			Total	Number of	Observations		Otatiotics		Numbe	er of Distinct C	hservations	4
13				- Trainbor of	- CDOCI VALIONO	-				r of Missing (0
14					Minimum	3.94			Trambo	- Or Wildonig C	Mean	4.675
15					Maximum						Median	4.72
16					SD					SD of	logged Data	0.14
17				Coefficie	nt of Variation						Skewness	-0.222
18					THE OF VARIATION	0.100					CROWIESS	
19			Note: Sam	nle size is s	small (e.g., <	IO) if data a	re collected	using ISM a	nnroach voi	ı should use		
20				-	TRC Tech Re							
21					ou may want		-	-			<u>. </u>	
22					be computed		<u> </u>		•			
23												
24						Normal	GOF Test					
25			S	Shapiro Wilk	Test Statistic				Shapiro W	ilk GOF Test		
26 27			5% S	hapiro Wilk	Critical Value	0.748		Data app	-	at 5% Signific		
28				Lilliefors	Test Statistic	0.245			Lilliefors	GOF Test		
29			5	% Lilliefors	Critical Value	0.443		Data app	ear Normal a	at 5% Signific	ance Level	
30					Data appe	ar Normal a	t 5% Signific	ance Level				
31												
32					As	suming No	mal Distribu	tion				
33			95% No	ormal UCL				95%	6 UCLs (Adju	usted for Ske	wness)	
34				95% St	udent's-t UCL	5.434			95% Adjuste	ed-CLT UCL	(Chen-1995)	5.167
35									95% Modifi	ed-t UCL (Jo	hnson-1978)	5.428
36						I	_1					
37						Suggested	UCL to Use					
38				95% St	udent's-t UCL	5.434						
39						1	<u>l</u>					
40				R	ecommended	UCL excee	ds the maxin	num observ	ation			
41												
42		Note: Sugge	stions regard	ling the sele	ection of a 95%	% UCL are p	rovided to he	lp the user to	o select the n	nost appropri	ate 95% UCL	
43		These rec	ommendatio	ns are base	d upon the re	sults of the s	imulation stu	dies summa	rized in Sing	h, Singh, and	laci (2002)	
44			and Singh	and Singh	(2003). Howe	ver, simulati	ons results w	ill not cover	all Real Wor	ld data sets.		
45				For a	dditional insig	ht the user r	may want to c	onsult a sta	tistician.			
46												
47		Note: For	highly nega	tively-skew	ed data, conf	idence limits	e.g., Chen	, Johnson, L	.ognormal, a	nd Gamma)	may not be	
48			reliable.	Chen's and	Johnson's m	ethods prov	ide adjustme	ents for posi	tvely skewed	data sets.		
49												

	Α	В	С	D	E	F	G	Н	1 1	J	K	L
1			<u> </u>			_Statistics for			Sets			
2												
3		User Sel	ected Options									
4	Dat	e/Time of C	Computation	10/18/201	3 2:59:39 PI	М						
5			From File	WorkShee	et.xls							
6			ull Precision	OFF								
7	-	Confidence	e Coefficient	95%								
8												
9	TTLC											
10	B-12 throug	h B-15 0.0	-0.5 ft									
11						Conorol	Statistics					
12			Total	Number of	Observation		Statistics		Numbo	or of Distinct	Observations	5
13			TOLAI	Number of	Observation	115 3					Observations	0
14					Minimu	ım 8.21			Numbe	or wissing v	Mean	129
15					Maximu						Median	124
16						D 83.44				SD of	f logged Data	1.339
17				Coefficie	nt of Variation						Skewness	-0.372
18					THE OF VARIABLE	0.017					Chomicos	
19			Note: Sam	ple size is :	small (e.g.,	<10), if data a	re collected (using ISM a	approach, you	u should use)	
20 21				-		Reg Guide on						
22			For	example, y	ou may war	nt to use Cheb	yshev UCL to	o estimate	EPC (ITRC, 2	2012).		
23			Chebyshev	/ UCL can	be compute	d using the N	onparametric	and All UC	CL Options of	ProUCL 5.0)	
24												
25						Normal	GOF Test					
26			S	hapiro Wilk	Test Statis	tic 0.98			Shapiro W	ilk GOF Tes	t	
27			5% S	•	Critical Value			Data ap	pear Normal a	_	cance Level	
28					Test Statis					GOF Test		
29			5	% Lilliefors	Critical Valu				pear Normal a	at 5% Signific	cance Level	
30					Data ap	pear Normal a	it 5% Signific	ance Leve	· · · · · · · · · · · · · · · · · · ·			
31						Accuming No.	mal Diatribut	No.				
32			Q5% N/	ormal UCL		Assuming No			% UCLs (Adjı	usted for Ska	wnees)	
33			35 /0 140		tudent's-t UC	CL 208.6			` .		(Chen-1995)	183.8
34				3370 01		JL 200.0					hnson-1978)	207.6
35									CC /O IMOGIII			
36						Suggested	UCL to Use					
37 38				95% St	tudent's-t UC							
39												
40	١	Note: Sugg	estions regard	ling the sele	ection of a 9	5% UCL are p	rovided to he	lp the user	to select the n	nost appropr	iate 95% UCL	
41		These re	commendation	ns are base	ed upon the i	results of the s	imulation stu	dies summ	arized in Sing	h, Singh, and	d laci (2002)	
42			and Singh	and Singh	(2003). How	vever, simulati	ons results w	ill not cove	r all Real Wor	ld data sets.		
43				For a	additional ins	sight the user r	nay want to c	onsult a sta	atistician.			
44												
45		Note: Fo		-		nfidence limits					may not be	
46			reliable.	Chen's and	l Johnson's	methods prov	ide adjustme	nts for pos	sitvely skewed	d data sets.		

	A	В	С	D	E	F	G	H	1	J	K	L
1					Normal UCL S	Statistics for	Uncensored	Full Data 8	Sets			
2		Lloor Colo	cted Options									
3	Do	te/Time of C	·		3 2:39:24 PM							
4	Da	te/Time of C	From File		s 2.39.24 Fivi	n\Pala Coma	ndo Analytica	I Data\Pala	Load 101/11	2 wet		
5		Fu	III Precision	OFF	Revirig/Deskto	p\raio Como	duo Ariarytica	i Data\Fai0	Leau_10141	J.W51		
6		Confidence		95%								
7		Confidence	Coefficient	95 70								
8												
9	STLC	gh B-15 0,0-	0.5									
10	D 12 11100g	,										
11						General	Statistics					
12			Total	Number of	Observations				Numbe	er of Distinct C	Observations	5
13										r of Missing C		0
14					Minimum	0.5					Mean	5.546
15					Maximum						Median	7.32
16					SD					SD of	logged Data	1.216
17				Coefficie	nt of Variation						Skewness	-0.754
18												
19			Note: Sam	ple size is s	small (e.g., <	10). if data a	re collected	usina ISM a	approach, voi	u should use		
20				-	TRC Tech Re							
21					ou may want		<u> </u>	-				
22					be computed		-		•			
24			<u> </u>		<u> </u>		•		•			
25						Normal	GOF Test					
26			S	Shapiro Wilk	Test Statistic	0.869			Shapiro W	ilk GOF Test		
27			5% S	hapiro Wilk	Critical Value	0.762		Data app	pear Normal a	at 5% Signific	ance Level	
28				Lilliefors	Test Statistic	0.287			Lilliefors	GOF Test		
29			5	% Lilliefors	Critical Value	0.396		Data app	pear Normal a	at 5% Signific	ance Level	
30					Data appe	ear Normal a	t 5% Signific	ance Level				
31												
32					As	ssuming Nor	mal Distribut	tion				
33			95% No	ormal UCL				959	% UCLs (Adju	usted for Ske	wness)	
34				95% St	tudent's-t UCL	9.023			95% Adjuste	ed-CLT UCL	(Chen-1995)	7.641
35									95% Modifi	ed-t UCL (Jo	nnson-1978)	8.932
36												
37						Suggested	UCL to Use					
38				95% St	udent's-t UCL	9.023						
39						•	•					
40				R	ecommended	I UCL excee	ds the maxin	num observ	ation			
41												
42					ection of a 95°							
43		These rec			ed upon the re						laci (2002)	
44			and Singh		(2003). Howe					ld data sets.		
45				For a	ıdditional insiç	the user r	nay want to c	onsult a sta	ntistician.			
46												
47		Note: For	highly nega	tively-skew	ed data, conf	idence limits	(e.g., Chen,	Johnson, I	Lognormal, a	nd Gamma)	may not be	
48			reliable.	Chen's and	l Johnson's m	ethods prov	ide adjustme	nts for pos	itvely skewed	d data sets.		
49												

	A B C	D E	F	G	н	1	J	K		
1	•	Normal UCL S	tatistics for	Uncensored	Full Data Sets			•		
2										
3	User Selected Options									
4	Date/Time of Computation	10/18/2013 3:00:09 PM								
5	From File	WorkSheet.xls								
6	Full Precision	OFF								
7	Confidence Coefficient	95%								
8										
9	TTLC									
10	B-12 through B-15 1.0-1.5 ft									
11										
12			General	Statistics						
13	Total	Number of Observations	4					Observatio		4
14						Number	of Missing	Observatio		0
15		Minimum	20.1					Me		161
16		Maximum	381					Medi		121.5
17		SD	155				SD o	f logged Da	ata	1.221
18		Coefficient of Variation	0.962					Skewne	SS	1.368
19										
20		ple size is small (e.g., <10								
21		ovided in ITRC Tech Reg		-				st.		
22		example, you may want to	_			•	-			
23	Chebyshev	UCL can be computed u	sing the No	nparametric	and All UCL O	ptions of I	ProUCL 5.0)		
24										
25				GOF Test						
26		hapiro Wilk Test Statistic	0.897			-	k GOF Tes			
27	5% S	hapiro Wilk Critical Value	0.748		Data appear			cance Leve	;l 	
28	_	Lilliefors Test Statistic	0.304				GOF Test			
29	5	% Lilliefors Critical Value	0.443		Data appear	Normal at	5% Signifi	cance Leve	;l 	
30		Data appea	ar Normal a	5% Signific	ance Level					
31				15:						
32	OPO(N		suming Nor	mal Distribut		N = /A "				
33	95% No	ormal UCL	242.4				sted for Sk)E)	245 1
34		95% Student's-t UCL	343.4					. (Chen-199		345.1
35					95	/o IVIOQITIE	u-i UCL (J	ohnson-197	0)	352.2
36			Cuggosts 4	IICI to lies						
37				UCL to Use						
38		95% Student's-t UCL	343.4						\perp	
39	Note: Suggestions regard	ing the selection of a OE9/	IICI oro or	ovidad ta bal	n the user to se	loct the m	oct approx	riato 05%	ICI	
40		ns are based upon the res	-							
41									<u>-)</u>	
42	and Singn	and Singh (2003). Howev					ı uata sets.			
43		For additional insigh	it tile user fr	iay want to C	onsun a statistic	idii.				
44										

	A B C	DE	F	GHIJK	
1	•	Normal UCL St	atistics for	Uncensored Full Data Sets	
2					
3	User Selected Options				
4	Date/Time of Computation	10/18/2013 2:40:33 PM			
5	From File	C:\Users\keving\Desktop\	Palo Coma	do Analytical Data\Palo Lead_101413.wst	
6	Full Precision	OFF			
7	Confidence Coefficient	95%			
8					
9	STLC				
10	B-12 through B-15 1.0-1.5 ft				
11					
12			General	Statistics	
13	Total	Number of Observations	4	Number of Distinct Observations	4
14				Number of Missing Observations	0
15		Minimum	0.5	Mean	6.115
16		Maximum	15.5	Median	4.23
17		SD	6.501	SD of logged Data	1.423
18		Coefficient of Variation	1.063	Skewness	1.543
19					
20	Note: Sam	ple size is small (e.g., <10), if data ar	e collected using ISM approach, you should use	
21	guidance pr	ovided in ITRC Tech Reg	Guide on I	SM (ITRC, 2012) to compute statistics of interest.	
22				shev UCL to estimate EPC (ITRC, 2012).	
23	Chebyshev	/ UCL can be computed u	sing the No	nparametric and All UCL Options of ProUCL 5.0	
24					
25			Normal (GOF Test	
26		hapiro Wilk Test Statistic	0.848	Shapiro Wilk GOF Test	
27	5% S	hapiro Wilk Critical Value	0.748	Data appear Normal at 5% Significance Level	
28		Lilliefors Test Statistic	0.353	Lilliefors GOF Test	
29	5	% Lilliefors Critical Value	0.443	Data appear Normal at 5% Significance Level	
30		Data appea	r Normal a	t 5% Significance Level	
31					
32			uming Nor	mal Distribution	
33	95% No	ormal UCL		95% UCLs (Adjusted for Skewness)	
34		95% Student's-t UCL	13.76	-	14.14
35				95% Modified-t UCL (Johnson-1978) 1	14.18
36					
37				UCL to Use	
38		95% Student's-t UCL	13.76		
39					
40			-	ovided to help the user to select the most appropriate 95% UCL.	
41				mulation studies summarized in Singh, Singh, and laci (2002)	
42	and Singh	- ' '		ns results will not cover all Real World data sets.	
43		For additional insigh	t the user m	nay want to consult a statistician.	
44					

	A B C	DE	F	GHIJK	L
1		Normal UCL St	atistics for	Uncensored Full Data Sets	
2					
3	User Selected Options				
4	Date/Time of Computation	10/18/2013 1:49:29 PM			
5	From File	C:\Users\keving\Desktop\	Palo Coma	do Analytical Data\Palo Lead_101413.wst	
6	Full Precision	OFF			
7	Confidence Coefficient	95%			
8					
9	STLC				
10	B-12 through B-15 0.0-1.5 ft				
11					
12			General	Statistics	
13	Total	Number of Observations	8	Number of Distinct Observations 7	7
14				Number of Missing Observations 0	0
15		Minimum	0.5	Mean 6	6.16
16		Maximum	15.5	Median 5	5.87
17		SD	4.947	SD of logged Data 1	1.307
18		Coefficient of Variation	0.803	Skewness 0	0.733
19					
20		• •		e collected using ISM approach, you should use	
21				SM (ITRC, 2012) to compute statistics of interest.	
22				shev UCL to estimate EPC (ITRC, 2012).	
23	Chebyshev	/ UCL can be computed us	sing the No	nparametric and All UCL Options of ProUCL 5.0	
24					
25				GOF Test	
26		hapiro Wilk Test Statistic	0.926	Shapiro Wilk GOF Test	
27	5% S	hapiro Wilk Critical Value	0.818	Data appear Normal at 5% Significance Level	
28		Lilliefors Test Statistic	0.17	Lilliefors GOF Test	
29	5	% Lilliefors Critical Value	0.313	Data appear Normal at 5% Significance Level	
30		Data appea	r Normal a	t 5% Significance Level	
31		_			
32			uming Nor	mal Distribution	
33	95% No	ormal UCL		95% UCLs (Adjusted for Skewness)	
34		95% Student's-t UCL	9.474		9.521
35				95% Modified-t UCL (Johnson-1978)	9.549
36			• • • •	LIOL A. U.	
37				UCL to Use	
38		95% Student's-t UCL	9.474		
39	Mater Orona 2	line the palentine (050)	1101	anidad to halp the year to a live the year to	
40			-	ovided to help the user to select the most appropriate 95% UCL.	
41		*		mulation studies summarized in Singh, Singh, and laci (2002)	
42	and Singh	- ' '		ons results will not cover all Real World data sets.	
43		For additional insigh	ı ıne user m	nay want to consult a statistician.	
44					

	A B C	D E	F	G H I J K	L
1		Normal UCL St	atistics for	Uncensored Full Data Sets	
2					
3	User Selected Options				
4	Date/Time of Computation	10/18/2013 3:00:50 PM			
5	From File	WorkSheet.xls			
6	Full Precision	OFF			
7	Confidence Coefficient	95%			
8					
9	TTLC				
10	B-12 through B-15 2.0-2.5 ft				
11				0	
12	Tatal	Number of Observations		Statistics	4
13	lotai	Number of Observations	5	Number of Distinct Observations	4
14		Minimum	2.50	Number of Missing Observations	11.06
15			2.58	Mean	11.96 4.61
16		Maximum SD	11.2	Median SD of logged Date	1.054
17		Coefficient of Variation	0.936	SD of logged Data Skewness	0.587
18		Coefficient of Variation	0.930	Skewiiess	0.567
19	Note: Sam	nle size is small (e.a. <10)) if data ar	e collected using ISM approach, you should use	
20		· · ·		SM (ITRC, 2012) to compute statistics of interest.	
21		=		rshev UCL to estimate EPC (ITRC, 2012).	
22			-	nparametric and All UCL Options of ProUCL 5.0	
23					
24 25			Normal (GOF Test	
26	S	Shapiro Wilk Test Statistic	0.734	Shapiro Wilk GOF Test	
27	5% S	hapiro Wilk Critical Value	0.762	Data Not Normal at 5% Significance Level	
28		Lilliefors Test Statistic	0.344	Lilliefors GOF Test	
29	5	% Lilliefors Critical Value	0.396	Data appear Normal at 5% Significance Level	
30		Data appear Appro	oximate No	rmal at 5% Significance Level	
31					
32		Ass	uming Nor	mal Distribution	
33	95% No	ormal UCL		95% UCLs (Adjusted for Skewness)	
34		95% Student's-t UCL	22.64	95% Adjusted-CLT UCL (Chen-1995)	21.6
35				95% Modified-t UCL (Johnson-1978)	22.86
36					
37				UCL to Use	
38		95% Student's-t UCL	22.64		
39	N. C	P 1 2 6 6-91			
40				ovided to help the user to select the most appropriate 95% UCL.	
41				mulation studies summarized in Singh, Singh, and laci (2002)	
42	and Singh			ns results will not cover all Real World data sets.	
43		For additional insign	ı ırıe user m	ay want to consult a statistician.	
44					