The responses to bidders' inquiries are provided for the bidders' convenience only. In some instances, the question and answer may represent a summary of the matters discussed rather than a word-for-word recitation. The responses may be considered along with all other information furnished to prospective bidders for the purpose of bidding on the project. The availability or use of information provided in the responses to contractors' inquiries is not to be construed in any way as a waiver of the provisions of Section 2-1.03 of the Standard Specifications or any other provision of the contract, the plans, Standard Specifications or Special Provisions, nor to excuse the contractor from full compliance with those contract requirements. Bidders are cautioned that subsequent responses or contract addenda may affect or vary a response previously given. Inquiries along with responses may be posted at the website only when the inquiries are submitted in any of the acceptable manner prescribed under the Notice to the Contractors and when the responses have already been communicated to the individual inquirers. Bidders' inquiries received over the phone must be followed-up and submitted in writing for an official response.

The Bidders' inquiries and Responses may be updated from time to time and bidders are enjoined to check the website regularly and immediately prior to the scheduled bid opening.

Caltrans District 8 Office is located at 464 W. Fourth Street, San Bernardino, CA 92401-1400.
Send Contractor Inquiries via email to d8_pbi@dot.ca.gov
The mailing address is 655 2nd Street, San Bernardino, CA 92402.
Phone (909) 383-5961
Fax (909) 383-6739.
**All inquiries must include the contract number.**

**08-0K0404**

| Inquiry No. | Inquiry/Response |
|---|---|
| 1.0 | We did not receive the Information Handout containing the Aerially Deposited Lead (ADL) Investigation Report (Portions) mentioned in this section. How may we obtain a copy?<br><br>Response: Please see the ADL Investigation Report attached to this PBI. |

# AERIALLY DEPOSITED LEAD (ADL)
# INVESTIGATION REPORT

**State Highway 10 between Waterman Avenue and San Timoteo Bridge**
**City of San Bernardino**
**San Bernardino County, California**

**Prepared for:**
**California Department of Transportation, District 8**
**Task Order No. 1**
**Contract No. 08A1542**
**EA 0K0400**

**January 11, 2008**

# TABLE OF CONTENTS

**1.0 INTRODUCTION ..... 1**

1.1 PROJECT DESCRIPTION AND OBJECTIVES ..... 1
1.2 SCOPE-OF-WORK ..... 1
*1.2.1 Pre-Field Activities ..... 1*
*1.2.2 Field Sampling Activities ..... 1*
*1.2.3 Laboratory Analyses ..... 2*
*1.2.4 Report Preparation ..... 2*
1.3 PREVIOUS SITE INVESTIGATIONS ..... 2

**2.0 ADL SURVEY METHODOLOGY ..... 3**

2.1 FIELD INVESTIGATIONS ..... 3
2.2 LABORATORY ANALYSIS ..... 3

**3.0 INVESTIGATIVE RESULTS ..... 5**

3.1 SUBSURFACE CONDITIONS ..... 5
3.2 ANALYTICAL RESULTS ..... 5
*3.2.1 Total Lead ..... 5*
*3.2.2 Soluble Lead (Cal WET- Citric) ..... 5*
*3.2.3 Toxicity Characteristic Leaching Procedure (TCLP) ..... 5*
*3.2.4 Soluble Lead (Cal WET- DI) ..... 5*
*3.2.5 pH Results ..... 6*
*3.2.6 Volatile Organic Compounds (VOC) Results ..... 6*
3.3 DATA VALIDATION ..... 6

**4.0 STATISTICAL DATA EVALUATION ..... 7**

4.1 CORRELATION BETWEEN TOTAL LEAD AND SOLUBLE LEAD ..... 7
4.2 LINEAR REGRESSION ANALYSIS ..... 7
4.3 STATISTICAL DATA EVALUATION ..... 7

**5.0 CONCLUSIONS ..... 10**

**6.0 RECOMMENDATIONS ..... 12**

**7.0 LIST OF PREPARERS ..... 13**

## TABLES

Table 1 – Summary of Soil Analytical Test Results
Table 2 – Frequency Distribution Analysis
Table 3 – Linear Regression Analysis
Table 4 – Summary of Statistical Analysis on Raw Data
Table 5 – Statistical Analysis by Depth

## TABLE OF CONTENTS (CONTINUED)

## FIGURES


| | |
|---|---|
| Figure 1 | Site Location Map |
| Figure 2 | Site Wide Boring Location Map |
| Figure 3 | Linear Regression Analysis |
| Figure 4a | Histogram-Total Lead (All Samples) |
| Figure 4b | Histogram-Total Lead (ln(x) Transformed) |
| Figure 5a | Histogram-Soluble Lead (Cal WET-Citric) |
| Figure 5b | Histogram-Soluble Lead (Cal WET-Citric ln(x) Transformed) |
| Figure 6a | Histogram-Soluble Lead (TCLP) |
| Figure 6b | Histogram-Soluble Lead (TCLP ln(x) Transformed) |
| Figure 7 | Block Diagrams - 95% and 85% UCLs for All Areas |


## APPENDICES


| | |
|---|---|
| Appendix A | Analytical Laboratory Reports |
| Appendix B | Chain-of-Custody Records |

# 1.0 INTRODUCTION

## 1.1 PROJECT DESCRIPTION AND OBJECTIVES

At the request of the California Department of Transportation (Caltrans) District 8, an Aerially Deposited Lead (ADL) survey was conducted to support proposed Caltrans construction of a concrete barrier in the median area of State Highway 10 (I10) between Waterman Avenue and the San Timoteo Bridge in the city of San Bernardino, county of San Bernardino, California (Figure 1). All survey work was limited to the existing right-of-way along the unpaved median areas of the eastbound side of I10.

The objective of this investigation was to evaluate lead concentrations in the subsurface soil profile within the construction zone and to make recommendations for any special handling or disposal of lead impacted soil.

## 1.2 SCOPE-OF-WORK

The scope of the ADL survey consisted of the following general elements:

- Pre-field project assessment and Health and Safety Plan (HASP) development
- Soil sampling
- Laboratory analysis
- Data evaluation and report development

Each of these is discussed in detail in the following subsections.

### 1.2.1 Pre-Field Activities

Site plans provided by Caltrans were reviewed and compared to actual field conditions during a drive-by site reconnaissance. From this preliminary site evaluation, potential sample locations were designated on the plans for use by field personnel. In addition, a site-specific HASP was developed in accordance with California Occupational Safety and Health Administration (Cal OSHA) requirements to guide field activities.

### 1.2.2 Field Sampling Activities

Field sampling activities included the following general tasks:

- Eleven (11) shallow hand-auger borings (HA-1 through HA-11) were advanced along accessible portions of the existing right-of-way in the proposed construction area along the median of the eastbound side of State Highway 10 to a maximum depth of three feet below the ground surface (bgs)
- Thirty-seven (37) soil samples were collected at depths of 0.5, one (1), two (2), and three (3) feet bgs.

### 1.2.3 Laboratory Analyses

Soil samples were submitted under chain-of-custody to Centrum Analytical Laboratory (Centrum). Centrum is certified by the California Environmental Laboratory Accreditation Program (ELAP) to perform the laboratory tests required in this task order. Selected samples were analyzed for the following analytes:

- Total lead by EPA test method 6010B
- Soluble lead by the California Waste Extraction Test (Cal WET) test (EPA method 3010/6010B)
- Soluble lead by the federal Toxicity Characteristic Leaching Procedure (TCLP - EPA method 1311/6010B)
- Soluble lead by the California Department of Health Services Modified Waste Extraction Test (Cal WET) test (DHS Modified EPA method 3010/6010B using deionized water)
- pH by EPA test method 9045B
- Volatile organic compounds (VOCs) by EPA test method 8260B

### 1.2.4 Report Preparation

This report presents the methodology, findings, and recommendations of the ADL survey and investigation. This report includes a summary of field sampling activities, laboratory test results, statistical data evaluations, and recommendations for lead-contaminated soil management during construction. This report was prepared in accordance with the work plan and proposal dated December 4, 2007.

## 1.3 PREVIOUS SITE INVESTIGATIONS

Additional information was not provided relative to previous environmental studies within the study area.

# 2.0 ADL SURVEY METHODOLOGY

The field methods used during this sampling and site investigation project were consistent with the work plan submitted to Caltrans dated December 4, 2007. The proposed sampling locations were accessible. However, several boring locations (HA-1, HA-2, and HA-5 through HA-7) experienced refusal before the final depth could be achieved. As a result, additional borings were advanced in order to provide an adequate sample population for statistical evaluation of the data. The following deviations from the original scope-of-work are noted:

- A total of 11 borings were advanced (eight proposed).
- A total of 37 soil samples were analyzed for total lead (32 proposed).
- A total of 32 soil samples were analyzed for soluble lead by Cal WET-Citric and Cal WET-DI (16 proposed).
- A total of 15 soil samples were analyzed for soluble lead by TCLP (eight proposed).
- A total of 15 soil samples were analyzed for pH (eight proposed).

## 2.1 FIELD INVESTIGATIONS

Eleven (11) hand-auger borings were advanced along accessible portions of the existing right-of-way in the proposed construction area. Each boring was advanced to an approximate depth of three feet bgs unless refusal was encountered. Accessible areas are defined as those areas that allow work vehicles and personnel to work safely at distances no closer than six feet from paved portions of the roadway. No samples were collected from areas that would have required workers to work within six feet of paved shoulders. Where possible, sample locations falling within inaccessible areas were moved to locations that could be safely sampled. The sample locations are indicated on Figure 2.

All sample locations were plotted on a field map with a unique boring identification (I.D.) number to represent each borehole.

Thirty-seven (37) soil samples were collected from the 11 hand-auger borings at depths ranging from one to three feet bgs. The sample depth represents the bottom depth of a three- to six-inch thick sample collected using a hand-auger. The sample was discharged directly from the hand-auger bailer into a plastic zipper lock bag and manually homogenized to minimize sample heterogeneity. Each sample was labeled with a specific sample I.D., boring I.D., project I.D., sample date, and sample time. Samples were also recorded on chain-of-custody forms and delivered to an environmental laboratory for analysis in accordance with the methods described in Section 1.2.3.

Prior to sampling at each sample interval, sample equipment was decontaminated in non-phosphate detergent solution and distilled water double rinse. Excess soil cuttings were replaced in the borehole.

## 2.2 LABORATORY ANALYSIS

Soil samples were submitted under chain-of-custody to Centrum. Each of the samples was initially analyzed by EPA test method 6010B for total lead. In addition, four of the 11 one-foot depth samples were analyzed for VOCs by EPA test method 8260B.

The lab was directed to perform the following additional analyses based on the detected total lead concentrations:

- Cal WET-Citric soluble lead analysis on all samples exhibiting total lead concentrations greater than 25 milligrams per kilogram (mg/kg). Cal WET-Citric is used to assess soluble lead concentrations with respect to California Soluble Threshold Limit Concentrations (STLC).
- TCLP soluble lead analysis on all Cal WET-Citric samples exhibiting soluble lead concentrations greater than 5.0 milligrams per liter (mg/L).
- pH on all TCLP analyzed samples.
- Cal WET-DI analysis in the following order of preference:
    - TCLP samples where the 95 percent upper confidence level of the mean of the TCLP data is greater than 0.5 mg/L; or
    - Ten percent of the sample population biasing the Cal WET DI analyses to samples that required Cal WET-Citric analysis; or
    - Ten percent of the sample population biasing the Cal WET DI analyses to samples that exhibited the highest concentrations of total lead.

These analyses were performed for statistical evaluation of data against state and federal hazardous waste limits and with the conditions of Caltrans' variance.

# 3.0 INVESTIGATIVE RESULTS

## 3.1 SUBSURFACE CONDITIONS

The soils encountered during sampling were generally fine to course, light brown to brown, sands with fine to course gravel and trace fines. The soils were relatively dry in the upper half foot to slightly moist in the bottom of the borings at three feet. Groundwater was not encountered in any of the boreholes and not expected to be present in the upper 10 feet. Refusal was encountered between one to three feet bgs at boring locations HA-1, HA-2, and HA-5 through HA-7.

## 3.2 ANALYTICAL RESULTS

A summary of the analytical results are presented in Table 1 and statistical data transformations are tabulated in Table 2. Copies of the laboratory reports and chain-of-custody forms are included in Appendix A and B, respectively. The results are also posted on the site drawing attached as Figure 2.

### 3.2.1 Total Lead

Thirty-seven (37) soil samples were analyzed for total lead – total threshold limit concentration (TTLC) by EPA method 6010B. Total lead concentrations ranged from 3.32 to 547 mg/kg with a mean concentration of approximately 137 mg/kg (see Tables 1, 2, and 4).

Total lead concentrations did not exceed the TTLC of 1,000 mg/kg in any of the samples.

### 3.2.2 Soluble Lead (Cal WET- Citric)

Total lead concentrations in 27 of the 37 samples (see Tables 1 through 3) exceeded 25 mg/kg and were analyzed by the Cal WET-Citric method. Soluble lead concentrations ranged from less than 2.0 (reporting limit) to 67.2 mg/L in analyzed samples (see Tables 1 through 3). Soluble lead exceeded the STLC of 5 mg/L in 15 of the 27 samples. The mean soluble lead concentration is 15.6 mg/L.

### 3.2.3 Toxicity Characteristic Leaching Procedure (TCLP)

Fifteen (15) of 27 samples exhibited a Cal WET-Citric soluble concentration greater than 5 mg/L and were analyzed by TCLP. Analytical results indicated TCLP concentrations ranging from less than 0.10 mg/L (reporting limit) to 3.02 mg/L (see Tables 1 and 4); below the TCLP threshold of 5 mg/L.

### 3.2.4 Soluble Lead (Cal WET- DI)

The Caltrans variance allows for reuse of materials exceeding the STLC and TCLP for lead if the soluble concentrations do not exceed 0.5 mg/L using a less rigorous extraction test that incorporates distilled water as the solvent rather than the Cal WET citric acid or TCLP acetic acid extractant. This method is often identified as the DHS modified Cal WET-DI test.

Five (5) samples were analyzed for soluble lead using the Cal WET-DI test. Soluble lead ranged from less than 0.5 mg/L (reporting limit) to 0.584 mg/L. Two of the five analyzed soil samples, from borings HA-2 at 1-foot bgs and HA-5 at 0.5-feet bgs, exhibited soluble lead concentrations greater than 0.5 mg/L (0.584 and 0.520 mg/L, respectively).

### 3.2.5 pH Results

Only those samples requiring analysis by TCLP were analyzed for pH. The 15 samples analyzed for pH ranged from 7.2 to 8.4 (see Table 1).

### 3.2.6 Volatile Organic Compounds (VOC) Results

Four (4) soil samples were analyzed for VOCs by EPA method 8260B. All VOCs were reported at concentrations less than their respective laboratory reporting limits for all samples submitted for analysis.

## 3.3 DATA VALIDATION

Prior to submitting soil samples to the laboratory, the chain-of-custody documentation was reviewed for accuracy and completeness. The laboratory reports were crosschecked with the chain-of-custody forms to confirm accurate transposing of sample information. Laboratory quality assurance and quality control (QA/QC) data (method blanks, laboratory control samples and duplicates, matrix spike samples and duplicates) were also reviewed for compliance with QA/QC objectives. Based on this validation process, the data contained herein are adequate for the purposes of this study. Copies of the laboratory reports and chain-of-custody forms are included as Appendix A and B, respectively.

# 4.0 STATISTICAL DATA EVALUATION

## 4.1 CORRELATION BETWEEN TOTAL LEAD AND SOLUBLE LEAD

The correlation coefficient between total lead and Cal WET-Citric soluble lead was calculated in accordance with the methodology presented in Section B 3.2.2.15.2 of Caltrans Contract 08A1542 (see Table 3). The data show good correlation with a correlation coefficient of 0.94. Caltrans generally considers a correlation coefficient of 0.8 or greater as showing good correlation.

## 4.2 LINEAR REGRESSION ANALYSIS

As described above, the soluble and total lead data appear to show sufficient correlation to allow comparison using linear regression algorithms. The relationship between total lead and Cal WET-Citric soluble lead was evaluated in accordance with Caltrans Contract 08A1542 Section B 3.2.2.15.2. Total lead and soluble lead are bivariate data exhibiting a linear relationship. Table 3 and Figure 3 show the relationship between total and Cal WET-Citric soluble lead results for this project. Linear regression was used to develop a best-fit line and mathematical formula for the relationship between total lead (TL) and Cal WET-Citric soluble lead (SL) concentrations:

$$TL\ [mg/kg] = 9.9\ (SL\ [mg/L]) + 31, \text{ or}$$

Solving for soluble lead (Cal WET) yields the following:

$$SL\ [mg/L] = (TL\ [mg/kg] - 31) / 9.9$$

This formula will be used in subsequent statistical evaluations to determine the Cal WET-Citric soluble lead concentration from statistically derived total lead upper confidence limits (UCLs) for various soil layers considered in Section 4.3.

## 4.3 STATISTICAL DATA EVALUATION

The analytical results were evaluated statistically following the methods described in Section B 3.2.15 of Exhibit A, Caltrans Contract Document Number 08A1542.

Statistical tests were performed on each data set to evaluate whether the total lead data are normally or lognormally distributed. If lognormally distributed, the data were transformed prior to performing any other statistical evaluations. Statistical parameters, such as the mean, standard deviation, and upper confidence level of the mean were calculated for various layers and scenarios. The total lead 80 percent UCL ($UCL_{80}$) and the 95 percent UCL ($UCL_{95}$) of the mean were calculated to support decision making with respect to off site disposal and on site re-use as described in Section B 3.2.4.4 of Caltrans Contract 08A1542.

- $UCL_{80}$: The $UCL_{80}$ was calculated in accordance with requirements promulgated in U.S. Environmental Protection Agency (U.S. EPA) Guidance document SW-846 to characterize the soil for 1) potential off site disposal as nonhazardous, California hazardous or Resource Conservation and Recovery Act (RCRA) hazardous waste, and 2) to assess whether the conditions of the Caltrans Variance should be invoked for on-site reuse.

- $UCL_{95}$: The $UCL_{95}$ is calculated to support decision making with respect to release of surplus soil material to the possession of the Contractor.

Statistical evaluations were performed using the U.S. EPA statistical program, ProUCL, version 4.00.00. One-half the reporting limit was used for all sample results reported below the reporting limit (nondetect). If the data exhibited normal distribution, Student's-t method was used to determine the UCL. The standard Bootstrap Method was used to evaluate the UCL as required in Caltrans Contract 088A0981 Section B 3.2.2.15.1 for all nonparametric populations.

The histograms for the raw data and the transformed data for all samples are shown on Figures 4a, 4b, 5a, 5b, 6a, and 6b. From these histograms and based on statistical tests, the total lead and Cal WET-Citric data are nonparametric and the TCLP data are lognormally distributed. Consequently, transformed data were only used in statistical evaluation of TCLP data.

To assist in future soil handling and disposition decision-making, statistical evaluations were performed on the below data populations. In each case, the total lead UCLs were statistically derived from each sample population. The soluble lead (Cal WET-Citric) UCLs were then calculated using the linear regression formulas presented in Section 4.2.

- *Entire Data Set*—includes all of the total lead data (37 samples) from approximately 0.5 to three feet bgs. Statistical data for the entire data set are tabulated in Table 4 and shown on the block diagrams of Figure 7. The mean total lead concentration for the data set is 137 mg/kg with a standard deviation of 170 mg/kg. The calculated $UCL_{80}$ and $UCL_{95}$ are 160 and 181 mg/kg, respectively. The corresponding $UCL_{80}$ and $UCL_{95}$ Cal WET-Citric soluble lead concentrations using linear regression analysis are 13.1 and 15.2 mg/L, respectively.

- *Depth Specific Layer*—data for each depth interval were evaluated as four separate and distinct populations. Under these scenarios, all data were included in the population of each depth interval. The results are presented in Table 5 and shown on the block diagrams of Figure 7.

    - 0.5 feet—total lead $UCL_{80}$ and $UCL_{95}$ were calculated at 344 and 382 mg/kg, respectively; with a corresponding Cal WET-Citric soluble lead $UCL_{80}$ and $UCL_{95}$ of 31.6 and 35.5 mg/L, respectively.
    - 1 foot—total lead $UCL_{80}$ and $UCL_{95}$ were calculated at 163 and 199 mg/kg, respectively; with a corresponding Cal WET-Citric soluble lead $UCL_{80}$ and $UCL_{95}$ of 13.4 and 17 mg/L, respectively.
    - 2 feet—total lead $UCL_{80}$ and $UCL_{95}$ were calculated at 25.8 and 30.3 mg/kg, respectively; with a corresponding Cal WET-Citric soluble lead $UCL_{80}$ and $UCL_{95}$ of less than 0.01 mg/L.
    - 3 feet—total lead $UCL_{80}$ and $UCL_{95}$ were calculated at 30.2 and 33.5 mg/kg, respectively; with a corresponding Cal WET-Citric soluble lead $UCL_{80}$ and $UCL_{95}$ of less than 0.01 and 0.284 mg/L, respectively.

- *Depth Combinations*—four layers were combined into distinct populations. The four combinations evaluated are indicated below and shown on Table 5 and the block diagrams of Figure 7.

- 0.5 to 1 foot—total lead $UCL_{80}$ and $UCL_{95}$ were calculated at 246 and 277 mg/kg, respectively; with a corresponding Cal WET-Citric soluble lead $UCL_{80}$ and $UCL_{95}$ of 21.7 and 24.8 mg/L, respectively.
- 0.5, 1, and 2 feet—total lead $UCL_{80}$ and $UCL_{95}$ were calculated at 185 and 210 mg/kg, respectively; with a corresponding Cal WET-Citric soluble lead $UCL_{80}$ and $UCL_{95}$ of 15.6 and 18.1 mg/L, respectively.
- 1, 2, and 3 feet—total lead $UCL_{80}$ and $UCL_{95}$ were calculated at 84.0 and 100 mg/kg, respectively; with a corresponding Cal WET-Citric soluble lead $UCL_{80}$ and $UCL_{95}$ of 5.35 and 6.97 mg/L, respectively.
- 2 and 3 feet —total lead $UCL_{80}$ and $UCL_{95}$ were calculated at 26.5 and 29.7 mg/kg, respectively; with a corresponding Cal WET-Citric soluble lead $UCL_{80}$ and $UCL_{95}$ of less than 0.01 mg/L.

## 5.0 CONCLUSIONS

Statistical evaluations were performed to evaluate appropriate handling and disposition of ADL in accordance with the following federal and state statutory limits:

TCLP Lead: 5 mg/L (RCRA hazardous waste),
STLC Lead: 5 mg/L (California hazardous waste),
TTLC Lead: 1,000 mg/kg (California hazardous waste), and

In accordance with the conditions of Caltrans Variance (No. 00-H-VAR-04), Modification 2 (September 12, 2003) as stated below:

Section 9.a.1: Lead contaminated soil containing 0.5 mg/L or less soluble lead when extracted by Cal WET-DI and 1,411 mg/kg or less total lead may be placed in the same Caltrans corridor provided that it is buried a minimum of 5 feet (1.5 meters) above the maximum water table elevation and covered with one foot (0.3 meters) of nonhazardous soil. These materials may be used on-site as Type Y-1 Caltrans fill material.

Section 9.a.2: Lead contaminated soil containing less than 50 mg/L soluble lead when extracted by Cal WET-DI and 3,397 mg/kg or less total lead may be placed in the same Caltrans corridor provided that it is buried a minimum of 5 feet above the maximum water table elevation and covered with pavement structure. These materials may be used on-site as Type Y-2 fill material.

In consideration of the data and statistical evaluations presented in previous sections, the following conclusions are developed.

- ADL is present in near surface soils within the proposed construction zone.
- As shown on Figures 4a, 4b, 5a, and 5b, the histograms for total lead and Cal WET-Citric soluble lead demonstrates that the data are non-parametric. As shown on Figures 6a and 6b, the histograms for TCLP soluble lead demonstrate that the data are lognormally distributed.
- Total lead concentrations are well below statutory threshold levels for hazardous waste (TTLC).
- Cal WET-Citric soluble lead levels exceeded the California STLC for the $UCL_{95}$ at the 0.5 and 1-foot depths (with the exception of HA-7).
- TCLP soluble lead levels did not exceed federal hazardous waste levels based on toxicity characteristics.
- Soluble lead was detected in two of the five analyzed soil samples at concentrations above the 0.5 mg/L Caltrans variance criteria when extracted using the DHS Modified Cal WET-DI method (HA-2 at 1-foot bgs and HA-5 at 0.5-feet bgs at concentrations of 0.584 and 0.520 mg/L, respectively).
- Considering the entire data set as a whole (all 37 data points), the $UCL_{80}$ and $UCL_{95}$ for total lead does not exceed regulatory thresholds and does not trigger the Caltrans variance. However, the $UCL_{80}$ and $UCL_{95}$ for soluble lead exceed the regulatory threshold and would be considered a California hazardous waste.

- Considering the entire data set in depth discrete layers, the $UCL_{80}$ and $UCL_{95}$ for total lead do not exceed regulatory thresholds and do not trigger the Caltrans Variance. However, Cal WET-Citric soluble lead levels exceeded the California STLC for the $UCL_{95}$ at the 0.5 and 1-foot depths.
- All VOCs were reported at concentrations less than their respective laboratory reporting limits for all samples submitted for analysis.

## 6.0 RECOMMENDATIONS

ADL is present at the site. Based on the findings and conclusions presented herein, the following is recommended:

1. A site-specific lead compliance plan should be developed to address health and safety of construction workers.

2. Excavated soil from the upper 1.5 feet bgs (ground surface to 1.5 feet bgs) may be reused onsite in accordance with Section 9.a.2 of Caltrans' Variance (Type Y-2) or disposed off site as a California hazardous waste.

3. Excavated soils below 1.5 feet may be reused onsite without restriction or released as surplus to the Contractor for disposition as non hazardous waste.

## 7.0 LIST OF PREPARERS

This ADL survey report has been prepared under the direction of the following environmental professionals.

***Preparers***

Kevin K. Miskin, P.E., SECOR International Incorporated (SECOR), M.S., Civil Engineering, Perdue University, West Lafayette, Indiana, ADL Investigation Report Senior Reviewer.

Anne Perez, SECOR, M.S., Geology, University of California, Riverside, California, ADL Investigation Report Reviewer, Caltrans Task Manager.

Andrew J. Schwartz, SECOR, B.S., Environmental Engineering Technology, Temple University, Philadelphia, Pennsylvania, ADL Survey Report Author.

If you have any questions or comments regarding the information enclosed herein, please contact the undersigned at your convenience.

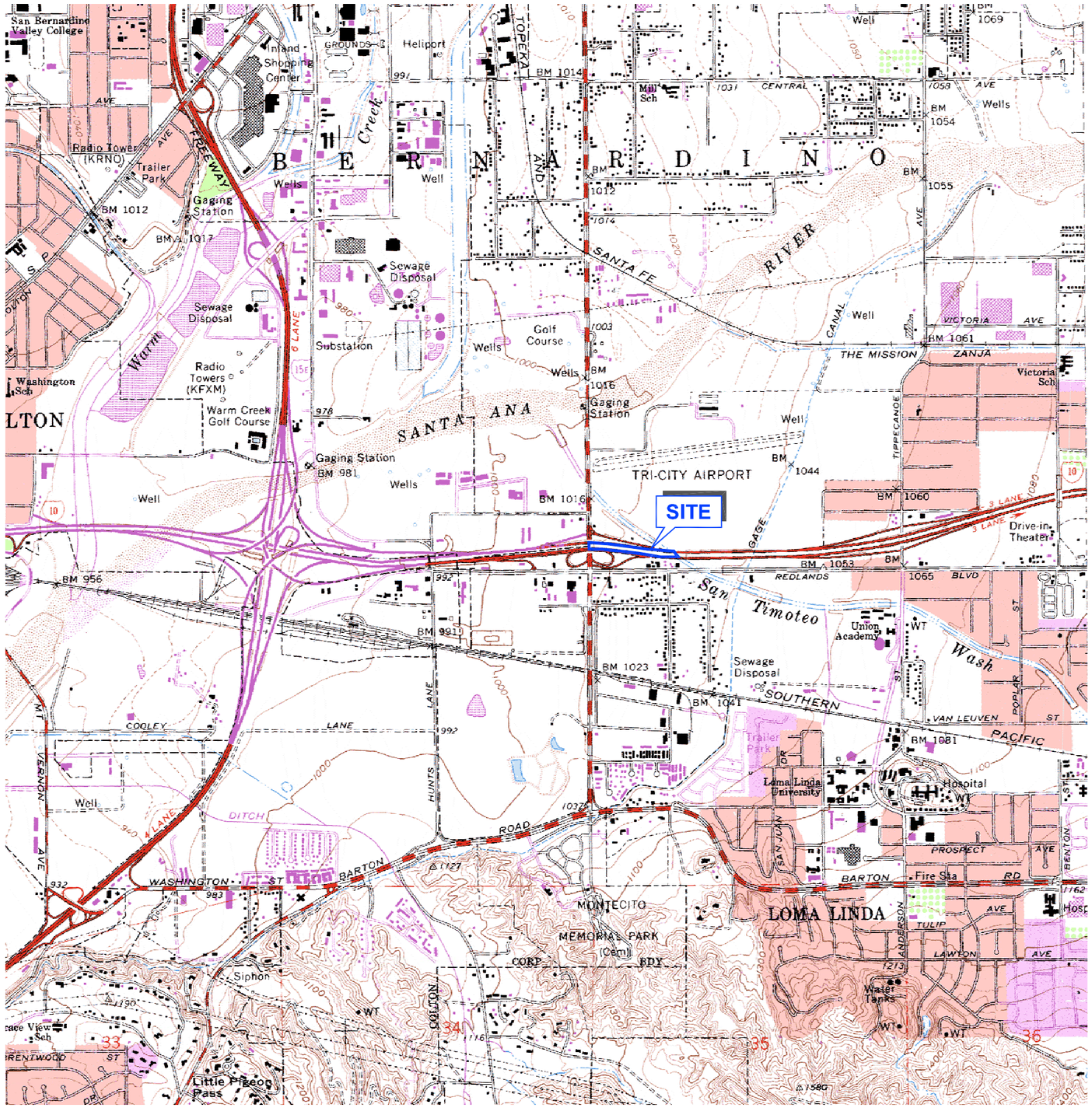
Respectfully submitted,
***SECOR International Incorporated***

Anne E. Perez
SECOR Task Order Manager

Kevin K. Miskin, PE C48458
SECOR Project Manager

REGISTERED PROFESSIONAL ENGINEER
KEVIN KOY MISKIN
No. C48458
Exp. 6/08
CIVIL
STATE OF CALIFORNIA

# FIGURES



The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

QUADRANGLE LOCATION

Reference:

UC Davis CalSIL – 034117a3.tif – San Bernardino South, California Quadrangles. 7.5–Minute Trimmed Topographic Map. Open Source – CA–State Plane–Zone V–Feet

0 2000 4000

APPROXIMATE SCALE IN FEET

| | | | | |
|---|---|---|---|---|
| CALTRANS TASK ORDER NO. 1<br>State Route 10 from Waterman Ave<br>UndercrossingTo San Timoteo Creek Bridge<br>In the City of San Bernardino<br>In San Bernardino County, CA | SITE LOCATION MAP | | | SHEET<br>1 |
| JOB NUMBER:<br>04OT.A1542.01 | DRAWN BY:<br>RRR/RO | CHECKED BY:<br>AP | APPROVED BY: | DATE:<br>12/28/07 |

FILEPATH:Q:\CADD-05\Office 004 - Drawings\CALTRANS\Task_Order_43\CT TO43 F1 STLOC.dwg | rroggasch | Jan 10, 2008 at 10:14 | Layout: Layout1

| HA-1 | Depth | Total Lead (mg/kg) | Soluble Lead STLC/WET-Cltrlc (mg/L) | Soluble Lead TCLP | pH |
|---|---|---|---|---|---|
| | 0.5 | **205** | **9.85** | 0.277 | 7.8 |
| | 1.0 | **9.87** | -- | -- | -- |
| | 2.0 | **9.65** | -- | -- | -- |
| | 3.0 | REFUSAL | -- | -- | -- |

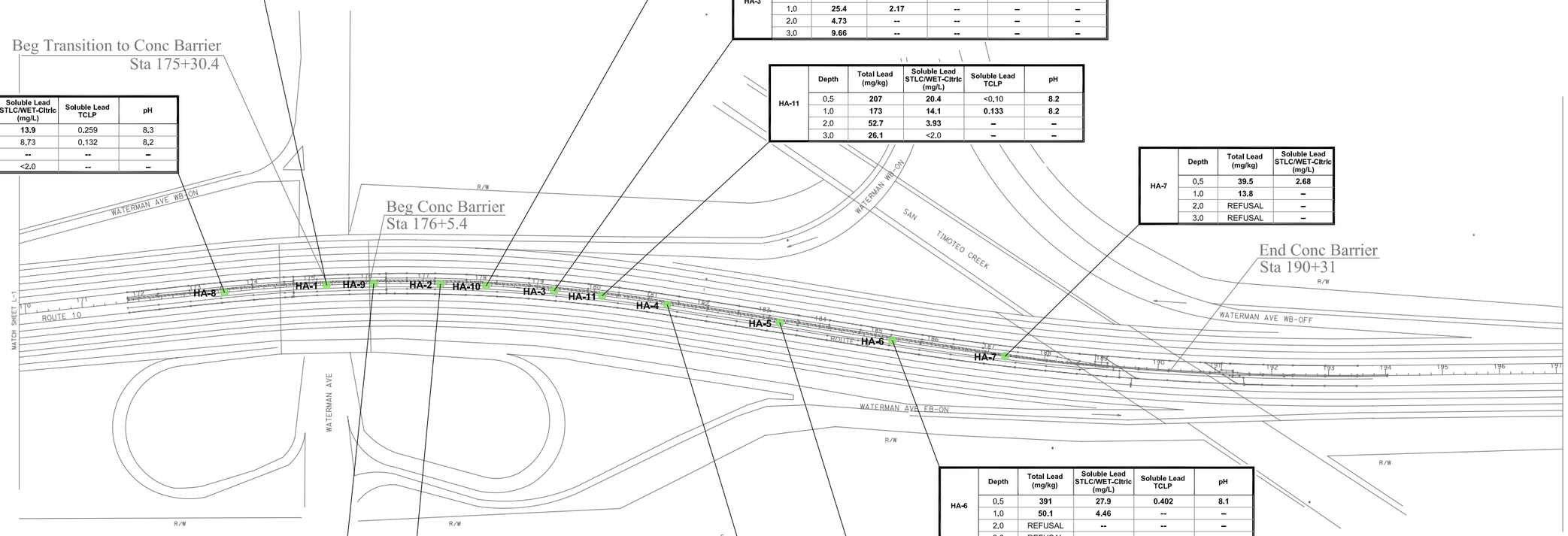
| HA-10 | Depth | Total Lead (mg/kg) | Soluble Lead STLC/WET-Cltrlc (mg/L) | Soluble Lead TCLP | pH |
|---|---|---|---|---|---|
| | 0.5 | **354** | **27.8** | **0.386** | **8.0** |
| | 1.0 | **13.3** | -- | -- | -- |
| | 2.0 | **25.8** | <2.0 | -- | -- |
| | 3.0 | **25.0** | <2.0 | -- | -- |

| HA-3 | Depth | Total Lead (mg/kg) | Soluble Lead STLC/WET-Cltrlc (mg/L) | Soluble Lead STLC/WET-DI (mg/L) | Soluble Lead TCLP | pH |
|---|---|---|---|---|---|---|
| | 0.5 | **436** | **35.9** | <0.5 | **0.435** | **7.8** |
| | 1.0 | **25.4** | **2.17** | -- | -- | -- |
| | 2.0 | **4.73** | -- | -- | -- | -- |
| | 3.0 | **9.66** | -- | -- | -- | -- |

| HA-11 | Depth | Total Lead (mg/kg) | Soluble Lead STLC/WET-Cltrlc (mg/L) | Soluble Lead TCLP | pH |
|---|---|---|---|---|---|
| | 0.5 | **207** | **20.4** | <0.10 | **8.2** |
| | 1.0 | **173** | **14.1** | **0.133** | **8.2** |
| | 2.0 | **52.7** | **3.93** | -- | -- |
| | 3.0 | **26.1** | <2.0 | -- | -- |

| HA-7 | Depth | Total Lead (mg/kg) | Soluble Lead STLC/WET-Cltrlc (mg/L) |
|---|---|---|---|
| | 0.5 | **39.5** | **2.68** |
| | 1.0 | **13.8** | -- |
| | 2.0 | REFUSAL | -- |
| | 3.0 | REFUSAL | -- |

| HA-8 | Depth | Total Lead (mg/kg) | Soluble Lead STLC/WET-Cltrlc (mg/L) | Soluble Lead TCLP | pH |
|---|---|---|---|---|---|
| | 0.5 | **95.0** | **13.9** | 0.259 | 8.3 |
| | 1.0 | **88.8** | 8.73 | 0.132 | 8.2 |
| | 2.0 | 15.6 | -- | -- | -- |
| | 3.0 | 41.8 | <2.0 | -- | -- |




| HA-6 | Depth | Total Lead (mg/kg) | Soluble Lead STLC/WET-Cltrlc (mg/L) | Soluble Lead TCLP | pH |
|---|---|---|---|---|---|
| | 0.5 | **391** | **27.9** | **0.402** | **8.1** |
| | 1.0 | **50.1** | **4.46** | -- | -- |
| | 2.0 | REFUSAL | -- | -- | -- |
| | 3.0 | REFUSAL | -- | -- | -- |

| HA-9 | Depth | Total Lead (mg/kg) | Soluble Lead STLC/WET-Cltrlc (mg/L) | Soluble Lead TCLP | pH |
|---|---|---|---|---|---|
| | 0.5 | **245** | **24.7** | **0.228** | **8.4** |
| | 1.0 | **87.9** | **10.5** | **0.185** | **8.2** |
| | 2.0 | **13.2** | -- | -- | -- |
| | 3.0 | **27.6** | **<2.0** | -- | -- |

| HA-5 | Depth | Total Lead (mg/kg) | Soluble Lead STLC/WET-Cltrlc (mg/L) | Soluble Lead STLC/WET-DI (mg/L) | Soluble Lead TCLP | pH |
|---|---|---|---|---|---|---|
| | 0.5 | **547** | **67.2** | **0.520** | **2.34** | **8.2** |
| | 1.0 | **29.6** | **2.54** | -- | -- | -- |
| | 2.0 | **12.5** | -- | -- | -- | -- |
| | 3.0 | REFUSAL | -- | -- | -- | -- |

| HA-2 | Depth | Total Lead (mg/kg) | Soluble Lead STLC/WET-Cltrlc (mg/L) | Soluble Lead STLC/WET-DI (mg/L) | Soluble Lead TCLP | pH |
|---|---|---|---|---|---|---|
| | 0.5 | **492** | **36.0** | <0.5 | **0.673** | **7.2** |
| | 1.0 | **520** | **48.2** | **0.584** | **3.02** | **8.2** |
| | 2.0 | **50.3** | **3.12** | -- | -- | -- |
| | 3.0 | REFUSAL | -- | -- | -- | -- |

| HA-4 | Depth | Total Lead (mg/kg) | Soluble Lead STLC/WET-Cltrlc (mg/L) | Soluble Lead STLC/WET-DI (mg/L) | Soluble Lead TCLP | pH |
|---|---|---|---|---|---|---|
| | 0.5 | **351** | **21.6** | -- | **0.19** | **7.4** |
| | 1.0 | **336** | **28.7** | <0.5 | **0.577** | **7.8** |
| | 2.0 | **3.32** | -- | -- | -- | -- |
| | 3.0 | 31.6 | **2.31** | -- | -- | -- |

0 200 400

APPROXIMATE SCALE IN FEET

LEGEND

HA-1 SOIL BORING (HAND AUGER) LOCATION AND NUMBER

| HA-2 | Depth | Total Lead (mg/kg) | Soluble Lead STLC/WET-Cltrlc (mg/L) | Soluble Lead STLC/WET-DI (mg/L) | Soluble Lead TCLP | pH |
|---|---|---|---|---|---|---|
| | 0.5 | **492** | **36.0** | <0.5 | **0.673** | **7.2** |
| | 1.0 | **520** | **48.2** | **0.584** | **3.02** | **8.2** |
| | 2.0 | **50.3** | **3.12** | -- | -- | -- |
| | 3.0 | REFUSAL | -- | -- | -- | -- |

SAMPLE NUMBER, DEPTH AND ANALYTICAL DATA RESULTS
-- Indicates sample analysis was not required

| CALTRANS TASK ORDER NO. 1<br>State Route 10 from Waterman Ave<br>UndercrossingTo San Timoteo Creek Bridge<br>In the City of San Bernardino<br>In San Bernardino County, CA | BORING LOCATION MAP | | | SHEET<br>2 |
|---|---|---|---|---|
| JOB NUMBER:<br>04OT.A1542.01 | DRAWN BY:<br>RRR/RO | CHECKED BY:<br>AP | APPROVED BY: | DATE:<br>12/28/07 |

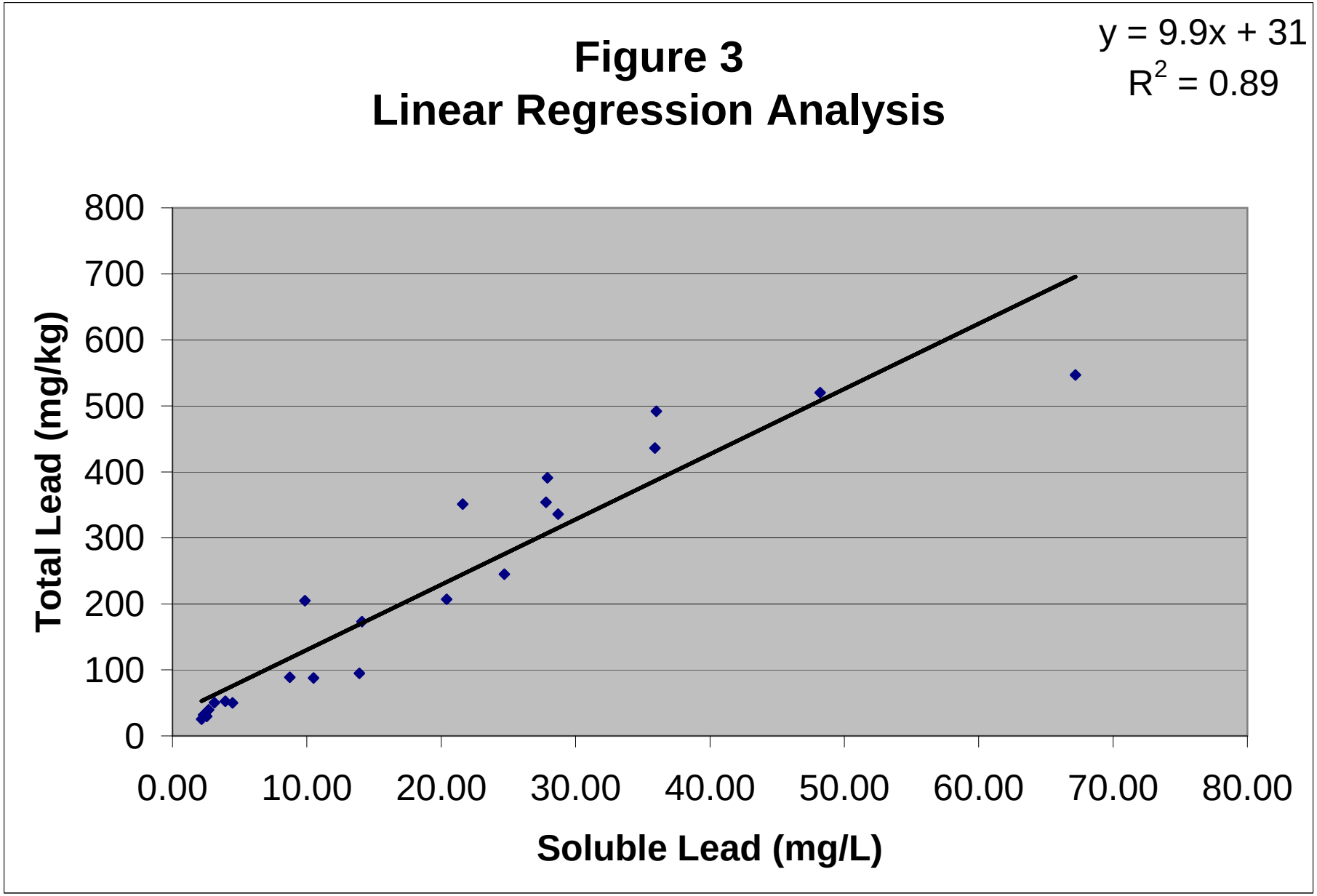
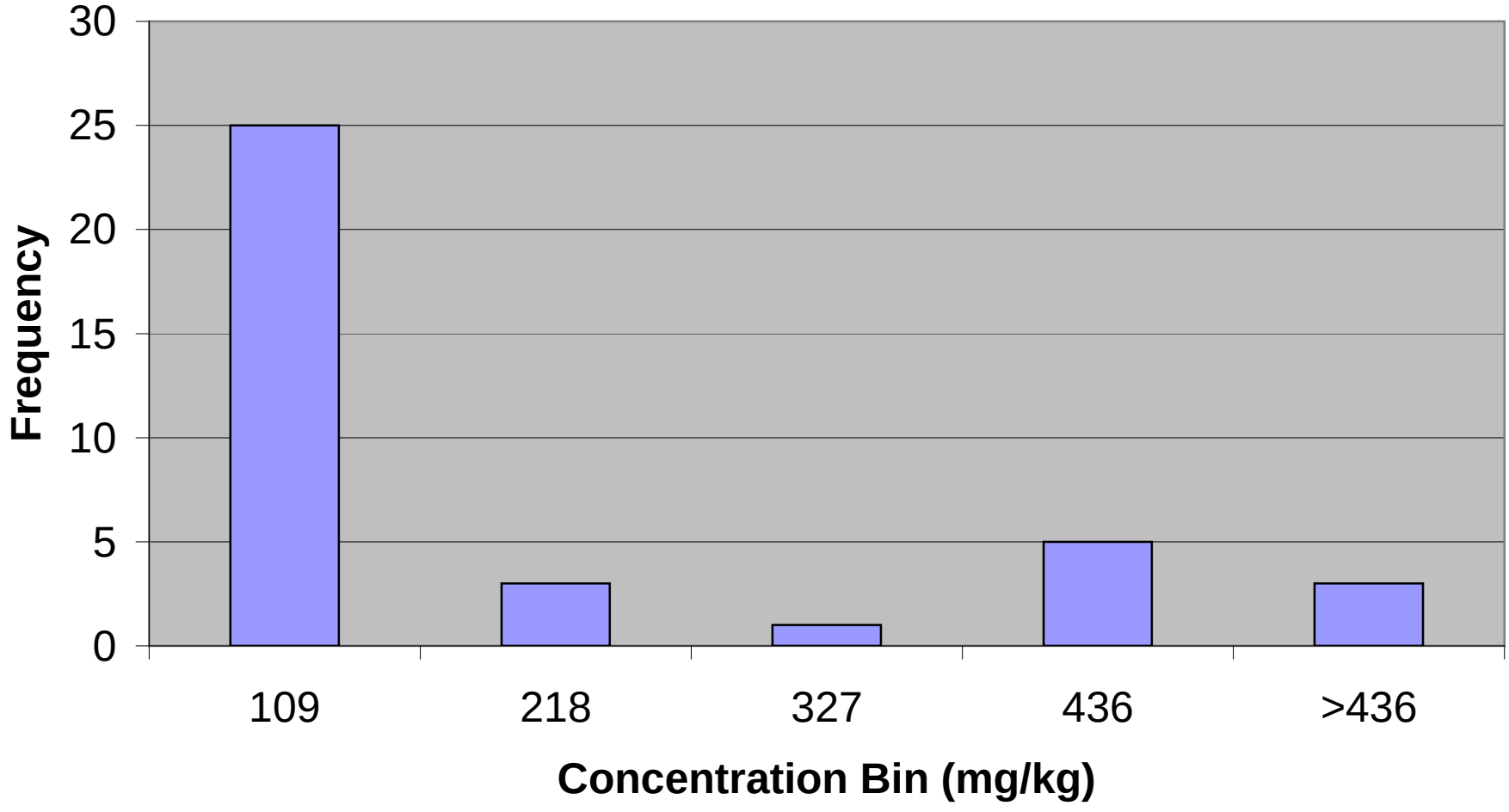
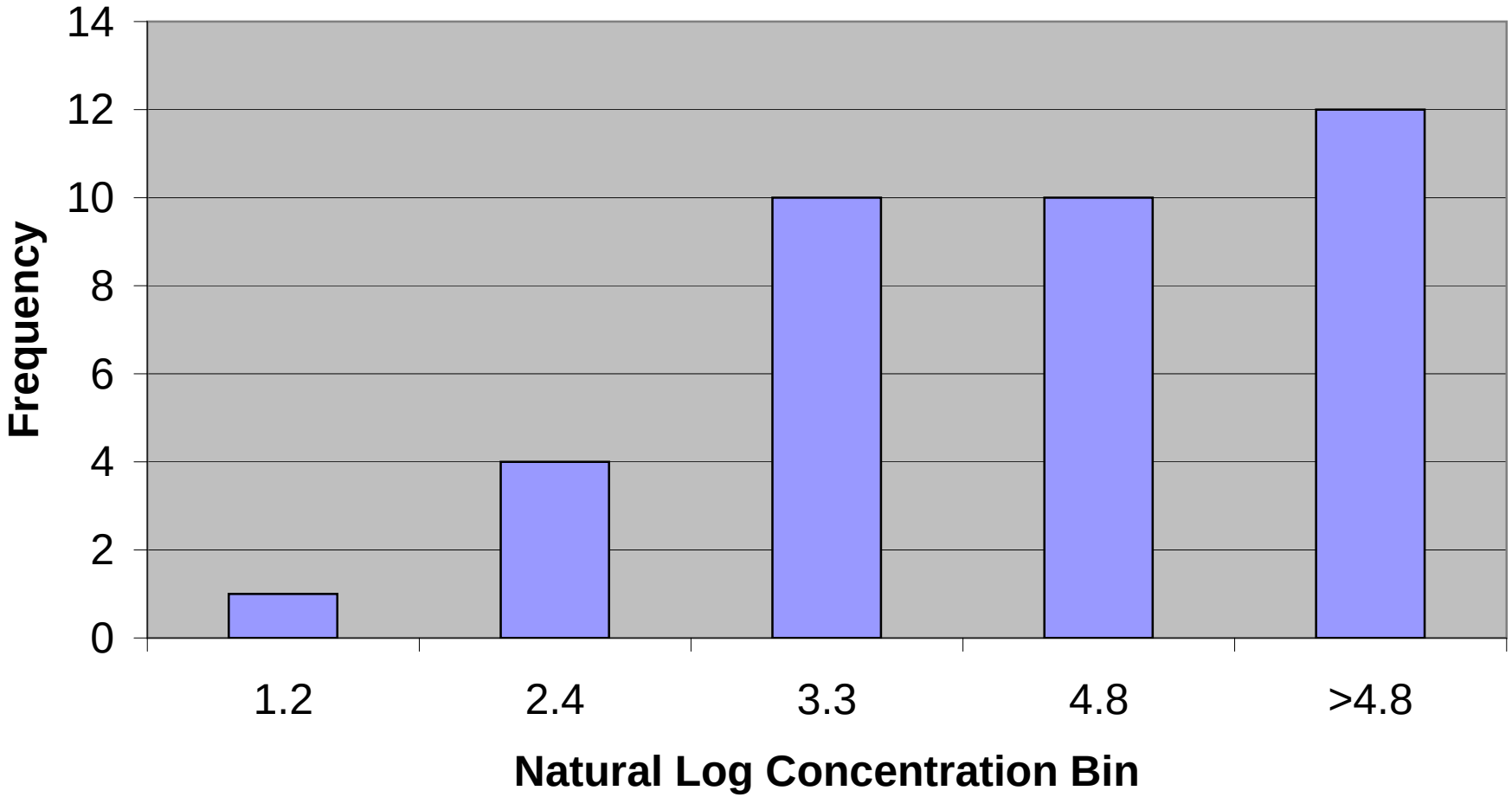


Figure 3
Linear Regression Analysis
y = 9.9x + 31
R2 = 0.89
Total Lead (mg/kg)
800
700
600
500
400
300
200
100
0
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
Soluble Lead (mg/L)

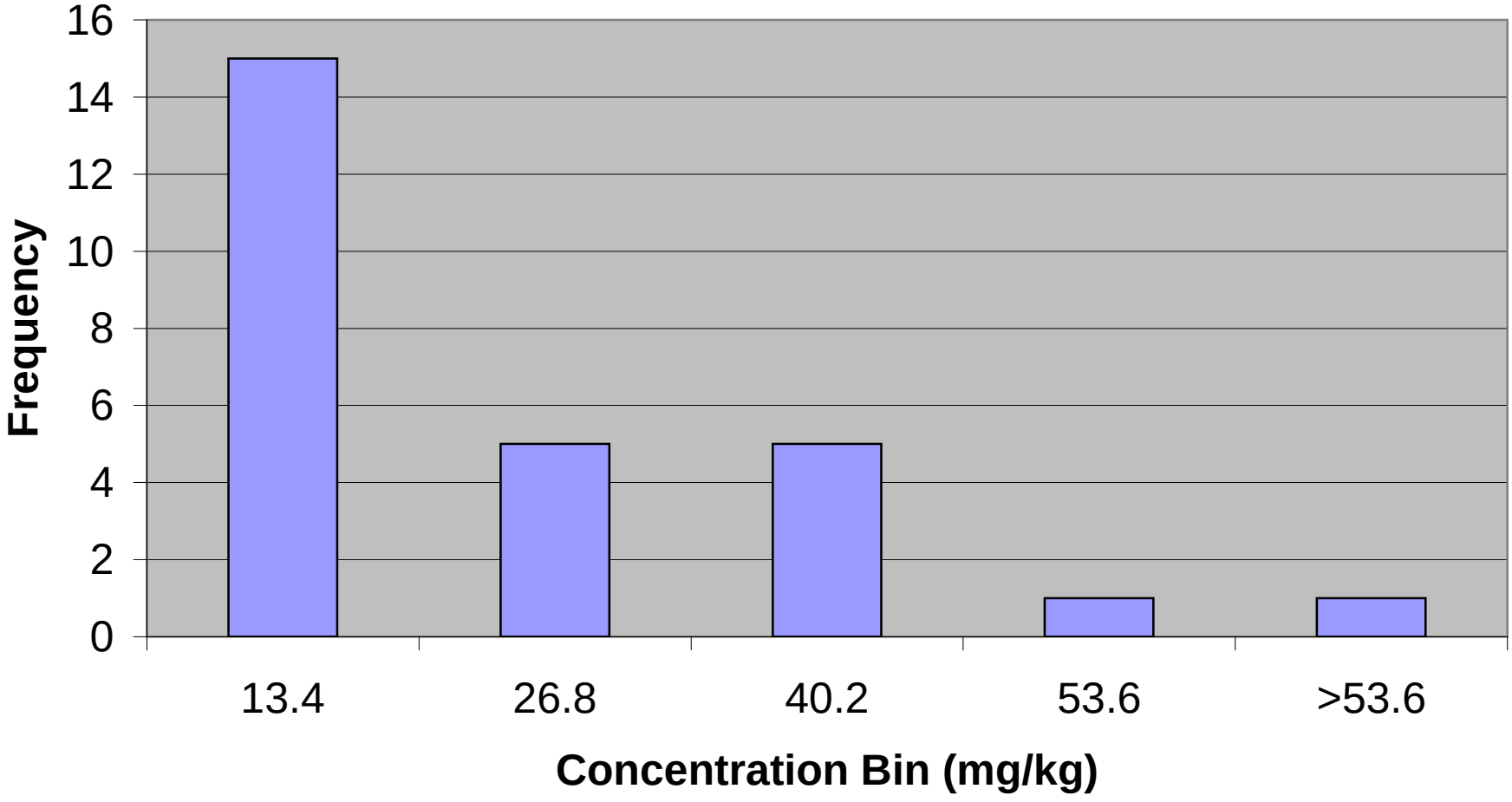
# Figure 4a
# Histogram - Total Lead (All Samples)



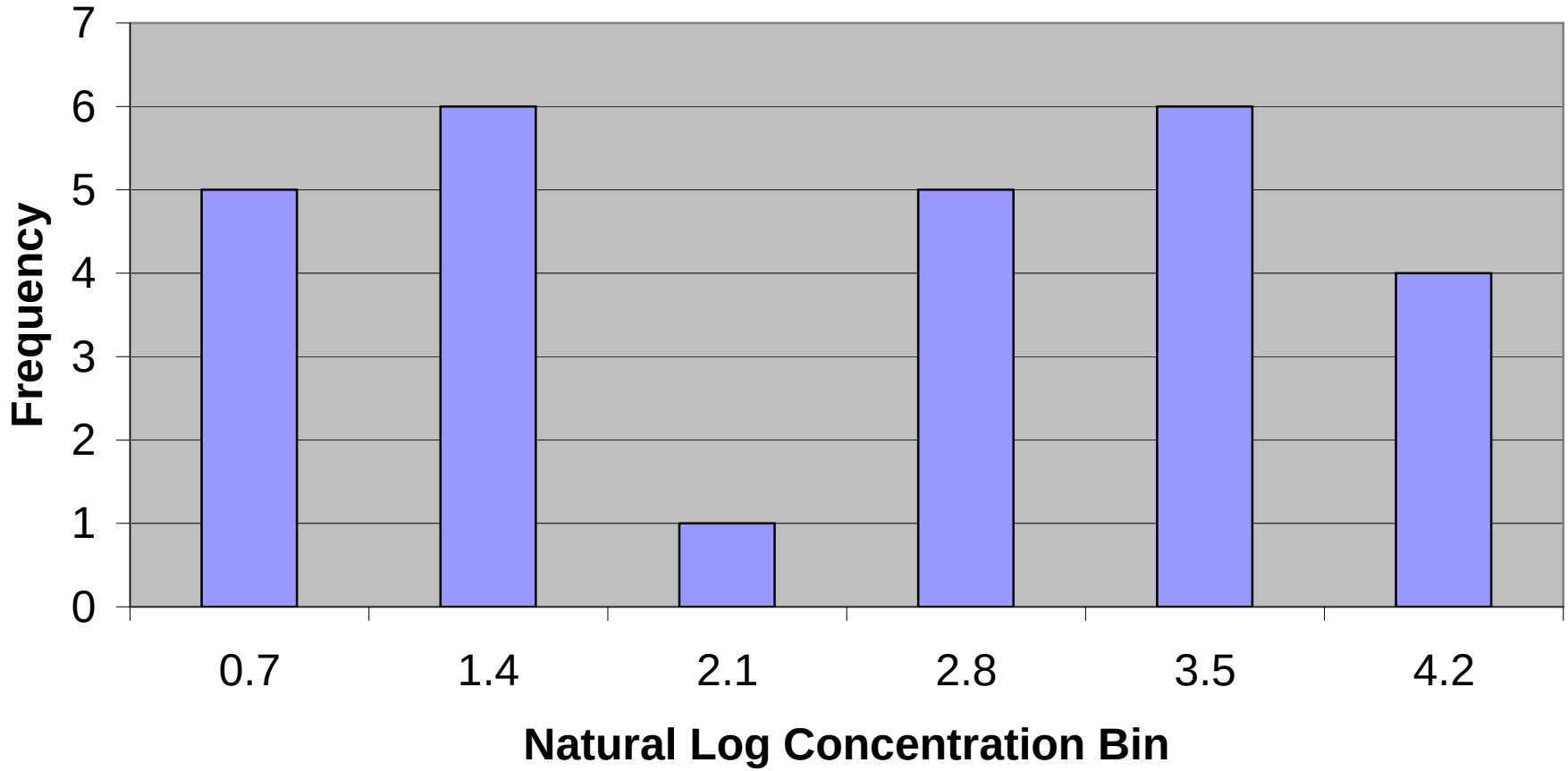
# Figure 4b
# Histogram - Total Lead (ln(x) Transformed)



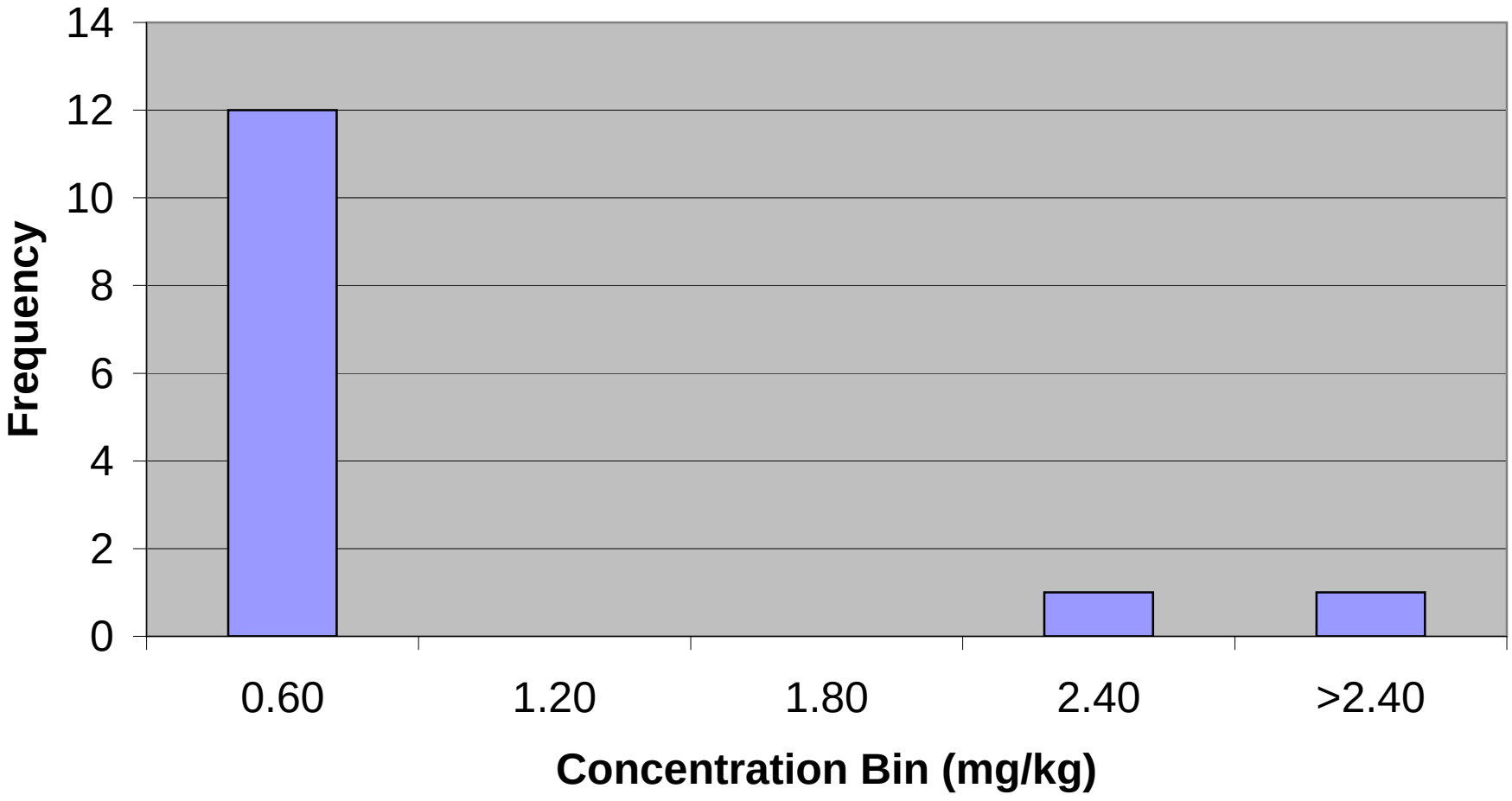
# Figure 5a
# Histogram - Soluble Lead (Cal WET-Citric)



# Figure 5b
# Histogram - Soluble Lead
# (Cal WET-Citric ln(x) Transformed)



# Figure 6a
# Histogram - Soluble Lead (TCLP)



# Figure 6b
# Histogram - Soluble Lead
# (TCLP ln(x) Transformed)

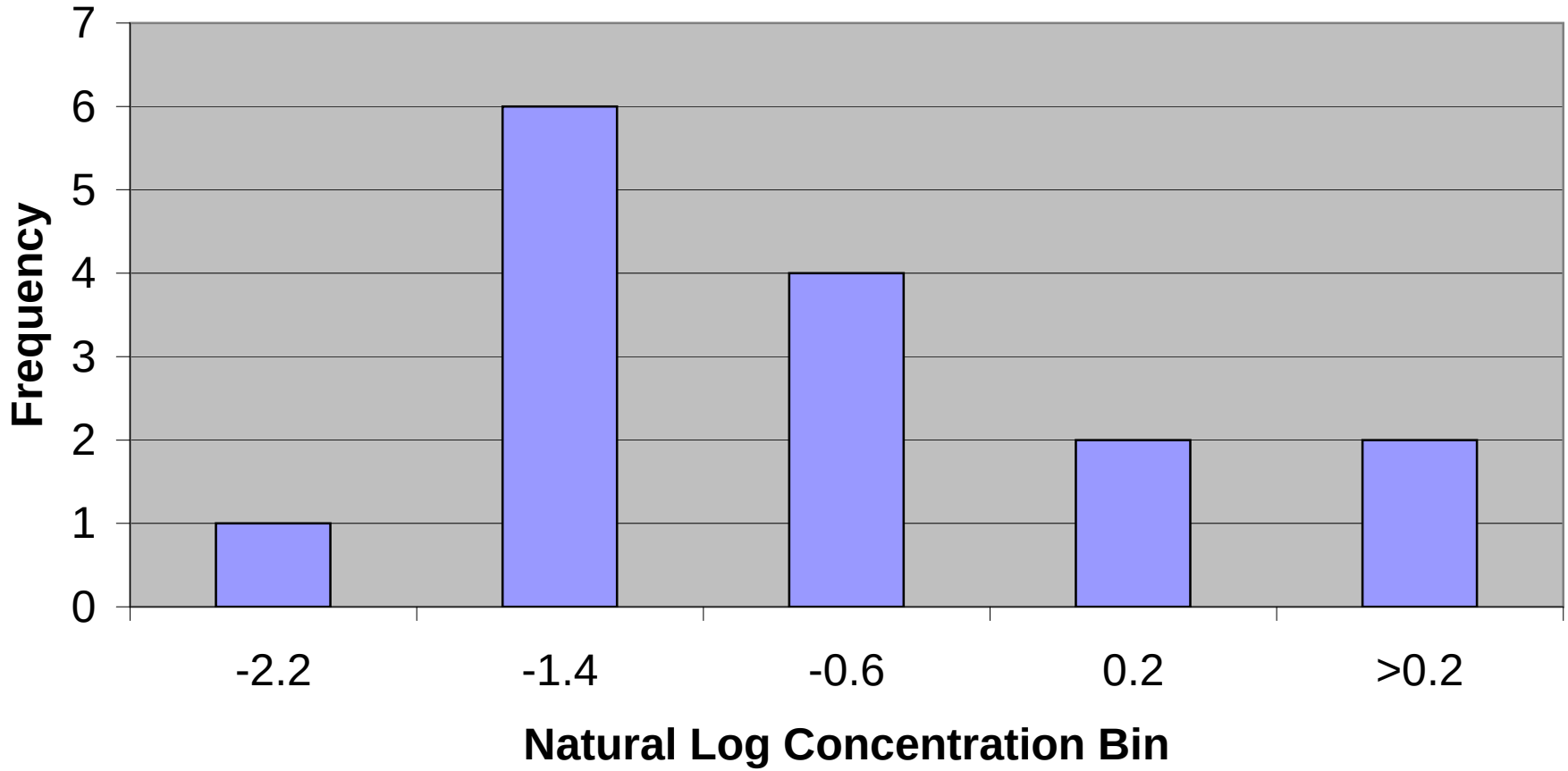


**FIGURE 7**
**BLOCK DIAGRAMS**
**95% and 80% UCLs for**
**All Areas**

| Surface Feet | Total Lead | CAL WET-Citric Soluble Lead |
|---|---|---|
| 0.5 | $UCL_{80}$ = 344<br>$UCL_{95}$ = 382 | $UCL_{80}$ = 31.6<br>$UCL_{95}$ = 35.5 |
| 1 | $UCL_{80}$ = 163<br>$UCL_{95}$ = 199 | $UCL_{80}$ = 13.4<br>$UCL_{95}$ = 17.0 |
| 2 | $UCL_{80}$ = 25.8<br>$UCL_{95}$ = 30.3 | $UCL_{80}$ = < 0.01<br>$UCL_{95}$ = < 0.01 |
| 3 | $UCL_{80}$ = 30.2<br>$UCL_{95}$ = 33.5 | $UCL_{80}$ = < 0.01<br>$UCL_{95}$ = 0.284 |

The above diagram shows the total (mg/kg) and predicted Cal WET soluble lead (mg/L) concentrations where each layer (0 to 0.75, 0.75 to 1.50, 1.50 to 2.25, and 2.25 to 3.00 feet) is treated independently.

| Surface Feet | Total Lead | CAL WET-Citric Soluble Lead |
|---|---|---|
| 0.5 | $UCL_{80}$ = 344<br>$UCL_{95}$ = 382 | $UCL_{80}$ = 31.6<br>$UCL_{95}$ = 35.4 |
| 1 | | |
| 2 | $UCL_{80}$ = 84.0<br>$UCL_{95}$ = 100 | $UCL_{80}$ = 5.35<br>$UCL_{95}$ = 6.97 |
| 3 | | |

The above diagram shows the total (mg/kg) and predicted Cal WET soluble lead (mg/L) concentrations where the upper 0.75 feet is treated independently of an underlying layer ranging from 0.75 to 3.00 feet.

| Surface Feet | Total Lead | CAL WET-Citric Soluble Lead |
|---|---|---|
| 0.5 | $UCL_{80}$ = 246<br>$UCL_{95}$ = 277 | $UCL_{80}$ = 21.7<br>$UCL_{95}$ = 24.8 |
| 1 | | |
| 2 | $UCL_{80}$ = 26.5<br>$UCL_{95}$ = 29.7 | $UCL_{80}$ = < 0.01<br>$UCL_{95}$ = < 0.01 |
| 3 | | |

The above diagram shows the total (mg/kg) and predicted Cal WET soluble lead (mg/L) concentrations where the upper 1.50 feet is treated independently of an underlying layer ranging from 1.50 to 3.00 feet.

| Surface Feet | Total Lead | CAL WET-Citric Soluble Lead |
|---|---|---|
| 0.5 | | |
| 1 | $UCL_{80}$ = 185<br>$UCL_{95}$ = 210 | $UCL_{80}$ = 15.6<br>$UCL_{95}$ = 18.1 |
| 2 | | |
| 3 | $UCL_{80}$ = 30.2<br>$UCL_{95}$ = 33.5 | $UCL_{80}$ = < 0.01<br>$UCL_{95}$ = 0.284 |

The above diagram shows the total (mg/kg) and predicted Cal WET soluble lead (mg/L) concentrations where the upper 2.25 feet is treated independently of an underlying layer ranging from 2.25 to 3.00 feet.

| Surface Feet | Total Lead | CAL WET-Citric Soluble Lead |
|---|---|---|
| 0.5 | | |
| 1 | $UCL_{80}$ = 160<br>$UCL_{95}$ = 181 | $UCL_{80}$ = 13.1<br>$UCL_{95}$ = 15.2 |
| 2 | | |
| 3 | | |

The above diagram shows the total (mg/kg) and predicted Cal WET soluble lead (mg/L) concentrations for all combined depths ranging from 0 to 3.00 feet.

# TABLES

**Table 1**
**Summary of Soil Analytical Test Results**
**10 Freeway between Waterman and San Timoteo Creek,**
**San Bernardino County, California**

| Sample ID | Total Lead [1] (mg/kg) | Soluble Lead [1] Cal WET-Citric (mg/L) | Soluble Lead [1] Cal WET-DI (mg/L) | Soluble Lead [1] TCLP (mg/L) | pH [2] |
|---|---|---|---|---|---|
| HA-1-0.5 | **205** | **9.85** | -- | 0.277 | 7.8 |
| HA-1-1.0 | 9.87 | -- | -- | -- | -- |
| HA-1-2.0 | 9.65 | -- | -- | -- | -- |
| HA-1-3.0 | REFUSAL | -- | -- | -- | -- |
| HA-2-0.5 | **492** | **36.0** | <0.5 | 0.673 | 7.2 |
| HA-2-1.0 | **520** | **48.2** | **0.584** | 3.02 | 8.2 |
| HA-2-2.0 | **50.3** | 3.12 | -- | -- | -- |
| HA-2-3.0 | REFUSAL | -- | -- | -- | -- |
| HA-3-0.5 | **436** | **35.9** | <0.5 | 0.435 | 7.8 |
| HA-3-1.0 | **25.4** | 2.17 | -- | -- | -- |
| HA-3-2.0 | 4.73 | -- | -- | -- | -- |
| HA-3-3.0 | 9.66 | -- | -- | -- | -- |
| HA-4-0.5 | **351** | 21.6 | -- | 0.19 | 7.4 |
| HA-4-1 | **336** | **28.7** | <0.5 | 0.577 | 7.8 |
| HA-4-2 | 3.32 | -- | -- | -- | -- |
| HA-4-3 | **31.6** | 2.31 | -- | -- | -- |
| HA-5-0.5 | **547** | **67.2** | **0.520** | 2.34 | 8.2 |
| HA-5-1 | **29.6** | 2.54 | -- | -- | -- |
| HA-5-2 | 12.5 | -- | -- | -- | -- |
| HA-5-3 | REFUSAL | -- | -- | -- | -- |
| HA-6-0.5 | **391** | **27.9** | -- | 0.402 | 8.1 |
| HA-6-1 | **50.1** | 4.46 | -- | -- | -- |
| HA-6-2 | REFUSAL | -- | -- | -- | -- |
| HA-6-3 | REFUSAL | -- | -- | -- | -- |
| HA-7-0.5 | **39.5** | 2.68 | -- | -- | -- |
| HA-7-1 | 13.8 | -- | -- | -- | -- |
| HA-7-2 | REFUSAL | -- | -- | -- | -- |
| HA-7-3 | REFUSAL | -- | -- | -- | -- |
| HA-8-0.5 | **95.0** | **13.9** | -- | 0.259 | 8.3 |
| HA-8-1 | **88.8** | **8.73** | -- | 0.132 | 8.2 |
| HA-8-2 | 15.6 | -- | -- | -- | -- |
| HA-8-3 | **41.8** | <2.0 | -- | -- | -- |
| HA-9-0.5 | **245** | **24.7** | -- | 0.228 | 8.4 |
| HA-9-1 | **87.9** | **10.5** | -- | 0.185 | 8.2 |
| HA-9-2 | 13.2 | -- | -- | -- | -- |
| HA-9-3 | **27.6** | <2.0 | -- | -- | -- |
| HA-10-0.5 | **354** | **27.8** | -- | 0.386 | 8.0 |
| HA-10-1 | 13.3 | -- | -- | -- | -- |
| HA-10-2 | **25.8** | <2.0 | -- | -- | -- |
| HA-10-3 | **25.0** | <2.0 | -- | -- | -- |
| HA-11-0.5 | **207** | **20.4** | -- | <0.10 | 8.2 |
| HA-11-1 | **173** | **14.1** | -- | 0.133 | 8.2 |
| HA-11-2 | **52.7** | 3.93 | -- | -- | -- |
| HA-11-3 | **26.1** | <2.0 | -- | -- | -- |

**Notes:**

(1) Total Lead, Soluble Threshold Limit Concentration (STLC or "Soluble Lead"), and Toxicity Characteristic Leaching Procedure (TCLP) analysis done using EPA method 6010B.

(2) pH determined with EPA method 9045B.

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

NS = Not Sampled due to refusal

ND = not detected, concentration less than reporting limit

**Table 2**
**Frequency Distribution Analysis**
**10 Freeway between Waterman and San Timoteo Creek,**
**San Bernardino County, California**

| Sample ID | Total Lead (mg/kg) | Total Lead ln(x) Transformed | Soluble Lead Cal WET-Citric (mg/L) | Cal WET-Citric ln(x) Transformed | Soluble Lead TCLP (mg/L) | TCLP ln(x) Transformed |
|---|---|---|---|---|---|---|
| HA-1-0.5 | 205 | 5.32 | 9.85 | 2.29 | 0.277 | -1.28 |
| HA-1-1.0 | 9.87 | 2.29 | -- | -- | -- | -- |
| HA-1-2.0 | 9.65 | 2.27 | -- | -- | -- | -- |
| HA-2-0.5 | 492 | 6.20 | 36.0 | 3.58 | 0.673 | -0.396 |
| HA-2-1.0 | 520 | 6.25 | 48.2 | 3.88 | 3.02 | 1.11 |
| HA-2-2.0 | 50.3 | 3.92 | 3.12 | 1.14 | -- | -- |
| HA-3-0.5 | 436 | 6.08 | 35.9 | 3.58 | 0.435 | -0.832 |
| HA-3-1.0 | 25.4 | 3.23 | 2.17 | 0.775 | -- | -- |
| HA-3-2.0 | 4.73 | 1.55 | -- | -- | -- | -- |
| HA-3-3.0 | 9.66 | 2.27 | -- | -- | -- | -- |
| HA-4-0.5 | 351 | 5.86 | 21.6 | 3.07 | 0.19 | -1.66 |
| HA-4-1 | 336 | 5.82 | 28.7 | 3.36 | 0.577 | -0.550 |
| HA-4-2 | 3.32 | 1.20 | -- | -- | -- | -- |
| HA-4-3 | 31.6 | 3.45 | 2.31 | 0.837 | -- | -- |
| HA-5-0.5 | 547 | 6.30 | 67.2 | 4.21 | 2.34 | 0.850 |
| HA-5-1 | 29.6 | 3.39 | 2.54 | 0.932 | -- | -- |
| HA-5-2 | 12.5 | 2.53 | -- | -- | -- | -- |
| HA-6-0.5 | 391 | 5.97 | 27.9 | 3.33 | 0.402 | -0.911 |
| HA-6-1 | 50.1 | 3.91 | 4.46 | 1.50 | -- | -- |
| HA-7-0.5 | 39.5 | 3.68 | 2.68 | 0.986 | -- | -- |
| HA-7-1 | 13.8 | 2.62 | -- | -- | -- | -- |
| HA-8-0.5 | 95.0 | 4.55 | 13.9 | 2.63 | 0.259 | -1.35 |
| HA-8-1 | 88.8 | 4.49 | 8.73 | 2.17 | 0.132 | -2.02 |
| HA-8-2 | 15.6 | 2.75 | -- | -- | -- | -- |
| HA-8-3 | 41.8 | 3.73 | 1.0 | 0.0 | -- | -- |
| HA-9-0.5 | 245 | 5.50 | 24.7 | 3.21 | 0.228 | -1.48 |
| HA-9-1 | 87.9 | 4.48 | 10.5 | 2.35 | 0.185 | -1.69 |
| HA-9-2 | 13.2 | 2.58 | -- | -- | -- | -- |
| HA-9-3 | 27.6 | 3.32 | 1.0 | 0.0 | -- | -- |
| HA-10-0.5 | 354 | 5.87 | 27.8 | 3.33 | 0.386 | -0.952 |
| HA-10-1 | 13.3 | 2.59 | -- | -- | -- | -- |
| HA-10-2 | 25.8 | 3.25 | 1.0 | 0.0 | -- | -- |
| HA-10-3 | 25.0 | 3.22 | 1.0 | 0.0 | -- | -- |
| HA-11-0.5 | 207 | 5.33 | 20.4 | 3.02 | 0.050 | -3.00 |
| HA-11-1 | 173 | 5.15 | 14.1 | 2.65 | 0.133 | -2.02 |

**Table 2**
**Frequency Distribution Analysis**
**10 Freeway between Waterman and San Timoteo Creek,**
**San Bernardino County, California**

| Sample ID | Total Lead (mg/kg) | Total Lead ln(x) Transformed | Soluble Lead Cal WET-Citric (mg/L) | Cal WET-Citric ln(x) Transformed | Soluble Lead TCLP (mg/L) | TCLP ln(x) Transformed |
|---|---|---|---|---|---|---|
| HA-11-2 | 52.7 | 3.96 | 3.93 | 1.37 | -- | -- |
| HA-11-3 | 26.1 | 3.26 | 1.0 | 0.0 | -- | -- |
| **Min. Value** | 3.32 | 1.20 | 1.0 | 0.0 | 0.050 | -3.00 |
| **Max. Value** | 547 | 6.30 | 67.2 | 4.21 | 3.02 | 1.11 |
| **Mean** | 137 | 4.00 | 15.6 | 2.01 | 0.619 | -1.08 |
| **Median** | 41.8 | 3.73 | 9.85 | 2.29 | 0.277 | -1.28 |
| **St. Dev.** | 170 | 1.47 | 16.9 | 1.38 | 0.863 | 1.06 |
| **Variance** | 28,900 | 2.16 | 287 | 1.92 | 0.745 | 1.13 |

Note:
For statistical analysis, laboratory analytical results less than the reporting limit are represented as one-half the reporting limit as shown in blue font.
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
STLC = Soluble Threshold Limit Concentration

**Table 3**
**Linear Regression Analysis**
**10 Freeway between Waterman and San Timoteo Creek,**
**San Bernardino County, California**

| Sample ID | Total Lead (mg/kg) (Y) | Soluble Lead STLC/WET-Citric (mg/L) (X) | Product of Total Lead and Soluble Lead (X) x (Y) |
|---|---|---|---|
| HA-1-0.5 | 205 | 9.85 | 2,019 |
| HA-2-0.5 | 492 | 36.0 | 17,712 |
| HA-2-1.0 | 520 | 48.2 | 25,064 |
| HA-2-2.0 | 50.3 | 3.12 | 157 |
| HA-3-0.5 | 436 | 35.9 | 15,652 |
| HA-3-1.0 | 25.4 | 2.17 | 55 |
| HA-4-0.5 | 351 | 21.6 | 7,582 |
| HA-4-1 | 336 | 28.7 | 9,643 |
| HA-4-3 | 31.6 | 2.31 | 73 |
| HA-5-0.5 | 547 | 67.2 | 36,758 |
| HA-5-1 | 29.6 | 2.54 | 75 |
| HA-6-0.5 | 391 | 27.9 | 10,909 |
| HA-6-1 | 50.1 | 4.46 | 223 |
| HA-7-0.5 | 39.5 | 2.68 | 106 |
| HA-8-0.5 | 95.0 | 13.9 | 1,321 |
| HA-8-1 | 88.8 | 8.73 | 775 |
| HA-9-0.5 | 245 | 24.7 | 6,052 |
| HA-9-1 | 87.9 | 10.5 | 923 |
| HA-10-0.5 | 354 | 27.8 | 9,841 |
| HA-11-0.5 | 207 | 20.4 | 4,223 |
| HA-11-1 | 173 | 14.1 | 2,439 |
| HA-11-2 | 52.7 | 3.93 | 207 |
| **Mean** | 219 | 18.9 | 6,900 |
| **Standard Deviation** | 180 | 17.1 | -- |

| | |
|---|---|
| **Number of Samples** | 22 |
| **Calculated r Value** (1) | 0.94 |
| **$r^2$** | 0.89 |
| **Slope (m)** (2) | 9.9 |
| **Intercept (b)** (3) | 31 |
| **y=mx+b** | y=9.9x+ 31 |
| | x=(y-31)/9.9 |

**Notes:**

(1) r = {[(average of the product of Total Lead and Soluble Lead) - ((Soluble Lead average) x (Total Lead average))] / [(standard deviation of Soluble Lead) x (standard deviation of Total Lead)]} x (number of samples / (number of samples - 1))

(2) Slope (m) = (r value) x (standard deviation of total lead) / (standard deviation of soluble lead)

(3) Intercept (b) = (average total lead concentration) - (slope (a)) x (average soluble lead level)

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

STLC = Soluble Threshold Limit Concentration

**Table 4**
**Summary of Statistical Analysis Results**
**Total Lead and Soluble Lead by EPA Test Method 6010B**

| Parameter | Total Lead | | Total Lead Corresponding to Soluble Lead (Cal WET-Citric) Data [1] | | Soluble Lead Data (Cal WET-Citric) | | Soluble Lead Data (TCLP) | |
|---|---|---|---|---|---|---|---|---|
| Number of Data Points | 37 | | 22 | | 27 | | 15 | |
| Minimum Value | 3.32 (mg/kg) | | 25.4 (mg/kg) | | 1.0 (mg/L) | | 0.0500 (mg/L) | |
| Maximum Value | 547 (mg/kg) | | 547 (mg/kg) | | 67.2 (mg/L) | | 3.02 (mg/L) | |
| Mean | 137 (mg/kg) | | 219 (mg/kg) | | 15.6 (mg/L) | | 0.340 (mg/L) | |
| Median | 41.8 (mg/kg) | | 189 (mg/kg) | | 9.85 (mg/L) | | 0.277 (mg/L) | |
| Standard Deviation | 170 (mg/kg) | | 180 (mg/kg) | | 16.9 (mg/L) | | 2.89 (mg/L) | |
| 80% UCL | 160 (mg/kg) | (2) | 250 (mg/kg) | (2) | 18.3 (mg/L) | (2) | 0.431 (mg/L) | (3) |
| 80% UCL Method [3] | Standard Bootstrap | (2) | Standard Bootstrap | (2) | Standard Bootstrap | (2) | Student's-t | (3) |
| 95% UCL | 181 (mg/kg) | (2) | 280 (mg/kg) | (2) | 21.0 (mg/L) | (2) | 0.551 (mg/L) | (3) |
| 95% UCL Method [3] | Standard Bootstrap | (2) | Standard Bootstrap | (2) | Standard Bootstrap | (2) | Student's-t | (3) |
| Are Data Normal? | No | (2) | No | (2) | No | (2) | No | (3) |
| Are Data Lognormal? | No | (2) | No | (2) | No | (2) | Yes | (3) |

**Notes:**
(1) A soluble lead test (STLC) was not performed on every sample. As such, a subset of the total data set was created which only includes total lead samples that have both detectable total lead and soluble lead results.
(2) Taken from the Environmental Protection Agency's statistical program, ProUCL, Version 3.00.02. Student's-t UCL was used If the data were normal. The standard bootstrap UCL was used if the data were non-parametric.
(3) If lognormal, the data were transformed using the natural log function (ln[x]) and the mean and UCLs determined using Student's-t. The mean and UCLs were then transformed using the inverse natural log function ($e^x$).

mg/kg = milligrams per kilogram
mg/L = milligrams per liter
STLC = Soluble Threshold Limit Concentration

**Table 5**
**Statistical Analysis by Depth**
**10 Freeway between Waterman and San Timoteo Creek,**
**San Bernardino County, California**

| Parameter | Total Lead [1] | Soluble Lead Cal WET-Citric [2] |
|---|---|---|
| **0.15 Meter Depth** | | |
| Number of Samples | 11 | |
| Minimum Result | 39.5 | |
| Maximum Result | 547 | |
| Mean | 306 | 27.8 |
| Standard Deviation | 161 | |
| Variance | 26,000 | |
| 80% UCL | 344 | 31.6 |
| 95% UCL | 382 | 35.5 |
| Distribution | non-parametric | |
| **0.30 Meter Depth** | | |
| Number of Samples | 11 | |
| Minimum Result | 9.87 | |
| Maximum Result | 520 | |
| Mean | 123 | 9.28 |
| Standard Deviation | 164 | |
| Variance | 26,800 | |
| 80% UCL | 163 | 13.4 |
| 95% UCL | 199 | 17.0 |
| Distribution | non-parametric | |
| **0.60 Meter Depths** | | |
| Number of Samples | 9 | |
| Minimum Result | 3.32 | |
| Maximum Result | 53 | |
| Mean | 20.9 | < 0.01 |
| Standard Deviation | 18.6 | |
| Variance | 344 | |
| 80% UCL | 25.8 | < 0.01 |
| 95% UCL | 30.3 | < 0.01 |
| Distribution | non-parametric | |
| **0.90 Meter Depths** | | |
| Number of Samples | 6 | |
| Minimum Result | 9.66 | |
| Maximum Result | 41.8 | |
| Mean | 27.0 | < 0.01 |
| Standard Deviation | 10.5 | |
| Variance | 109 | |
| 80% UCL | 30.2 | < 0.01 |
| 95% UCL | 33.5 | 0.284 |
| Distribution | non-parametric | |

**Table 5**
**Statistical Analysis by Depth**
**10 Freeway between Waterman and San Timoteo Creek,**
**San Bernardino County, California**

| Parameter | Total Lead [1] | Soluble Lead Cal WET-Citric [2] |
|---|---|---|
| **0.15 + 0.30 Meter Depths** | | |
| Number of Samples | 22 | |
| Minimum Result | 9.87 | |
| Maximum Result | 547 | |
| Mean | 214 | 18.5 |
| Standard Deviation | 184 | |
| Variance | 34,000 | |
| 80% UCL | 246 | 21.7 |
| 95% UCL | 277 | 24.9 |
| Distribution | non-parametric | |
| **0.15 + 0.30 + 0.60 Meter Depths** | | |
| Number of Samples | 31 | |
| Minimum Result | 3.32 | |
| Maximum Result | 547 | |
| Mean | 158 | 12.9 |
| Standard Deviation | 178 | |
| Variance | 31,800 | |
| 80% UCL | 185 | 15.6 |
| 95% UCL | 210 | 18.1 |
| Distribution | non-parametric | |
| **All Depths** | | |
| Number of Samples | 37 | |
| Minimum Result | 3.32 | |
| Maximum Result | 547 | |
| Mean | 137 | 10.7 |
| Standard Deviation | 170 | |
| Variance | 28,900 | |
| 80% UCL | 160 | 13.1 |
| 95% UCL | 181 | 15.2 |
| Distribution | non-parametric | |
| **0.30 + 0.60 Meter Depths** | | |
| Number of Samples | 20 | |
| Minimum Result | 3.32 | |
| Maximum Result | 520 | |
| Mean | 76.8 | 4.66 |
| Standard Deviation | 130 | |
| Variance | 17,000 | |
| 80% UCL | 101 | 7.10 |
| 95% UCL | 125 | 9.53 |
| Distribution | non-parametric | |

**Table 5**
**Statistical Analysis by Depth**
**10 Freeway between Waterman and San Timoteo Creek,**
**San Bernardino County, California**

| Parameter | Total Lead [1] | Soluble Lead Cal WET-Citric [2] |
|---|---|---|
| **0.30 + 0.60 + 0.90 Meter Depths** | | |
| Number of Samples | 26 | |
| Minimum Result | 3.32 | |
| Maximum Result | 520 | |
| Mean | 65.3 | 3.49 |
| Standard Deviation | 116 | |
| Variance | 13,300 | |
| 80% UCL | 84.0 | 5.38 |
| 95% UCL | 100 | 7.00 |
| Distribution | non-parametric | |
| **0.60 + 0.90 Meter Depths** | | |
| Number of Samples | 15 | |
| Minimum Result | 3.32 | |
| Maximum Result | 52.7 | |
| Mean | 23.3 | < 0.01 |
| Standard Deviation | 15.7 | |
| Variance | 245 | |
| 80% UCL | 26.5 | < 0.01 |
| 95% UCL | 29.7 | < 0.01 |
| Distribution | non-parametric | |

**Notes:**

(1) Results for total lead are in milligrams per kilogram (mg/kg).

(2) Soluble Lead Threshold Concentration (STLC) results are in milligrams per liter (mg/L) and were calculated using linear regression analysis (Table 3).

Statistical results were obtained from the Environmental Protection Agency's statistical program, ProUCL, Version 3.00.02. Student's-t UCL was used If the data were normal. The standard bootstrap UCL was used if the data were non-parametric.

If lognormal, the data were transformed using the natural log function (ln[x]) and the mean and UCLs determined using Student's-t. The mean and UCLs were then transformed using the inverse natural log function ($e^x$).

# APPENDIX A
# ANALYTICAL LABORATORY REPORTS

Centrum Analytical Laboratories, Inc.
Certified Hazardous Waste Testing Mobile & In House Laboratories

| | | | |
|---|---|---|---|
| Client: | SECOR<br>25864-F Business Center Dr.<br>Redlands, CA 92374-4515 | Date Sampled:<br>Date Received:<br>Job Number: | 12/28/07<br>12/28/07<br>30641 |

Project: I-10 ADL Survey

## CASE NARRATIVE

The following information applies to samples which were received on 12/28/07:

The samples were received at the laboratory directly from the field and were cooled to 4ºC upon arrival. The sample containers were intact.

Unless otherwise noted below, the Quality Control acceptance criteria were met for all samples for every analysis requested. The date of issue for this report is 01/07/08.

**This report is a re-issue. The data herein is a revised reporting of the results for these analyses and supersedes any other version issued previously.**

Report approved by:

Robert R. Clark, PhD
President

ELAP Lab# 2419, 2479, 2527, 2373, 2562

RL: Reporting Limit -- The lowest level at which the compound can be reliably detected under normal laboratory conditions.
ND: Not Detected -- The compound was analyzed for, but was not found to be present at or above the Reporting Limit.
NA: Not Analyzed -- This compound was not on the list of compounds requested for analysis.



951•779•0310 or 800•798•9336 fax 951•779•0344
www.centrum-labs.com 1401 Research Park Drive, Suite 100, Riverside, CA 92507

Centrum Analytical Laboratories, Inc.

## General Chemistry

| | | | |
|---|---|---|---|
| Client: | SECOR | Date Sampled: | 12/28/07 |
| Project: | I-10 ADL Survey | Date Received: | 12/28/07 |
| Job No.: | 30641 | | |
| Matrix: | Soil | | |
| Analyst: | AZ | | |

| **Analysis:** | pH |
|---|---|
| **Method Number:** | 9045 |
| **Sample ID** | pH Units |
| **HA2-0.5** | **7.2** |
| **HA2-1.0** | **8.2** |
| **HA3-0.5** | **7.8** |
| **HA4-0.5** | **7.4** |
| **HA4-1.0** | **7.8** |
| **HA5-0.5** | **8.2** |
| **HA8-0.5** | **8.3** |
| **HA8-1.0** | **8.2** |
| **HA9-0.5** | **8.4** |
| **HA9-1.0** | **8.2** |
| **HA10-0.5** | **8.0** |
| **HA11-0.5** | **8.2** |
| **HA11-1.0** | **8.2** |
| **Reporting Limit:** | 1.0-12.5 |
| **Date Analyzed:** | 01/03/08 |
| **QC Batch # :** | 9045S0925 |

Centrum Analytical Laboratories, Inc.

# QC Sample Report - General Chemistry

Matrix: Soil

## pH by EPA 9045C Sample Duplicate Results

Batch Number: 9045S0925

Sample Duplicate ID: HA11-1.0

| Analysis | Sample Result (mg/Kg) | Sample Duplicate Result (mg/Kg) | Relative Percent Difference (RPD) | RPD Acceptance Limit | Pass/Fail |
|---|---|---|---|---|---|
| pH | 8.187 | 8.191 | **0%** | 20% | **Pass** |

Analytical Notes:

Centrum Analytical Laboratories, Inc.

## General Chemistry

| | | | |
|---|---|---|---|
| Client: | SECOR | Date Sampled: | 12/28/07 |
| Project: | I-10 ADL Survey | Date Received: | 12/28/07 |
| Job No.: | 30641 | | |
| Matrix: | Soil | | |
| Analyst: | AJ | | |

| **Analysis:** | pH |
|---|---|
| **Method Number:** | 9045 |
| **Sample ID** | pH Units |
| **HA1-0.5** | **7.8** |
| **HA6-0.5** | **8.1** |
| **Reporting Limit:** | 1.0-12.5 |
| **Date Analyzed:** | 01/07/08 |
| **QC Batch # :** | 9045S0926 |

Centrum Analytical Laboratories, Inc.

# QC Sample Report - General Chemistry

Matrix: Soil

## pH by EPA 9045C Sample Duplicate Results

Batch Number: 9045S0926

Sample Duplicate ID: 30657-7

| Analysis | Sample Result (mg/Kg) | Sample Duplicate Result (mg/Kg) | Relative Percent Difference (RPD) | RPD Acceptance Limit | Pass/Fail |
|---|---|---|---|---|---|
| pH | 7.338 | 7.179 | **2%** | 20% | **Pass** |

Analytical Notes:

Centrum Analytical Laboratories, Inc.

## Lead by EPA 6010B

| | | | |
|---|---|---|---|
| Client: | SECOR | Date Sampled: | 12/28/07 |
| Project: | I-10 ADL Survey | Date Received: | 12/28/07 |
| Job No.: | 30641 | Date Digested: | 12/31/07 |
| Matrix: | Soil | Date Analyzed: | 12/31/07 |
| Analyst: | TLB | Batch Number: | 6010S4155 |

| | Reporting Limit | **Lead** |
|---|---|---|
| **Sample ID** | mg/Kg | mg/Kg |
| **Method Blank** | 1.0 | ND |
| **HA1-0.5** | 1.0 | **205** |
| **HA1-1.0** | 1.0 | **9.87** |
| **HA1-2.0** | 1.0 | **9.65** |
| **HA2-0.5** | 1.0 | **492** |
| **HA2-1.0** | 1.0 | **520** |
| **HA2-2.0** | 1.0 | **50.3** |
| **HA3-0.5** | 1.0 | **436** |
| **HA3-1.0** | 1.0 | **25.4** |
| **HA3-2.0** | 1.0 | **4.73** |
| **HA3-3.0** | 1.0 | **9.66** |
| **HA4-0.5** | 1.0 | **351** |
| **HA4-1.0** | 1.0 | **336** |
| **HA4-2.0** | 1.0 | **3.32** |
| **HA4-3.0** | 1.0 | **31.6** |
| **HA5-0.5** | 1.0 | **547** |
| **HA5-1.0** | 1.0 | **29.6** |
| **HA5-2.0** | 1.0 | **12.5** |
| **HA6-0.5** | 1.0 | **391** |
| **HA6-1.0** | 1.0 | **50.1** |
| **HA7-0.5** | 1.0 | **39.5** |

Centrum Analytical Laboratories, Inc.

# QC Sample Report - Metals by EPA 6010B

Matrix: Soil
Batch Number: 6010S4155

## Batch Accuracy Results

Spike Sample ID: Laboratory Control Sample

| Compound | Spike Concentration (mg/Kg) | Spike Sample % Recovery | % Recovery Acceptance Limits | Pass/Fail |
|---|---|---|---|---|
| Lead | 50 | **90** | 75 - 125 | **Pass** |

Analytical Notes:

## Batch Precision Results

MS/MSD Sample ID: HA1-0.5

| Compound | MS Sample Result (mg/Kg) | MSD Sample Result (mg/Kg) | Relative Percent Difference (RPD) | RPD Acceptance Limit | Pass/Fail |
|---|---|---|---|---|---|
| Lead | 181.6 | 166.6 | **9%** | 20% | **Pass** |

Analytical Notes:

MS: Matrix Spike
MSD: Matrix Spike Duplicate
LCS: Laboratory Control Sample
LCSD: Laboratory Control Sample Duplicate

Centrum Analytical Laboratories, Inc.

## Lead by EPA 6010B

| | | | |
|---|---|---|---|
| Client: | SECOR | Date Sampled: | 12/28/07 |
| Project: | I-10 ADL Survey | Date Received: | 12/28/07 |
| Job No.: | 30641 | Date Digested: | 12/31/07 |
| Matrix: | Soil | Date Analyzed: | 12/31/07 |
| Analyst: | TLB | Batch Number: | 6010S4156 |

| | Reporting Limit | **Lead** |
|---|---|---|
| **Sample ID** | mg/Kg | mg/Kg |
| **Method Blank** | 1.0 | ND |
| **HA7-1.0** | 1.0 | **13.8** |
| **HA8-0.5** | 1.0 | **95.0** |
| **HA8-1.0** | 1.0 | **88.8** |
| **HA8-2.0** | 1.0 | **15.6** |
| **HA8-3.0** | 1.0 | **41.8** |
| **HA9-0.5** | 1.0 | **245** |
| **HA9-1.0** | 1.0 | **87.9** |
| **HA9-2.0** | 1.0 | **13.2** |
| **HA9-3.0** | 1.0 | **27.6** |
| **HA10-0.5** | 1.0 | **354** |
| **HA10-1.0** | 1.0 | **13.3** |
| **HA10-2.0** | 1.0 | **25.8** |
| **HA10-3.0** | 1.0 | **25.0** |
| **HA11-0.5** | 1.0 | **207** |
| **HA11-1.0** | 1.0 | **173** |
| **HA11-2.0** | 1.0 | **52.7** |
| **HA11-3.0** | 1.0 | **26.1** |

Centrum Analytical Laboratories, Inc.

# QC Sample Report - Metals by EPA 6010B

Matrix: Soil
Batch Number: 6010S4156

## Batch Accuracy Results

Spike Sample ID: Laboratory Control Sample

| Compound | Spike Concentration (mg/Kg) | Spike Sample % Recovery | % Recovery Acceptance Limits | Pass/Fail |
|---|---|---|---|---|
| Lead | 50 | **98** | 75 - 125 | **Pass** |

Analytical Notes:

## Batch Precision Results

MS/MSD Sample ID: HA11-3.0

| Compound | MS Sample Result (mg/Kg) | MSD Sample Result (mg/Kg) | Relative Percent Difference (RPD) | RPD Acceptance Limit | Pass/Fail |
|---|---|---|---|---|---|
| Lead | 76.26 | 73.60 | **4%** | 20% | **Pass** |

Analytical Notes:

MS: Matrix Spike
MSD: Matrix Spike Duplicate
LCS: Laboratory Control Sample
LCSD: Laboratory Control Sample Duplicate

Centrum Analytical Laboratories, Inc.

## STLC Lead by EPA 6010B

| | | | |
|---|---|---|---|
| Client: | SECOR | Date Sampled: | 12/28/07 |
| Project: | I-10 ADL Survey | Date Received: | 12/28/07 |
| Job No.: | 30641 | Date Extracted: | 12/31/07 |
| Matrix: | STLC Leachate* | Date Analyzed: | 01/03/08 |
| Analyst: | TLB | Batch Number: | 6010W4157 |

| | Reporting Limit | **Lead** |
|---|---|---|
| **Sample ID** | mg/L | mg/L |
| **Method Blank** | 2.0 | ND |
| **HA2-0.5** | 2.0 | **36.0** |
| **HA2-1.0** | 2.0 | **48.2** |
| **HA2-2.0** | 2.0 | **3.12** |
| **HA3-0.5** | 2.0 | **35.9** |
| **HA3-1.0** | 2.0 | **2.17** |
| **HA4-0.5** | 2.0 | **21.6** |
| **HA4-1.0** | 2.0 | **28.7** |
| **HA4-3.0** | 2.0 | **2.31** |
| **HA5-0.5** | 2.0 | **67.2** |
| **HA5-1.0** | 2.0 | **2.54** |
| **HA7-0.5** | 2.0 | **2.68** |

*The samples were prepared by CCR Chapter 11, Article 5, Appendix II (STLC).

Centrum Analytical Laboratories, Inc.

## STLC Lead by EPA 6010B

| | | | |
|---|---|---|---|
| Client: | SECOR | Date Sampled: | 12/28/07 |
| Project: | I-10 ADL Survey | Date Received: | 12/28/07 |
| Job No.: | 30641 | Date Extracted: | 12/31/07 |
| Matrix: | STLC Leachate* | Date Analyzed: | 01/03/08 |
| Analyst: | TLB | Batch Number: | 6010W4158 |

| | Reporting Limit | **Lead** |
|---|---|---|
| **Sample ID** | mg/L | mg/L |
| **Method Blank** | 2.0 | ND |
| **HA8-0.5** | 2.0 | **13.9** |
| **HA8-1.0** | 2.0 | **8.73** |
| **HA8-3.0** | 2.0 | ND |
| **HA9-0.5** | 2.0 | **24.7** |
| **HA9-1.0** | 2.0 | **10.5** |
| **HA9-3.0** | 2.0 | ND |
| **HA10-0.5** | 2.0 | **27.8** |
| **HA10-2.0** | 2.0 | ND |
| **HA10-3.0** | 2.0 | ND |
| **HA11-0.5** | 2.0 | **20.4** |
| **HA11-1.0** | 2.0 | **14.1** |
| **HA11-2.0** | 2.0 | **3.93** |
| **HA11-3.0** | 2.0 | ND |

*The samples were prepared by CCR Chapter 11, Article 5, Appendix II (STLC).

Centrum Analytical Laboratories, Inc.

# QC Sample Report - Metals by EPA 6010B

Matrix: Water
Batch Number: 6010W4157

## Batch Accuracy Results

Spike Sample ID: Initial Calibration Verification Standard

| Compound | Spike Concentration (mg/L) | Spike Sample % Recovery | % Recovery Acceptance Limits | Pass/Fail |
|---|---|---|---|---|
| Lead | 1.00 | **94** | 75 - 125 | **Pass** |

Analytical Notes:

## Batch Precision Results

MS/MSD Sample ID: Initial Calibration Verification Standard

| Compound | MS Sample Result (mg/L) | MSD Sample Result (mg/L) | Relative Percent Difference (RPD) | RPD Acceptance Limit | Pass/Fail |
|---|---|---|---|---|---|
| Lead | 0.939 | 0.916 | **2%** | 20% | **Pass** |

Analytical Notes:

MS: Matrix Spike
MSD: Matrix Spike Duplicate
LCS: Laboratory Control Sample
LCSD: Laboratory Control Sample Duplicate

Centrum Analytical Laboratories, Inc.

# QC Sample Report - Metals by EPA 6010B

Matrix: Water
Batch Number: 6010W4158

## Batch Accuracy Results

Spike Sample ID: Initial Calibration Verification Standard

| Compound | Spike Concentration (mg/L) | Spike Sample % Recovery | % Recovery Acceptance Limits | Pass/Fail |
|---|---|---|---|---|
| Lead | 1.00 | **97** | 75 - 125 | **Pass** |

Analytical Notes:

## Batch Precision Results

MS/MSD Sample ID: Initial Calibration Verification Standard

| Compound | MS Sample Result (mg/L) | MSD Sample Result (mg/L) | Relative Percent Difference (RPD) | RPD Acceptance Limit | Pass/Fail |
|---|---|---|---|---|---|
| Lead | 0.966 | 0.931 | **4%** | 20% | **Pass** |

Analytical Notes:

MS: Matrix Spike
MSD: Matrix Spike Duplicate
LCS: Laboratory Control Sample
LCSD: Laboratory Control Sample Duplicate

Centrum Analytical Laboratories, Inc.

## STLC Lead by EPA 6010B

| | | | |
|---|---|---|---|
| Client: | SECOR | Date Sampled: | 12/28/07 |
| Project: | I-10 ADL Survey | Date Received: | 12/28/07 |
| Job No.: | 30641 | Date Added: | 01/03/08 |
| Matrix: | STLC Leachate* | Date Extracted: | 01/04/08 |
| Analyst: | TLB | Date Analyzed: | 01/07/08 |
| | | Batch Number: | 6010W4161 |

| | Reporting Limit | **Lead** |
|---|---|---|
| **Sample ID** | mg/L | mg/L |
| **Method Blank** | 2.0 | ND |
| **HA1-0.5** | 2.0 | **9.85** |
| **HA6-0.5** | 2.0 | **27.9** |
| **HA6-1.0** | 2.0 | **4.46** |

*The samples were prepared by CCR Chapter 11, Article 5, Appendix II (STLC).

Centrum Analytical Laboratories, Inc.

# QC Sample Report - Metals by EPA 6010B

Matrix: Water
Batch Number: 6010W4161

## Batch Accuracy Results

Spike Sample ID: Initial Calibration Verification Standard

| Compound | Spike Concentration (mg/L) | Spike Sample % Recovery | % Recovery Acceptance Limits | Pass/Fail |
|---|---|---|---|---|
| Lead | 1.00 | **96** | 75 - 125 | **Pass** |

Analytical Notes:

## Batch Precision Results

MS/MSD Sample ID: Initial Calibration Verification Standard

| Compound | MS Sample Result (mg/L) | MSD Sample Result (mg/L) | Relative Percent Difference (RPD) | RPD Acceptance Limit | Pass/Fail |
|---|---|---|---|---|---|
| Lead | 0.957 | 1.016 | **6%** | 20% | **Pass** |

Analytical Notes:

MS: Matrix Spike
MSD: Matrix Spike Duplicate
LCS: Laboratory Control Sample
LCSD: Laboratory Control Sample Duplicate

Centrum Analytical Laboratories, Inc.

# DI Water STLC Lead by EPA 6010B

| | | | |
|---|---|---|---|
| Client: | SECOR | Date Sampled: | 12/28/07 |
| Project: | I-10 ADL Survey | Date Received: | 12/28/07 |
| Job No.: | 30641 | Date Extracted: | 01/04/08 |
| Matrix: | DI Water STLC Leachate* | Date Analyzed: | 01/08/07 |
| Analyst: | TLB | Batch Number: | 6010W4162 |

| | Reporting Limit | **Lead** |
|---|---|---|
| **Sample ID** | mg/L | mg/L |
| **Method Blank** | 0.50 | ND |
| **HA2-0.5** | 0.50 | ND |
| **HA2-1.0** | 0.50 | **0.584** |
| **HA3-0.5** | 0.50 | ND |
| **HA4-1.0** | 0.50 | ND |
| **HA5-0.5** | 0.50 | **0.520** |

*The sample was prepared by Modified CAC Title 22 Method 66700 (DI Water STLC).

Centrum Analytical Laboratories, Inc.

# QC Sample Report - Metals by EPA 6010B

Matrix: Water
Batch Number: 6010W4162

## Batch Accuracy Results

Spike Sample ID: Initial Calibration Verification Standard

| Compound | Spike Concentration (mg/L) | Spike Sample % Recovery | % Recovery Acceptance Limits | Pass/Fail |
|---|---|---|---|---|
| Lead | 1.00 | **103** | 75 - 125 | **Pass** |

Analytical Notes:

## Batch Precision Results

MS/MSD Sample ID: Initial Calibration Verification Standard

| Compound | MS Sample Result (mg/L) | MSD Sample Result (mg/L) | Relative Percent Difference (RPD) | RPD Acceptance Limit | Pass/Fail |
|---|---|---|---|---|---|
| Lead | 1.034 | 0.962 | **7%** | 20% | **Pass** |

Analytical Notes:

MS: Matrix Spike
MSD: Matrix Spike Duplicate
LCS: Laboratory Control Sample
LCSD: Laboratory Control Sample Duplicate

Centrum Analytical Laboratories, Inc.

## TCLP Lead by EPA 6010B

| | | | |
|---|---|---|---|
| Client: | SECOR | Date Sampled: | 12/28/07 |
| Project: | I-10 ADL Survey | Date Received: | 12/28/07 |
| Job No.: | 30641 | Date Extracted: | 01/03/08 |
| Matrix: | TCLP Leachate* | Date Analyzed: | 01/04/08 |
| Analyst: | TLB | Batch Number: | 6010W4160 |

| | Reporting Limit | **Lead** |
|---|---|---|
| **Sample ID** | mg/L | mg/L |
| **Method Blank** | 0.10 | ND |
| **HA2-0.5** | 0.10 | **0.673** |
| **HA2-1.0** | 0.10 | **3.02** |
| **HA3-0.5** | 0.10 | **0.435** |
| **HA4-0.5** | 0.10 | **0.190** |
| **HA4-1.0** | 0.10 | **0.577** |
| **HA5-0.5** | 0.10 | **2.34** |
| **HA8-0.5** | 0.10 | **0.259** |
| **HA8-1.0** | 0.10 | **0.132** |
| **HA9-0.5** | 0.10 | **0.228** |
| **HA9-1.0** | 0.10 | **0.185** |
| **HA10-0.5** | 0.10 | **0.386** |
| **HA11-0.5** | 0.10 | ND |
| **HA11-1.0** | 0.10 | **0.133** |

*The sample was prepared by SW-846 Method 1311 (TCLP).

Centrum Analytical Laboratories, Inc.

## TCLP Lead by EPA 6010B

| | | | |
|---|---|---|---|
| Client: | SECOR | Date Sampled: | 12/28/07 |
| Project: | I-10 ADL Survey | Date Received: | 12/28/07 |
| Job No.: | 30641 | Date Extracted: | 01/03/08 |
| Matrix: | TCLP Leachate* | Date Analyzed: | 01/04/08 |
| Analyst: | TLB | Batch Number: | 6010W4160 |

| | Reporting Limit | **Lead** |
|---|---|---|
| **Sample ID** | mg/L | mg/L |
| **Method Blank** | 0.10 | ND |
| **HA1-0.5** | 0.10 | **0.277** |
| **HA6-0.5** | 0.10 | **0.402** |

*The sample was prepared by SW-846 Method 1311 (TCLP).

Centrum Analytical Laboratories, Inc.

# QC Sample Report - Metals by EPA 6010B

Matrix: Water
Batch Number: 6010W4160

## Batch Accuracy Results

Spike Sample ID: Laboratory Control Sample

| Compound | Spike Concentration (mg/L) | Spike Sample % Recovery | % Recovery Acceptance Limits | Pass/Fail |
|---|---|---|---|---|
| Lead | 1.00 | **91** | 75 - 125 | **Pass** |

Analytical Notes:

## Batch Precision Results

MS/MSD Sample ID: HA11-1.0

| Compound | MS Sample Result (mg/L) | MSD Sample Result (mg/L) | Relative Percent Difference (RPD) | RPD Acceptance Limit | Pass/Fail |
|---|---|---|---|---|---|
| Lead | 0.915 | 0.962 | **5%** | 20% | **Pass** |

Analytical Notes:

MS: Matrix Spike
MSD: Matrix Spike Duplicate
LCS: Laboratory Control Sample
LCSD: Laboratory Control Sample Duplicate

Centrum Analytical Laboratories, Inc.

## Volatile Organic Compounds by EPA 8260B

| | | | |
|---|---|---|---|
| Client: | SECOR | Date Sampled: | 12/28/07 |
| Project: | I-10 ADL Survey | Date Received: | 12/28/07 |
| Job No.: | 30641 | Date Analyzed: | 12/28/07 |
| Matrix: | Soil | Batch Number: | MS58260S446 |
| Analyst: | CMR | | |

| | Sample ID: | Blank | HA2-1.0-VOC | HA4-1.0-VOC | HA6-1.0-VOC | HA7-1.0-VOC |
|---|---|---|---|---|---|---|
| **Compounds** | **RL** | mg/Kg | mg/Kg | mg/Kg | mg/Kg | mg/Kg |
| Acetone | 0.050 | ND | ND | ND | ND | ND |
| tert-Amyl Methyl Ether (TAME) | 0.002 | ND | ND | ND | ND | ND |
| Benzene | 0.001 | ND | ND | ND | ND | ND |
| Bromobenzene | 0.005 | ND | ND | ND | ND | ND |
| Bromochloromethane | 0.005 | ND | ND | ND | ND | ND |
| Bromodichloromethane | 0.001 | ND | ND | ND | ND | ND |
| Bromoform | 0.005 | ND | ND | ND | ND | ND |
| Bromomethane | 0.005 | ND | ND | ND | ND | ND |
| tert-Butanol (TBA) | 0.020 | ND | ND | ND | ND | ND |
| 2-Butanone (MEK) | 0.010 | ND | ND | ND | ND | ND |
| n-Butylbenzene | 0.002 | ND | ND | ND | ND | ND |
| sec-Butylbenzene | 0.002 | ND | ND | ND | ND | ND |
| tert-Butylbenzene | 0.002 | ND | ND | ND | ND | ND |
| Carbon disulfide | 0.010 | ND | ND | ND | ND | ND |
| Carbon tetrachloride | 0.001 | ND | ND | ND | ND | ND |
| Chlorobenzene | 0.001 | ND | ND | ND | ND | ND |
| Chloroethane | 0.005 | ND | ND | ND | ND | ND |
| Chloroform | 0.002 | ND | ND | ND | ND | ND |
| Chloromethane | 0.001 | ND | ND | ND | ND | ND |
| 2-Chlorotoluene | 0.002 | ND | ND | ND | ND | ND |
| 4-Chlorotoluene | 0.002 | ND | ND | ND | ND | ND |
| Dibromochloromethane | 0.002 | ND | ND | ND | ND | ND |
| 1,2-Dibromoethane | 0.002 | ND | ND | ND | ND | ND |
| 1,2-Dibromo-3-chloropropane | 0.010 | ND | ND | ND | ND | ND |
| Dibromomethane | 0.001 | ND | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | 0.001 | ND | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | 0.002 | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | 0.002 | ND | ND | ND | ND | ND |
| Dichlorodifluoromethane | 0.005 | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | 0.001 | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | 0.001 | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | 0.005 | ND | ND | ND | ND | ND |
| cis-1,2-Dichloroethene | 0.002 | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethene | 0.002 | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | 0.001 | ND | ND | ND | ND | ND |
| 1,3-Dichloropropane | 0.001 | ND | ND | ND | ND | ND |
| 2,2-Dichloropropane | 0.001 | ND | ND | ND | ND | ND |
| 1,1-Dichloropropene | 0.001 | ND | ND | ND | ND | ND |

Centrum Analytical Laboratories, Inc.

## Volatile Organic Compounds by EPA 8260B

| | | | |
|---|---|---|---|
| Client: | SECOR | Date Sampled: | 12/28/07 |
| Project: | I-10 ADL Survey | Date Received: | 12/28/07 |
| Job No.: | 30641 | Date Analyzed: | 12/28/07 |
| Matrix: | Soil | Batch Number: | MS58260S446 |
| Analyst: | CMR | | |

| | Sample ID: | Blank | HA2-1.0-VOC | HA4-1.0-VOC | HA6-1.0-VOC | HA7-1.0-VOC |
|---|---|---|---|---|---|---|
| **Compounds** | **RL** | mg/Kg | mg/Kg | mg/Kg | mg/Kg | mg/Kg |
| cis-1,3-Dichloropropene | 0.001 | ND | ND | ND | ND | ND |
| trans-1,3-Dichloropropene | 0.001 | ND | ND | ND | ND | ND |
| Diisopropyl Ether (DIPE) | 0.002 | ND | ND | ND | ND | ND |
| Ethylbenzene | 0.001 | ND | ND | ND | ND | ND |
| Ethyl tert-Butyl Ether (EtBE) | 0.002 | ND | ND | ND | ND | ND |
| Hexachlorobutadiene | 0.001 | ND | ND | ND | ND | ND |
| 2-Hexanone | 0.010 | ND | ND | ND | ND | ND |
| Isopropylbenzene | 0.001 | ND | ND | ND | ND | ND |
| p-Isopropyltoluene | 0.002 | ND | ND | ND | ND | ND |
| Methylene chloride | 0.050 | ND | ND | ND | ND | ND |
| 4-Methyl-2-pentanone | 0.010 | ND | ND | ND | ND | ND |
| Methyl tert-Butyl Ether (MtBE) | 0.002 | ND | ND | ND | ND | ND |
| Naphthalene | 0.002 | ND | ND | ND | ND | ND |
| n-Propylbenzene | 0.001 | ND | ND | ND | ND | ND |
| Styrene | 0.001 | ND | ND | ND | ND | ND |
| 1,1,1,2-Tetrachloroethane | 0.001 | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.002 | ND | ND | ND | ND | ND |
| Tetrachloroethene | 0.001 | ND | ND | ND | ND | ND |
| Toluene | 0.001 | ND | ND | ND | ND | ND |
| 1,2,3-Trichlorobenzene | 0.002 | ND | ND | ND | ND | ND |
| 1,2,4-Trichlorobenzene | 0.002 | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | 0.001 | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | 0.003 | ND | ND | ND | ND | ND |
| Trichloroethene | 0.001 | ND | ND | ND | ND | ND |
| 1,2,3-Trichloropropane | 0.003 | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | 0.001 | ND | ND | ND | ND | ND |
| Trichlorotrifluoroethane | 0.005 | ND | ND | ND | ND | ND |
| 1,2,4-Trimethylbenzene | 0.001 | ND | ND | ND | ND | ND |
| 1,3,5-Trimethylbenzene | 0.001 | ND | ND | ND | ND | ND |
| Vinyl chloride | 0.002 | ND | ND | ND | ND | ND |
| Xylenes, m-,p- | 0.002 | ND | ND | ND | ND | ND |
| Xylene, o- | 0.001 | ND | ND | ND | ND | ND |

**Surrogates in % Recovery** (Acceptance Limits: 70 - 130%)

| Sample ID: | Blank | HA2-1.0-VOC | HA4-1.0-VOC | HA6-1.0-VOC | HA7-1.0-VOC |
|---|---|---|---|---|---|
| Dibromofluoromethane | 98 | 107 | 107 | 107 | 111 |
| Toluene-d8 | 97 | 96 | 99 | 98 | 95 |
| Bromofluorobenzene | 97 | 94 | 91 | 92 | 93 |

Centrum Analytical Laboratories, Inc.

# QC Sample Report - Volatile Organic Compounds by EPA 8260B

Matrix: Soil
Batch Number: MS58260S446

## Batch Accuracy Results

Spike Sample ID: Laboratory Control Sample

| Compound | Spike Concentration (mg/Kg) | Spike Sample % Recovery | % Recovery Acceptance Limits | Pass/Fail |
|---|---|---|---|---|
| 1,1-Dichloroethene | 0.050 | **93** | 70 - 130 | **Pass** |
| Benzene | 0.050 | **90** | 70 - 130 | **Pass** |
| Trichloroethene | 0.050 | **101** | 70 - 130 | **Pass** |
| Toluene | 0.050 | **93** | 70 - 130 | **Pass** |
| Chlorobenzene | 0.050 | **91** | 70 - 130 | **Pass** |

Analytical Notes:

## Batch Precision Results

MS/MSD Sample ID: 30635-01

| Compound | MS Sample Result (mg/Kg) | MSD Sample Result (mg/Kg) | Relative Percent Difference (RPD) | RPD Acceptance Limit | Pass/Fail |
|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.0473 | 0.0441 | **7%** | 25% | **Pass** |
| Benzene | 0.0458 | 0.0404 | **13%** | 25% | **Pass** |
| Trichloroethene | 0.0526 | 0.0526 | **0%** | 25% | **Pass** |
| Toluene | 0.0481 | 0.0421 | **13%** | 25% | **Pass** |
| Chlorobenzene | 0.0453 | 0.0395 | **14%** | 25% | **Pass** |

Analytical Notes:

MS: Matrix Spike
MSD: Matrix Spike Duplicate
LCS: Laboratory Control Sample
LCSD: Laboratory Control Sample Duplicate

# APPENDIX B
# CHAIN-OF-CUSTODY RECORDS

**Centrum Analytical Laboratories, Inc.**
1401 Research Park Drive, Suite 100
Riverside, CA 92507
Voice: 951.779.0310 ● 800.798.9336
Fax: 951.779.0344

3299 Hill Street, Suite 5
Signal Hill, CA 90755
Voice: 562.498.7005
Fax: 562.498.8617

www.centrum-labs.com lab@centrum-labs.com

# Chain of Custody Record

RUSH

Centrum Job # 306041



Project No: 040T.08098.43

Project Name: I10 ADL Survey

Project Manager: Anne Perez

Phone: Fax:

email:

Client Name: (Report and Billing) Socar Redlands

Address: (Report and Billing) Note: Reports and Invoice will be sent here

Please Circle Analyses Requested

| Centrum ID (Lab use only) | Sample ID (As it should appear on report) | Date sampled | Time sampled | Sample matrix | Site location | Containers: # and type | LUFT Diesel, or EPA 8015B DRO | LUFT Gas, or EPA 8015B GRO | Fuel ID (TVH, TEH), Carbon Chain (specify ranges) | ~~8021B: BTEX/MBE Only~~ PH ADDED ON 1-5-08 AGAIN ON 1-7-08 QO | TCLP Pb ADDED ON 1-3-08 ALSO ON 1-7-08 QO | VOCs: 8260B or 624 | VOCs: BTEX/Oxygenates Only | ~~SVOCs: 8270C, or 625~~ DI STLC ADDED ON 1/4/08 QO | 8081A/8082: Pesticides, or PCBs, or Pest/PCB | STLC Pb ADDED ON 12-31-07 QO | Metals: Title 22 (CAM), or RCRA, or PP | Metals: ~~TCLP, STLC~~ TTLC LEAD | pH TDS TSS QO | 418.1 (TRPH), or 413.2, or 1664 | Remarks/Special Instructions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | EB1 | 12/28/07 | 0950 | H2O | | ~~1~~ 2 VOA | | | | | | X | | | | ⊗ | | | | | HOLD PER ANNE P. 12/31/07 QO |
| * 2 | HA1 - 0.5 | | 1030 | Soil | | Bag | | | | ⊗ | ⊗ | | | | | ⊗ | | X | X | | ~~ALL~~ STLC ADDED ~~PER~~ 1/3/08 QO ANNE |
| * 3 | 1.0 | | 1033 | | | | | | | | | | | | | | | X | X | | ~~IF PRESUMPER~~ |
| * 4 | 2.0 | | 1034 | | | | | | | | | | | | | | | X | X | | ~~25 MG/KG~~ ~~STLC~~ ~~CHANGE~~ ~~DI~~ |
| 5 | HA2 - 0.5 | | 1040 | | | | | | | ⊗ | ⊗ | | | ⊗ | | ⊗ | | X | X | | |
| 6 | 1.0 | | 1042 | | | | | | | ⊗ | ⊗ | | | ⊗ | | ⊗ | | X | X | | |
| 7 | 2.0 | | 1054 | | | | | | | | | | | | | ⊗ | | X | X | | ~~Then~~ ~~PH~~ |
| 8 | HA2 - 1.0 VOC | | 1053 | | | 6"x3" Bag | | | | | | X | | | | | | | | | |
| 9 | HA3 - 0.5 | | 1102 | | | Bag | | | | ⊗ | ⊗ | | | ⊗ | | ⊗ | | X | X | | *** HOMOGENIZE ALL SAMPLES |
| 10 | 1.0 | | 1104 | | | | | | | | | | | | | ⊗ | | X | X | | FOR LEAD BEFORE ANALYSIS PER ANNE 12/31/07 QO |

| | | | |
|---|---|---|---|
| 1) Relinquished by: (Sample's Signature) | Date: 12/28/07 | Time: 1520 | 3) Relinquished by: Date: Time: |
| 2) Received by: | Date: | Time: | 4) Received by: Date: Time: |
| | | | 5) Relinquished by: Date: Time: |
| | | | 6) Received for Laboratory by: Date: 12/28/07 Time: 1520 |

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.

Laboratory Notes: * HA1 - SAMPLES. RUN FOR TOTAL LEAD ONLY - HOLD OFF ON ALL PENDING ANALYSIS ON THIS BORING UNLESS TOLD TO RUN BY CLIENT 12/31/07 QO
** ADD STLC (CAL WET CITRIC) TO ALL TOTAL LEAD ≥ 25 mg/kg. ADD TCLP ON ALL STLC RESULTS ≥ 5 mg/L. ADD PH ON ALL SAMPLES RUN FOR TCLP. ADD DI STLC - SEE ATTACHMENT PER ANNE P. 12/31/07

**Turn-Around Time** see note *
- ☒ 24 Hr. RUSH *
- ☐ 48 Hr. RUSH *
- ☐ Normal TAT
- ☐ Other _____

* Requires PRIOR approval, additional charges apply

Requested due date: _____

**Remarks/Special Instructions**

To be completed by Laboratory personnel:
Chilled? ☐ Yes Temp ___C ☒ From Field
Custody seals? ☐ Yes ☒ No
All sample containers intact? ☒ Yes ☐ No
☐ Courier ☐ UPS/Fed Ex ☒ Hand carried

**Sample Disposal**
- ☐ Client will pick up
- ☐ Return to client
- ☒ Lab disposal

Sample Locator Number: _____

**Report Formats:** Check all applicable
- ☐ Paper report
- ☐ PDF report (include email address)
- ☐ LARWQCB
- ☐ EDF (include global ID)
- ☐ EDD (GISKEY)
- ☐ EDD (Other) *

* with prior approval only

v7.2 9/05 coc-0905.xls

White Copy - Original (Accompanies Samples) Yellow Copy - Centrum Files Pink Copy - Client Copy

**Centrum Analytical Laboratories, Inc.**
1401 Research Park Drive, Suite 100
Riverside, CA 92507
Voice: 951.779.0310 ● 800.798.9336
Fax: 951.779.0344

3299 Hill Street, Suite 30
Signal Hill, CA 90755
Voice: 562.498.7005
Fax: 562.498.8617

www.centrum-labs.com lab@centrum-labs.com

# Chain of Custody Record

RUSH

Centrum Job # 306041



Project No:

Project Name: I-10 ADL Survey

Project Manager:

Phone: Fax:

email:

Client Name: (Report and Billing) Secor Redlands

Address: (Report and Billing) Note: Reports and Invoice will be sent here

Please Circle Analyses Requested

| Centrum ID (Lab use only) | Sample ID (As it should appear on report) | Date sampled | Time sampled | Sample matrix | Site location | Containers: # and type | LUFT Diesel, or EPA 8015B DRO | LUFT Gas, or EPA 8015B GRO | Fuel ID (TVH, TEH), Carbon Chain (specify ranges) | ~~8021B: BTEX/MBE Only~~ PH ADDED ON 1:3.08 QD | TCLP Pb ADDED ON 1:3.08 QD | VOCs: 8260B or 624 | VOCs: BTEX/Oxygenates Only | ~~SVOCs: 8270C, or 625~~ DI STLC ADDED ON 1:3.08 QD | 8081A/8082: Pesticides, or PCBs, or Pest/PCB | STLC Pb ADDED ON 12:31:07 QD | Metals: Title 22 (CAM), or RCRA, or PP | Metals: ~~TCLP, STLC~~ TTLC LEAD | ~~pH, TDS, TSS~~ QD | 418.1 (TRPH), or 413.2, or 1664 | Remarks/Special Instructions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | HA3 - 2.0 | 7/28/07 | 1106 | Soil | | Bag | | | | | | | | | | | | X | X | | |
| 12 | 3.0 | | 1108 | | | | | | | | | | | | | | | X | X | | |
| 13 | HA4 - 0.5 | | 1115 | | | | | | | X | X | | | | | X | | X | X | | |
| 14 | 1.0 | | 1117 | | | | | | | X | X | | | X | | X | | X | X | | |
| 15 | 1.0 VOC | | 1119 | | | 3x6 Ry Bag | | | | | | X | | | | | | | | | |
| 16 | 2.0 | | 1121 | | | | | | | | | | | | | | | X | X | | |
| 17 | 3.0 | | 1122 | | | | | | | | | | | | | X | | X | X | | |
| 18 | HA5 - 0.5 | | 1135 | | | | | | | X | X | | | X | | X | | X | X | | |
| 19 | 1.0 | | 1137 | | | | | | | | | | | | | X | | X | X | | |
| 20 | 2.0 | | 1139 | | | | | | | | | | | | | | | X | X | | |

1) Relinquished by: (Sampler's Signature) Date: 12/28/07 Time: 1525

2) Received by: Date: Time:

3) Relinquished by: Date: Time:

4) Received by: Date: Time:

5) Relinquished by: Date: Time:

6) Received for Laboratory by: Date: 12/28/07 Time: 1525

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.

Laboratory Notes:

**Turn-Around Time** see note *
- ☒ 24 Hr. RUSH *
- ☐ 48 Hr. RUSH *
- ☐ Normal TAT
- ☐ Other _____

* Requires PRIOR approval, additional charges apply

Requested due date: _____

To be completed by Laboratory personnel:
Chilled? ☐ Yes Temp ___C ☒ From Field
Custody seals? ☐ Yes ☒ No
All sample containers intact? ☒ Yes ☐ No
☐ Courier ☐ UPS/Fed Ex ☒ Hand carried

**Sample Disposal**
- ☐ Client will pick up
- ☐ Return to client
- ☒ Lab disposal

Sample Locator Number: _____

**Report Formats:** Check all applicable
☐ Paper report ☐ PDF report (include email address)
☐ LARWQCB ☐ EDF (include global ID) ☐ EDD (GISKEY) ☐ EDD (Other) *
* with prior approval only

v7.2 9/05 coc-0905.xls

**Centrum Analytical Laboratories, Inc.**
1401 Research Park Drive, Suite 100
Riverside, CA 92507
Voice: 951.779.0310 ● 800.798.9336
Fax: 951.779.0344

3299 Hill Street, Suite 305
Signal Hill, CA 90755
Voice: 562.498.7005
Fax: 562.498.8617

www.centrum-labs.com lab@centrum-labs.com

# Chain of Custody Record

RUSH

Centrum Job # 306041



Project No:

Project Name: Fib ADL

Project Manager:

Phone: Fax:

email:

Client Name: (Report and Billing) Sevior Redlands

Address: (Report and Billing) Note: Reports and Invoice will be sent here

Please Circle Analyses Requested

Turn-Around Time (see note *)
- ☒ 24 Hr. RUSH *
- ☐ 48 Hr. RUSH *
- ☐ Normal TAT
- ☐ Other _____

* Requires PRIOR approval, additional charges apply

Requested due date: _____

| Centrum ID (Lab use only) | Sample ID (As it should appear on report) | Date sampled | Time sampled | Sample matrix | Site location | Containers: # and type | LUFT Diesel, or EPA 8015B DRO | LUFT Gas, or EPA 8015B GRO | Fuel ID (TVH, TEH), Carbon Chain (specify ranges) | ~~8021B: BTEX/MTBE Only~~ PH ADDED ON 1-7-08 | TCLP Pb ADDED ON 1-3-08 | VOCs: 8260B, or 624 | VOCs: BTEX/Oxygenates Only | SVOCs: 8270C, or 625 | 8081A/8082: Pesticides, or PCBs, or Pest/PCB | STLC Pb ADDED ON 12-31-07 | Metals: Title 22 (CAM), or RCRA, or PP | Metals: ~~TCLP, STLC~~ TTLC LEAD | ~~pH, TDS, TSS~~ | 418.1 (TRPH), or 413.2, or 1664 | Remarks/Special Instructions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * 21 | HA6-0.5 | 12/28/07 | 1143 | Soil | | Bag | | | | X | X | | | | | X | | X | X | | * STLC ADDED PER ANNE ON 1/3/08 |
| * 22 | 1.0 | | 1147 | | | 1 | | | | | | | | | | X | | X | X | | TCLP + pH ADDED ON 1-7-08 STLC ADDED PER ANNE ON 1/3/08 |
| 23 | 1.0 voc | | 1152 | | | 3x6 Brass | | | | | | X | | | | | | | | | |
| 24 | HA7-0.5 | | 1159 | | | Bag | | | | | | | | | | X | | X | X | | |
| 25 | 1.0 | | 1202 | | | 1 | | | | | | | | | | | | X | X | | |
| 26 | 1.0 voc | | 1206 | | | 3x6 Brass | | | | | | X | | | | | | | | | |
| 27 | HA8-0.5 | | 1341 | | | Bag | | | | X | X | | | | | X | | X | X | | |
| 28 | 1.0 | | 1343 | | | 1 | | | | X | X | | | | | X | | X | X | | |
| 29 | 2.0 | | 1345 | | | | | | | | | | | | | | | X | X | | |
| 30 | 3.0 | | 1346 | | | | | | | | | | | | | X | | X | X | | |

1) Relinquished by: (Sampler's Signature) Date: 12/28/07 Time: 1525

2) Received by: Date: Time:

3) Relinquished by: Date: Time:

4) Received by: Date: Time:

5) Relinquished by: Date: Time:

6) Received for Laboratory by: Date: 12/28/07 Time: 1525

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.

To be completed by Laboratory personnel:
Chilled? ☐ Yes Temp ____C ☒ From Field
Custody seals? ☐ Yes ☒ No
All sample containers intact? ☒ Yes ☐ No
☐ Courier ☐ UPS/Fed Ex ☒ Hand carried

Sample Disposal
- ☐ Client will pick up
- ☐ Return to client
- ☒ Lab disposal

Sample Locator Number: _____

Laboratory Notes: * HA6-SAMPLES RUN FOR TOTAL LEAD ONLY - HOLD OFF ON ALL PENDING ANALYSIS ON THIS BORING UNLESS TOLD TO RUN BY CLIENT 12/31/07 QO

Report Formats: Check all applicable
- ☐ Paper report ☐ PDF report (Include email address)
- ☐ LARWQCB ☐ EDF (Include global ID) ☐ EDD (GISKEY) ☐ EDD (Other) *

* with prior approval only

v7.2 9/05 coc-0903.xls

**Centrum Analytical Laboratories, Inc.**
1401 Research Park Drive, Suite 100
Riverside, CA 92507
Voice: 951.779.0310 ● 800.798.9336
Fax: 951.779.0344

3299 Hill Street, Suite 305
Signal Hill, CA 90755
Voice: 562.498.7005
Fax: 562.498.8617

www.centrum-labs.com
lab@centrum-labs.com

# Chain of Custody Record

RUSH

Centrum Job # 30641



Project No:

Project Name: I 10 ADL Survey

Project Manager:

Phone: Fax:

email:

Client Name: (Report and Billing) Secor Redlands

Address: (Report and Billing) Note: Reports and Invoice will be sent here

Please Circle Analyses Requested

| Centrum ID (Lab use only) | Sample ID (As it should appear on report) | Date sampled | Time sampled | Sample matrix | Site location | Containers: # and type | LUFT Diesel, or EPA 8015B DRO | LUFT Gas, or EPA 8015B GRO | Fuel ID (TVH, TEH), Carbon Chain (specify ranges) | ~~8021B: BTEX/MTBE Only~~ pH ADDED ON 1-8-08 | TCLP Pb ADDED ON 12-31-07 | VOCs: 8260B, or 624 | VOCs: BTEX/Oxygenates Only | SVOCs: 8270C, or 625 | 8081A/8082: Pesticides, or PCBs, or Pest/PCB | STLC Pb ADDED ON 12-31-07 | Metals: Title 22 (CAM), or RCRA, or PP | Metals: ~~TCLP, STLC~~ TTLC LEAD | ~~pH, TDS, TSS~~ | 418.1 (TRPH), or 413.2, or 1664 | Remarks/Special Instructions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31 | HA9 -0.5 | 12/20/07 | 1352 | Soil | | Bag | | | | X | X | | | | | X | | X | X | | |
| 32 | 1.0 | | 1354 | | | | | | | X | X | | | | | X | | | | | |
| 33 | 2.0 | | 1402 | | | | | | | | | | | | | | | | | | |
| 34 | 3.0 | | 1408 | | | | | | | | | | | | | X | | | | | |
| 35 | HA10 -0.5 | | 1400 | | | | | | | X | X | | | | | X | | | | | |
| 36 | 1.0 | | 1405 | | | | | | | | | | | | | | | | | | |
| 37 | 2.0 | | 1409 | | | | | | | | | | | | | X | | | | | |
| 38 | 3.0 | | 1415 | | | | | | | | | | | | | X | | | | | |
| 39 | HA11 - 0.5 | | 1413 | | | | | | | X | X | | | | | X | | | | | |
| 40 | 1.0 | | 1419 | | | | | | | X | X | | | | | X | | | | | |

1) Relinquished by: (Sampler's Signature) Date: 12/20/07 Time: 1525

2) Received by: Date: Time:

3) Relinquished by: Date: Time:

4) Received by: Date: Time:

5) Relinquished by: Date: Time:

6) Received for Laboratory by: Date: 12/20/07 Time: 1525

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.

Laboratory Notes:

**Turn-Around Time** see note *

- ☒ 24 Hr. RUSH *
- ☐ 48 Hr. RUSH *
- ☐ Normal TAT
- ☐ Other _____

* Requires PRIOR approval, additional charges apply

Requested due date: _____

To be completed by Laboratory personnel:

Chilled? ☐ Yes Temp ____C ☒ From Field

Custody seals? ☐ Yes ☒ No

All sample containers intact? ☒ Yes ☐ No

☐ Courier ☐ UPS/Fed Ex ☒ Hand carried

**Sample Disposal**

- ☐ Client will pick up
- ☐ Return to client
- ☒ Lab disposal

Sample Locator Number: _____

**Report Formats:** Check all applicable

☐ Paper report ☐ PDF report (Include email address)

☐ LARWQCB ☐ EDF (Include global ID) ☐ EDD (GISKEY) ☐ EDD (Other) *

* with prior approval only

v7.2 9/05 coc-0905.xls

White Copy - Original (Accompanies Samples) Yellow Copy - Centrum Files Pink Copy - Client Copy

**Centrum Analytical Laboratories, Inc.**
1401 Research Park Drive, Suite 100
Riverside, CA 92507
Voice: 951.779.0310 ● 800.798.9336
Fax: 951.779.0344

3299 Hill Street, Suite 305
Signal Hill, CA 90755
Voice: 562.498.7005
Fax: 562.498.8617

www.centrum-labs.com
lab@centrum-labs.com

# Chain of Custody Record

RUSH

Centrum Job # 306041



Project No:

Project Name: I 10 ADL Survey

Project Manager:

Phone: Fax:

email:

Client Name: (Report and Billing) Secor Redlands

Address: (Report and Billing) Note: Reports and Invoice will be sent here

Please Circle Analyses Requested

| Centrum ID (Lab use only) | Sample ID (As it should appear on report) | Date sampled | Time sampled | Sample matrix | Site location | Containers: # and type | LUFT Diesel, or EPA 8015B DRO | LUFT Gas, or EPA 8015B GRO | Fuel ID (TVH, TEH), Carbon Chain (specify ranges) | 8021B: BTEX/MtBE Only | | VOCs: 8260B, or 624 | VOCs: BTEX/Oxygenates Only | SVOCs: 8270C, or 625 | 8081A/8082: Pesticides, or PCBs, or Pest/PCB | STLC Pb ADDED ON 12-31-07 QD | Metals: Title 22 (CAM), or RCRA, or PP | Metals: ~~TCLP, STLC~~ TTLC LEAD | ~~pH, TSS, TSS~~ QD | 418.1 (TRPH), or 413.2, or 1664 | | Remarks/Special Instructions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 41 | HA11-~~[illegible]~~ 2.0 | 12/28/07 | 1421 | Soil | | BAG | | | | | | | | | | ⊗ | | X | X | | | |
| 42 | 3.0 | ⊥ | 1433 | ⊥ | | ⊥ | | | | | | | | | | ⊗ | | X | X | | | |
| 43 | EB-2 | ⊥ | 1210 | H2O | | 3 VOA | | | | | | X | | | | | | | | | | HOLD PER ANNE P. 12/31/07 QD |

1) Relinquished by: (Sampler's Signature) Date: 12/28/07 Time: 1525

2) Received by: Date: Time:

3) Relinquished by: Date: Time:

4) Received by: Date: Time:

5) Relinquished by: Date: Time:

6) Received for Laboratory by: Date: 12/28/07 Time: 1525

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.

Laboratory Notes:

**Turn-Around Time** see note *
- ☒ 24 Hr. RUSH *
- ☐ 48 Hr. RUSH *
- ☐ Normal TAT
- ☐ Other _____

* Requires PRIOR approval, additional charges apply

Requested due date: _____

To be completed by Laboratory personnel:
Chilled? ☐ Yes Temp ___C ☒ From Field
Custody seals? ☐ Yes ☒ No
All sample containers intact? ☒ Yes ☐ No
☐ Courier ☐ UPS/Fed Ex ☒ Hand carried

**Sample Disposal**
- ☐ Client will pick up
- ☐ Return to client
- ☒ Lab disposal

Sample Locator Number: _____

**Report Formats:** Check all applicable
☐ Paper report ☐ PDF report (include email address)
☐ LARWQCB ☐ EDF (include global ID) ☐ EDD (GISKEY) ☐ EDD (Other) *
* with prior approval only

v7.2 9/05 coc-0905.xls

White Copy - Original (Accompanies Samples) Yellow Copy - Centrum Files Pink Copy - Client Copy