

PRELIMINARY SITE INVESTIGATION REPORT



SR-13 STORM DAMAGE REPAIR OAKLAND, CALIFORNIA

PREPARED FOR:

CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 4
OFFICE OF ENVIRONMENTAL ENGINEERING
111 GRAND AVENUE, MS8C
OAKLAND, CA 94612



PREPARED BY:

GEOCON CONSULTANTS, INC.
6671 BRISA STREET
LIVERMORE, CA 94550



GEOCON PROJECT NO. E8721-02-13
CALTRANS EA 04-1SS410
CALTRANS PROJECT # 04-1300-0228-0

OCTOBER 2014

TABLE OF CONTENTS

PRELIMINARY SITE INVESTIGATION REPORT		Page
REPORT LIMITATIONS.....		i
PROJECT TEAM		ii
1.0 INTRODUCTION.....		1
1.1 Project Description and Proposed Improvements.....		1
1.2 General Objectives.....		1
2.0 BACKGROUND.....		1
2.1 Hazardous Waste Determination Criteria.....		1
2.2 DTSC Variance.....		2
2.3 Environmental Screening Levels.....		3
2.4 Naturally Occurring Asbestos.....		4
3.0 SCOPE OF SERVICES		5
3.1 Pre-field Activities.....		5
3.2 Field Activities.....		5
4.0 INVESTIGATIVE METHODS		6
4.1 Sampling Procedures		6
4.2 Laboratory Analyses		6
4.3 Laboratory QA/QC		7
5.0 INVESTIGATIVE RESULTS		7
5.1 Subsurface Conditions		7
5.2 Laboratory Analytical Results		8
5.3 Laboratory Quality Assurance/Quality Control.....		9
5.4 Statistical Evaluation for Lead Detected in Soil Samples		9
5.4.1 Calculating the UCLs for the Arithmetic Mean.....		9
5.4.2 Correlation of Total and WET Lead.....		10
6.0 CONCLUSIONS.....		12
6.1 Lead in Soil.....		12
6.2 Remaining CAM 17 Metals in Soil		12
6.3 Organic Compounds in Soil.....		14
6.4 Naturally-Occurring Asbestos in Soil.....		14
6.5 Organics in Groundwater.....		15
6.6 Worker Protection.....		15

FIGURES

1. Vicinity Map
2. Site Plan

TABLE OF CONTENTS
(Continued)

PRELIMINARY SITE INVESTIGATION REPORT

TABLES

1. Boring Coordinates
2. Summary of Lead and pH Results - Soil
3. Summary of CAM 17 Metals Results - Soil
4. Summary of Petroleum Hydrocarbons Results - Soil
5. Summary of NOA Results – Soil
6. Summary of Organics Results – Groundwater
7. Summary of Lead Statistical Analysis

APPENDICES

- A. DTSC Variance
- B. Laboratory Reports and Chain-of-custody Documentation
- C. Soil Boring Logs
- D. Metal and Hydrocarbon Statistical Analysis

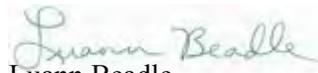
REPORT LIMITATIONS

This report has been prepared exclusively for the State of California Department of Transportation (Caltrans) District 4. The information contained herein is only valid as of the date of the report and will require an update to reflect additional information obtained.

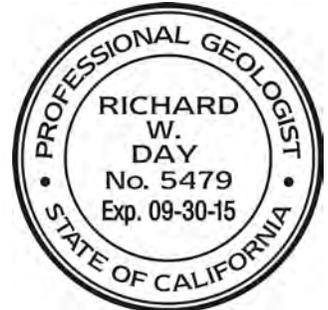
This report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts related to sources other than those specified herein. Therefore, the report should be deemed conclusive with respect to only the information obtained. We make no warranty, express or implied, with respect to the content of this report or any subsequent reports, correspondence or consultation. Geocon strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.

The contents of this report reflect the views of the author who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

GEOCON CONSULTANTS, INC.


Luann Beadle
Senior Staff Scientist


Richard Day, CEG, CHG
Senior Geologist



CALIFORNIA DEPARTMENT OF TRANSPORTATION – DISTRICT 4 OFFICE OF ENVIRONMENTAL ENGINEERING

Reviewed By:

Recommended By:

Approved By:

Keith Fang
Task Order Manager

Chris Wilson, PE
District Branch Chief

Allen Baradar, PE
District Office Chief

PROJECT TEAM

Contact	Affiliation	Responsibility
Romy Fuentes, PE 510.622.8803 510.622.0198 fax romy_f_fuentes@dot.ca.gov	Caltrans – District 4 Consultant Services 111 Grand Avenue, MS7B Oakland, CA 94612	Contract Manager
Keith Fang 510.622.8795 510.286.5639 fax keith.fang@dot.ca.gov	Caltrans – District 4 Environmental Engineering 111 Grand Avenue, MS8C Oakland, CA 94612	Task Order Manager
Richard Day, CEG, CHG Luann Beadle 925.371.5900 925.371.5915 fax livermore@geoconinc.com	Geocon Consultants, Inc. 6671 Brisa Street Livermore, CA 94550 (<i>Caltrans Consultant</i>)	Project Management Sample Collection Field QA/QC Investigation Report
Doug Krause, CIH 530.758.6397 530.758.6506 fax dskrause@pacbell.net	Krause & Associates 216 F. Street Suite 162 Davis, CA 95616 (<i>Geocon Subconsultant</i>)	Health and Safety
Leah Phillips 831.461.1468 831.461.1470 fax dispatch@cruzbrothers.com	Cruz Brothers Locators, Inc. P.O. Box 66768 Scotts Valley, CA 95067 (<i>Geocon Subcontractor</i>)	Utility Clearance Services
Christopher Pruner (925) 313-5800 (925) 313-0302 fax cpruner@greggdrilling.com	Gregg Drilling and Testing, Inc. 950 Howe Road Martinez, CA 94553 (<i>Geocon Subcontractor</i>)	Driller
Baojia Ke 510.895.3675 510.895.3680 fax sanleandrolab@emsl.com	EMSL Analytical, Inc. 2235 Polvorosa Ave., Suite 230 San Leandro, CA 94577 (<i>Geocon Subcontractor</i>)	Soil Sample Analysis
Diane Galvan 562.989.4045 562.989.4040 fax diane@atlglobal.com	Advanced Technology Laboratories 1510 E. 33rd Street Signal Hill, CA 90807 (<i>Geocon Subcontractor</i>)	Soil Sample Analysis

PRELIMINARY SITE INVESTIGATION REPORT

1.0 INTRODUCTION

This Preliminary Site Investigation Report for the storm damage repair project along southbound (SB) State Route 13 (SR-13) in Alameda County, California was prepared by Geocon Consultants, Inc. under California Department of Transportation (Caltrans) Contract No. 04A4336 and Task Order No. 13 (TO-13), EA 04-1SS410.

1.1 Project Description and Proposed Improvements

The project includes the construction of a retaining wall to stabilize the slip-out shoulder along SB SR-13 between Post Mile (PM) 4.8 and PM 5.0 in Oakland, California. Work will take place within Caltrans right-of-way. The project location is depicted on the attached Location Map, Figure 1.

1.2 General Objectives

The purpose of the site investigation was to evaluate concentrations of 1) California Assessment Manual 17 (CAM 17) metals, particularly aeriially-deposited lead (ADL), total petroleum hydrocarbons as diesel (TPHd), as motor oil (TPHmo), and as gasoline (TPHg), benzene, toluene, ethylbenzene, and total xylenes (BTEX), and methyl tert-butyl ether (MTBE), and naturally-occurring asbestos (NOA) in soil; and 2) TPHg, BTEX, and MTBE in groundwater within the project limits.

The information obtained from this investigation will be used by Caltrans to evaluate soil and groundwater handling practices, worker health and safety, and soil and groundwater reuse and disposal options.

2.0 BACKGROUND

2.1 Hazardous Waste Determination Criteria

Regulatory criteria to classify a waste as California hazardous for handling and disposal purposes are contained in the CCR, Title 22, Division 4.5, Chapter 11, Article 3, §66261.24. Criteria to classify a waste as Resource, Conservation, and Recovery Act (RCRA) hazardous are contained in Chapter 40 of the Code of Federal Regulations (40 CFR), Section 261.

For waste containing metals, the waste is classified as California hazardous when: 1) the representative total metal content equals or exceeds the respective Total Threshold Limit Concentration (TTLC); or

2) the representative soluble metal content equals or exceeds the respective Soluble Threshold Limit Concentration (STLC) based on the standard Waste Extraction Test (WET). A waste has the potential of exceeding the STLC when the waste's total metal content is greater than or equal to ten times the respective STLC value since the WET uses a 1:10 dilution ratio. Hence, when a total metal is detected at a concentration greater than or equal to ten times the respective STLC, and assuming that 100 percent of the total metals are soluble, soluble metal analysis is required. A material is classified as RCRA hazardous, or Federal hazardous, when the representative soluble metal content equals or exceeds the Federal regulatory level based on the Toxicity Characteristic Leaching Procedure (TCLP).

The above regulatory criteria are based on chemical concentrations. Wastes may also be classified as hazardous based on other criteria such as ignitability and corrosivity; however, for the purposes of this investigation, toxicity (i.e., representative lead concentrations) is the primary factor considered for waste classification since waste generated during the construction activities would not likely warrant testing for ignitability or other criteria. Waste that is classified as either California hazardous or RCRA hazardous requires management as a hazardous waste.

2.2 DTSC Variance

The DTSC issued a statewide Variance effective July 1, 2009, regarding the management of ADL-impacted soils within Caltrans right-of-way. Under the Variance, soil that is classified as a non-RCRA hazardous waste, based primarily on ADL content, may be suitable for reuse within Caltrans right-of-way. ADL soil that is classified as a RCRA hazardous waste is not eligible for reuse under the Variance and must be disposed of as a RCRA hazardous waste (Caltrans Type Z-3).

ADL soil reused under the Variance must always be at least five feet above the highest groundwater elevation and, depending on lead concentrations, must be covered with at least one foot of non-hazardous soil or a pavement structure. The ADL soil may not be placed in areas where it might contact groundwater or surface water (such as streams and rivers), and must be buried in locations that are protected from erosion that may result from storm water run-on and run-off.

Review of the statewide Variance indicates the following conditions regarding the reuse and management of ADL-impacted soil as fill material for construction and maintenance operations. If ADL soil meets the Variance criteria but is not intended to be reused within Caltrans right-of-way, then the excavated soil must be disposed of as a California hazardous waste (Caltrans Type Z-2). A copy of the Variance is presented as Appendix A.

Caltrans Type Y-1: ADL soil exhibiting a total lead concentration less than or equal to 1,411 milligrams per kilogram (mg/kg), a DI-WET (WET using deionized water as extractant) lead concentration less than or equal to 1.5 milligrams per liter (mg/l), and a pH value greater than or equal to 5.5 may be reused within the same Caltrans corridor and must be covered with at least one foot of non-hazardous soil.

Caltrans Type Y-2: ADL soil exhibiting a total lead concentration less than or equal to 1,411 mg/kg, a DI-WET lead concentration less than or equal to 1.5 mg/l, and a pH value greater than 5 and less than 5.5 may be reused within the same Caltrans corridor and must be covered and protected from infiltration by a pavement structure.

ADL soil exhibiting a total lead concentration less than or equal to 1,411 mg/kg, a DI-WET lead concentration greater than 1.5 mg/l and less than or equal to 150 mg/l, and a pH value greater than 5 may be reused within the same Caltrans corridor and must be covered and protected from infiltration by a pavement structure.

ADL soil exhibiting a total lead concentration greater than 1,411 mg/kg and less than or equal to 3,397 mg/kg, a DI-WET lead concentration less than or equal to 150 mg/l, and a pH value greater than 5 may be reused within the same Caltrans corridor and must be covered and protected from infiltration by a pavement structure.

Caltrans Type Z-2: ADL soil exhibiting a total lead concentration greater than 3,397 mg/kg, a DI-WET lead concentration greater than 150 mg/l, or a pH value less than or equal to 5 is not eligible for reuse under the Variance and must be disposed of as a California hazardous waste.

Caltrans Type Z-3: ADL soil exhibiting a TCLP lead concentration greater than or equal to 5 mg/l is not eligible for reuse under the Variance and must be disposed of as a RCRA hazardous waste.

2.3 Environmental Screening Levels

The San Francisco Bay Regional Water Quality Control Board (SFRWQCB) has prepared a technical report entitled *User's Guide: Derivation and Application of Environmental Screening Levels, Interim Final 2013* (updated December 2013), which presents Environmental Screening Levels (ESLs) for over 100 commonly found contaminants in soil, groundwater, soil gas, and surface water, to assist in evaluating sites impacted by releases of hazardous chemicals. "The ESLs are considered to be protective for typical bay area sites. Under most circumstances, ...the presence of a chemical in soil, soil gas, or groundwater at concentrations below the corresponding ESL can be assumed to not pose a significant threat to human health, water resources, or the environment." (SFRWQCB,

December 2013). ESLs are risk assessment tools and are “not intended to serve as a rule to determine if a waste is hazardous under the state or federal regulations.”

Residential and commercial/industrial land use ESLs are commonly used by contractors, soil trucking companies, and private and commercial land owners as default acceptance criteria to evaluate suitability of import soil material. The following ESL tables were used for this characterization:

- Table A. Shallow Soil (≤ 3 m bgs), Groundwater is a Current or Potential Source of Drinking Water
- Table K-3. Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario

The respective ESLs are listed at the end of Tables 3, 4, and 6 for comparative purposes.

2.4 Naturally Occurring Asbestos

As defined in current California Air Resources Board (CARB) rules, serpentine material refers to any material that contains at least 10% serpentine, and asbestos-containing serpentine refers to serpentine materials with an asbestos content greater than 5% as determined by CARB Test Method 435 (CARB 435). The use of serpentine material for road surfacing is prohibited in California by Title 17 of the California Code of Regulations (CCR) Section 93106, Asbestos Airborne Toxic Control Measure (ATCM) for Surfacing Application (ATCM 93106), unless the material has been tested and determined to have an asbestos content of less than 0.25%. Materials found to contain asbestos of 0.25% or more are considered to be designated waste if transported offsite, requiring disposal at a landfill facility designated to accept asbestos waste. Alternatively, asbestos-containing materials may be reused onsite if buried beneath a minimum 6 inches of soil.

The CARB specifies mitigation practices for construction, grading, quarrying, and surface mining operations that contain natural occurrences of asbestos outlined in Title 17, Section 93105, Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations (ATCM 93105). Based on Part (e) Subpart (2) of ATCM 93105 an asbestos dust mitigation plan is required and must be implemented for a project if NOA is disturbed after the start of construction. Additionally, ATCM 93105 specifies that the air pollution control district (APCD) must be notified and an asbestos dust mitigation plan submitted to the APCD. The ATCM states that air monitoring may be required on the property. NOA potentially poses a health hazard when it becomes an airborne particulate.

The construction/maintenance activities mentioned above could disturb NOA-laden debris and soil, thereby potentially creating an airborne hazard. Mitigation practices can reduce the risk of exposure to airborne NOA containing dust. Dust suppression practices include wetting the materials being disturbed and wearing approved respirators with high-efficiency particulate air (HEPA) filters during construction activities.

3.0 SCOPE OF SERVICES

The scope of services performed under TO-13, EA 04-1SS410 included the following:

3.1 Pre-field Activities

- Prepared the *Preliminary Site Investigation Workplan* and *Health and Safety Plan*, dated September 2014.
- Retained the services of Cruz Brothers Locators to provide utility clearance services prior to field operations.
- Retained the services of Gregg Drilling & Testing, a Caltrans-approved drilling contractor, to perform drilling activities.
- Retained the services of Advanced Technology Laboratories, Signal Hill, California (ATL), a Caltrans-approved and California-certified analytical laboratory, to perform the chemical analyses of soil samples.
- Retained the services of EMSL, Inc., a Caltrans-approved and California-certified analytical laboratory, to perform the asbestos analysis of soil samples.
- Notified Underground Service Alert (USA) at least 48 hours prior to field work.

3.2 Field Activities

The field investigation was performed on September 29 and 30, 2014, by Geocon staff. The following field activities were performed during the sampling efforts:

- Advanced 6 soil borings at the project location using hand-auger drilling techniques. The borings were advanced to a maximum depth of 5.5 feet.
- Advanced 3 borings at the project location using hollow-stem auger drilling techniques. The borings were advanced to a maximum depth of 40.5 feet.

The following soil samples were collected:

- 5 for CAM 17 metals analysis
- 30 for total lead analysis
- 12 for TPHd and TPHmo analyses
- 3 for TPHg, BTEX, and MTBE analyses
- 26 for NOA analysis

Two groundwater samples were collected for TPHg, BTEX, and MTBE analyses.

One equipment rinse blank was collected for total lead analysis.

All samples were transported to ATL and EMSL for analysis under standard chain-of-custody (COC) documentation.

4.0 INVESTIGATIVE METHODS

4.1 Sampling Procedures

Soil samples were collected from the nine boring locations identified by the Caltrans TO Manager using hand-auger and hollow-stem auger drilling techniques. Boring coordinates are presented on Table 1. A Location Map, Figure 1, shows the project location, and the Site Plan, Figure 2, shows the boring locations.

Soil samples were placed in new resealable plastic bags or stainless steel tubes and sealed with Teflon tape and plastic lids prior to being stored in a chest cooled with ice.

Sample containers were labeled and transported to Caltrans-approved, certified environmental laboratories using standard COC documentation. Hand-auger soil borings were back-filled to surface with soil cuttings. Hollow-stem auger borings were back-filled with neat cement.

Geocon provided QA/QC procedures during the field activities. These procedures included washing the sampling equipment with a Liqui-Nox® solution followed by a double rinse with deionized water. The equipment rinse blank was collected by pouring deionized water over the cleaned sampling equipment and collecting it into a sample container for laboratory analysis. Decontamination water was disposed of to the ground surface within Caltrans right-of-way in a manner not to create runoff, away from drain inlets or potential water bodies.

4.2 Laboratory Analyses

Laboratory analyses were performed by ATL and EMSL under standard turnaround-time (TAT) per the Task Order Manager. The laboratory reports and COC documentation are included in Appendix B.

The soil samples were analyzed as follows:

- 5 samples for CAM 17 metals using EPA Test Methods 6010 ICAP and 7471.
- 30 samples were analyzed for total lead using EPA Test Method 6010 ICAP.
- 4 samples with a total chromium concentration equal to or exceeding 50 mg/kg (i.e. equal to or exceeding ten times the STLC of 5.0 mg/l) were further analyzed for WET chromium.

- 1 sample with a total copper concentration equal to or exceeding 250 mg/kg (i.e. equal to or exceeding ten times the STLC of 25 mg/l) was further analyzed for WET copper.
- 6 samples with total lead concentrations equal to or exceeding 50 mg/kg (i.e. equal to or exceeding ten times the STLC of 5.0 mg/l) were further analyzed for WET lead.
- 12 samples for TPHd using EPA Test Method 8015B.
- 12 samples for TPHmo using EPA Test Method 8015B.
- 3 samples for TPHg using EPA Test Method 8021.
- 3 samples for BTEX and MTBE using EPA Test Method 8021.
- 26 samples for NOA using CARB 435.

The groundwater samples were analyzed as follows:

- 2 samples for TPHg using EPA Test Method 8015B.
- 2 samples for BTEX and MTBE using EPA Test Method 8260B.

The QA/QC equipment rinse blank sample was analyzed for total lead using EPA Test Method 6010 ICAP.

4.3 Laboratory QA/QC

QA/QC procedures were performed for each method of analysis with specificity for each analyte listed in the test method's QA/QC. The laboratory QA/QC procedures included the following:

- One method blank for every ten samples, batch of samples or type of matrix, whichever was more frequent.
- One sample analyzed in duplicate for every ten samples, batch of samples or type of matrix, whichever was more frequent.
- One spiked sample for every ten samples, batch of samples or type of matrix; whichever was more frequent, with spike made at ten times the detection limit or at the analyte level.

Prior to submitting the samples to the laboratory, the COC documentation was reviewed for accuracy and completeness.

5.0 INVESTIGATIVE RESULTS

5.1 Subsurface Conditions

Borings B1, B2, and B3 were completed in the roadway surface using hollow-stem auger drilling techniques. Asphalt was present to a depth of approximately 4 to 6 inches. Underlying material to a depth of 4 feet consisted of gravelly fill material. Soil from 4 feet to 20 feet consisted primarily of

stiff, brown, moist clay with sand and gravel. The soil at borings B1 and B2 from 20 feet to a depth of approximately 40 feet consisted of dense, stiff, brown, moist, gravelly/sandy clay. The soil of boring B3 beginning at 20 feet consisted of loose, saturated sandy gravel with variegated, weathered mélange to 40 feet. Groundwater was present in boring B1 at depths of 38.5 feet and at 30 feet in boring B3. Groundwater was not encountered in boring B2. Logs for borings B1, B2, and B3 are provided as Appendix C.

Borings B4, B5, B6, B7, B8 and B9 were completed on the western slope using hand-auger drilling techniques. Soil conditions were consistent with borings B1 to B3, however, all borings were met with refusal at approximately 5 to 5.5 feet. Groundwater was not encountered in any of the hand auger borings.

5.2 Laboratory Analytical Results

The analytical results are summarized in Tables 2 through 6 and are summarized below:

Soil Sample Results:

- The following metals were not detected above their respective laboratory reporting limits: antimony, beryllium, molybdenum, selenium, silver, and thallium.
- The following metals were reported at concentrations equal to or exceeding ten times their respective STLCS: chromium, copper, and lead.
- Total chromium was reported at concentrations ranging from 42 mg/kg to 77 mg/kg.
- WET chromium was not detected at or above the reporting limit of <1.0 mg/l.
- Total copper was reported at concentrations ranging from 38 mg/kg to 290 mg/kg.
- WET copper was reported at a concentration of 6.1 mg/l.
- Total lead was reported at concentrations ranging from <1.0 mg/kg to 240 mg/kg.
- WET lead was reported at concentrations ranging from 3.0 mg/l to 21 mg/l.
- DI-WET lead was not detected at or above the reporting limit of <1.0 mg/l.
- TCLP lead was reported at concentrations ranging from <0.050 mg/l to 0.23 mg/l.
- Remaining CAM 17 metals were reported in the samples at total concentrations below ten times their respective STLCS.
- TPHd was reported at concentrations ranging from <1.0 mg/kg to 340 mg/kg.
- TPHmo was reported at concentrations ranging from 1.3 mg/kg to 1,500 mg/kg.
- TPHg was not detected at or above the reporting limit of 1.0 mg/kg.
- BTEX and MTBE were not detected at or above the reporting limits.
- NOA was reported at concentrations up to 1.50% chrysotile asbestos.

Groundwater Sample Results:

- TPHg was not detected at or above the reporting limit of 0.05 mg/l.
- BTEX and MTBE were not detected at or above the reporting limits.

QA/QC Sample Results:

- Total lead was not detected at or above the laboratory reporting limit of 0.0050 mg/l in the equipment rinse blank sample.

5.3 Laboratory Quality Assurance/Quality Control

We reviewed the QA/QC results provided with the laboratory analytical reports. The data indicate non-detect results for the method blanks at or above reporting limits. Several samples were diluted due to failing internal standard in the original run. The surrogate was diluted out for one sample. The relative percent difference (RPD) was outside of acceptance criteria for one sample. The matrix spike (MS) recovery was outside of acceptance limits for four samples due to possible matrix interference. The analytical batch was validated by the laboratory control sample. The MS recovery was outside of acceptance criteria for an additional four samples; however, the analytical batch was validated by the laboratory control sample.

5.4 Statistical Evaluation for Lead Detected in Soil Samples

Statistical methods were applied to the total lead data to evaluate: 1) the upper confidence limits (UCLs) of the arithmetic means of the total lead concentrations for each sampling depth; and 2) if an acceptable correlation between total and WET lead concentrations exists that would allow the prediction of WET lead concentrations based on calculated UCLs.

5.4.1 Calculating the UCLs for the Arithmetic Mean

The upper one-sided 90% and 95% UCLs of the arithmetic mean are defined as the values that, when calculated repeatedly for randomly drawn subsets of site data, equal or exceed the true mean 90% and 95% of the time, respectively. Statistical confidence limits are the classical tool for addressing uncertainties of a distribution mean. The UCLs of the arithmetic mean concentration are used as the mean concentrations because it is not possible to know the true mean due to the essentially infinite number of soil samples that could be collected from a site. The UCLs therefore account for uncertainties due to limited sampling data. As data become less limited at a site, uncertainties decrease, and the UCLs move closer to the true mean.

Non-parametric bootstrap techniques were used to calculate the UCLs. For those samples in which total lead was not detected, a value equal to one-half of the detection limit was used in the UCL calculation. The bootstrap test results are included in Appendix D. The following table presents the calculated UCLs and statistics for the site:

Borings B1 to B9

SAMPLE INTERVAL (feet)	TOTAL LEAD 90% UCL (mg/kg)	TOTAL LEAD 95% UCL (mg/kg)	TOTAL LEAD MEAN (mg/kg)	TOTAL LEAD MINIMUM (mg/kg)	TOTAL LEAD MAXIMUM (mg/kg)
0 to 0.5	119	128	84.4	1.9	240
1 to 1.5	38.7	42.6	23.3	0.5	120
2 to 2.5	12.2	12.6	10.8	8.3	19
5 to 5.5	13.2	13.8	11.2	6.8	19

5.4.2 Correlation of Total and WET Lead

Total and corresponding WET lead concentrations are bivariate data with a linear structure. This linear structure should allow for the prediction of WET lead concentrations based on the 95% UCL total lead concentrations presented in the table above.

To estimate the degree of interrelation between total and corresponding WET lead values (x and y , respectively), the *correlation coefficient* [r] is used. The correlation coefficient is a ratio that ranges from +1 to -1. A *correlation coefficient* of +1 indicates a perfect direct relationship between two variables; a *correlation coefficient* of -1 indicates that one variable changes inversely with relation to the other. Between the two extremes is a spectrum of less-than-perfect relationships, including zero, which indicates the lack of any sort of linear relationship at all. The *correlation coefficient* was calculated for the 6 (x , y) data points (i.e., soil samples analyzed for both total lead [x] and WET lead [y]) from the site. The resulting *coefficient of determination* (r^2) equaled 0.9163, which yields a corresponding *correlation coefficient* (r) of 0.957.

For the *correlation coefficient* that indicates a linear relationship between total and WET lead concentrations, it is possible to compute the line of dependence or a best-fit line between the two variables. A least squares method was used to find the equation of a best-fit line (regression line) by forcing the y-intercept equal to zero since that is a known point. The equation of the regression line was determined to be $y = 0.0749(x)$, where x represents total lead concentrations and y represents predicted WET lead concentrations.

This equation was used to estimate the expected WET lead concentrations for the total lead UCLs for the data set (see Section 5.4.1). Regression analysis results and a scatter plot depicting the (x, y) data points along with the regression line are included in Appendix D. The predicted WET lead concentrations are summarized in Table 7.

6.0 CONCLUSIONS

6.1 Lead in Soil

The following table summarizes the predicted waste classification for excavated soil based on the calculated weighted averages of the total lead UCLs and predicted WET lead concentrations for data collected from this area of the site. Weighted averages are calculated by using the total lead concentration for each 0.5-foot depth interval as the value for the underlying 0.5-foot depth interval (unless a sample was collected from the underlying depth interval). The total and WET lead calculations are summarized below and in Table 7.

Excavation Depth	90% UCL Total Lead (mg/kg)	90% UCL Predicted WET Lead (mg/l)	95% UCL Total Lead (mg/kg)	Waste Classification
0 to 1 ft	119	8.9	128	Hazardous
<i>Underlying soil (1 to 5.5 ft)</i>	29.9	2.2	32.6	<i>Non-hazardous</i>
0 to 2 ft	79	5.9	85	Hazardous
<i>Underlying soil (2 to 5.5 ft)</i>	12.3	0.9	12.8	<i>Non-hazardous</i>
0 to 3 ft	65	4.9	69	Non-Hazardous
<i>Underlying soil (3 to 5.5 ft)</i>	12.4	0.9	12.8	<i>Non-hazardous</i>
0 to 5 ft	39	2.9	42	Non-Hazardous
<i>Underlying soil (5 to 5.5 ft)</i>	13.2	1.0	13.8	<i>Non-hazardous</i>
0 to 5.5 ft	37	2.7	39	Non-Hazardous

90% UCL applicable for waste classification and onsite reuse; 95% UCL applicable for risk assessment and offsite disposal

Based on the data presented in the above table, soil excavated to a depth of 1 foot would be classified as California hazardous waste. Based on the TCLP lead results, excavated soil would not be classified as a RCRA hazardous waste. Based on the reported DI-WET and pH results, soil excavated from 0 to 1 foot may be reused (as Caltrans Type Y-1) within Caltrans right-of-way in accordance with the DTSC Variance. Underlying soil (i.e., deeper than 1 foot) would be classified as non-hazardous.

If excavations extend to 3 feet and soil is managed as a whole, then soil would be classified as non-hazardous.

6.2 Remaining CAM 17 Metals in Soil

With the exceptions of chromium and copper, CAM 17 metals were reported in the samples at total concentrations below ten times their respective STLCS. WET chromium was not detected at or above

the reporting limit of 1.0 mg/l. WET copper was reported at a concentration of 6.1 mg/l, below the STLC of 25 mg/l. Therefore, soil would be not classified as hazardous based on chromium and copper concentrations.

The CAM 17 metals concentrations in site soil were compared to ESLs. Arsenic, lead, and nickel were reported at concentrations greater than one or more ESL values. Because concentrations of arsenic, lead, and nickel exceeded one or more ESL, non-parametric bootstrap techniques were used to calculate the UCLs. Risk assessment characterization is based on the 95% UCL of the soil for the site; this is in accordance with the Risk Assessment Guidance for Superfund (RAGS) Volume 1 Documentation for Exposure Assessment.

The bootstrap test result is included in Appendix D. ESLs, UCLs, and published background concentrations for arsenic, lead, and nickel are summarized in the table below.

Metal	Maximum	95% UCL	Shallow Soil Residential ESL	Shallow Soil Commercial/Industrial ESL	Worker Direct Exposure ESL	Published Background Mean¹	Published Background Range¹
Arsenic	10	8.49	0.39	1.6	10	3.5	0.6 to 11.0
Lead	240	48	80	320	320	23.9	12.4 to 97.1
Nickel	180	137	150	150	6,100	57	9 to 509

Concentrations reported in mg/kg

¹ Kearney Foundation of Soil Science, March 1996

The 95% UCL arsenic concentration is greater than the residential and commercial land use ESLs; however, it is below the construction exposure ESL and within the published background range. The SFRWQCB *November 2007 Update to Environmental Screening Levels (ESLs) Technical Document* states that ambient background concentrations of arsenic typically exceed risk-based screening levels. In such instances, it may be more appropriate to compare site data to regionally specific established background levels.

The 95% UCL lead concentration is below the residential and commercial land use ESLs, the construction exposure ESL, and within the published background range.

The 95% UCL nickel concentration is below the residential and commercial land use ESLs, the construction exposure ESL, and within the published background range.

Based on the reported results for arsenic, lead, and nickel, reuse or disposal of excavated soil may be restricted depending on proposed use.

Metals results for soil samples are summarized in Table 3.

6.3 Organic Compounds in Soil

TPHg, BTEX, or MTBE were not detected at or above the reporting limits.

TPHd was reported at a concentration of 340 mg/kg in sample B5-0. This concentration exceeds the residential and commercial/industrial land use ESLs of 100 mg/kg and 110 mg/kg, respectively, but is below the construction/direct exposure ESL of 900 mg/kg. Remaining TPHd concentrations ranged from <1.0 mg/kg to 78 mg/kg, below the ESLs. TPHd has a 95% UCL concentration of 87.2 mg/kg.

TPHmo was reported at concentrations ranging from 1.3 mg/kg to 1,500 mg/kg, with some reported concentrations exceed the residential and commercial/industrial land use ESLs of 100 mg/kg and 500 mg/kg, respectively. The reported TPHmo concentrations are below the construction/direct exposure ESL of 28,000 mg/kg. TPHmo has a 95% UCL concentration of 366 mg/kg.

Based on the reported TPHd and TPHmo concentrations exceeding the residential ESL and commercial/industrial ESLs, reuse or disposal of excavated soil may be restricted based on TPHd and TPHmo content depending on proposed use.

A summary of petroleum hydrocarbon concentrations in site soil is presented in Table 4.

6.4 Naturally-Occurring Asbestos in Soil

Twenty-six soil samples were collected from the site and analyzed for asbestos by CARB Test Method 435 using polarized light microscopy (PLM) and at a target sensitivity of 0.25% asbestos. One sample, B9-0, contained 1.50% chrysotile asbestos. Three samples were reported to contain trace (<0.25%) chrysotile asbestos. Asbestos fibers were not observed in the remaining 22 samples.

ATCM 93105 sets forth measures to be followed for the investigation and control of naturally occurring asbestos for construction sites. Because NOA was reported at concentrations exceeding the regulatory threshold of 0.25%, regulations regarding site work should be consulted. Soil reuse and disposal may be restricted based on asbestos content.

Additionally, it is Caltrans policy that a contractor have an asbestos compliance plan in place on projects where personnel may be in contact with materials known to contain NOA and that wet methods be used to minimize the potential for airborne asbestos.

A summary of NOA results is included in Table 5.

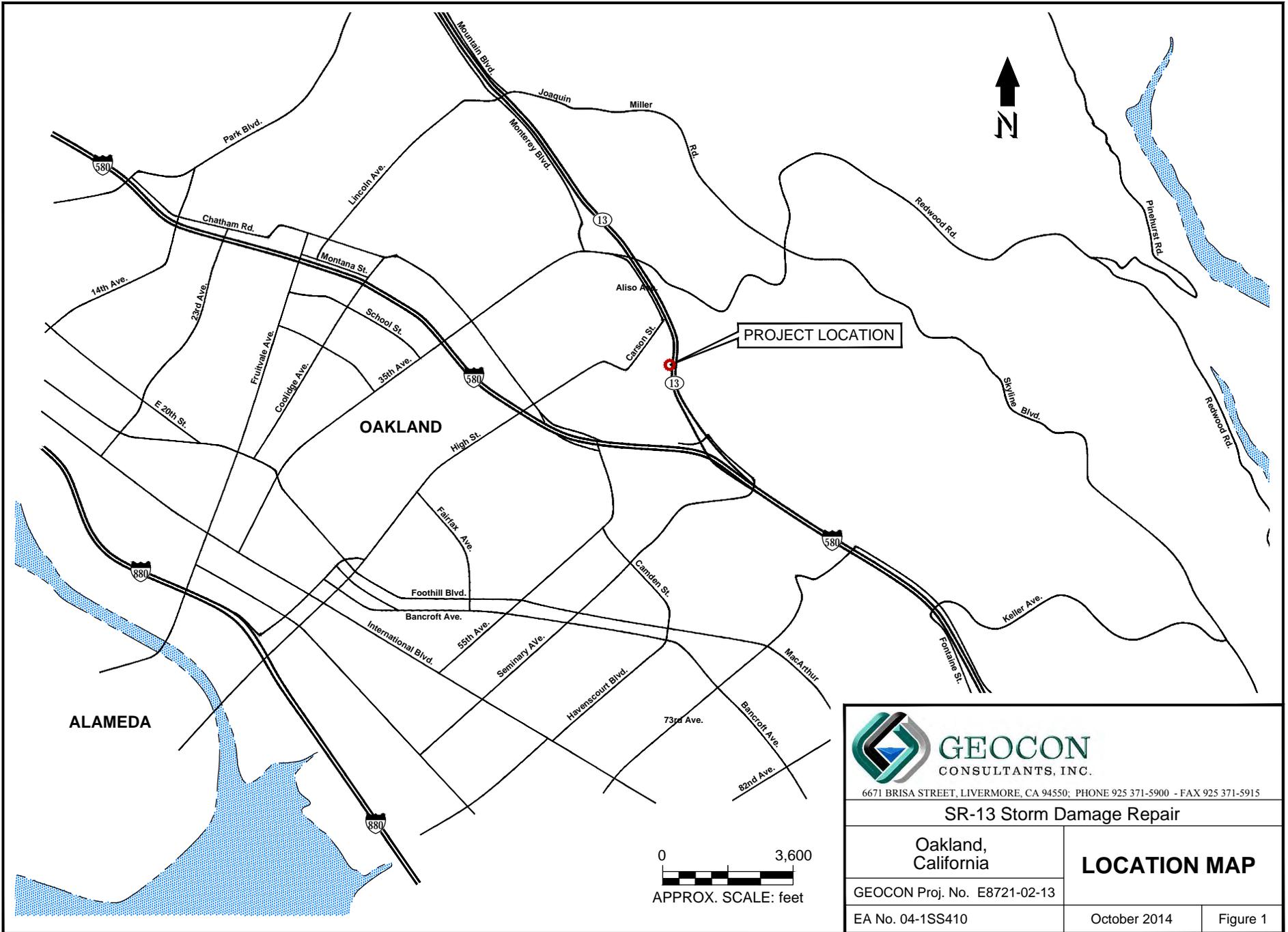
6.5 Organics in Groundwater

Groundwater samples were collected from borings B1 and B3 and were analyzed for TPHg, BTEX and MTBE. TPHg, BTEX, or MTBE were not detected at or above laboratory reporting limits.

A summary of organic compound concentrations for the groundwater sample is presented in Table 6.

6.6 Worker Protection

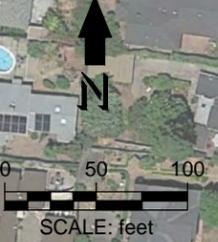
The contractor(s) should prepare a project-specific health and safety plan to prevent or minimize worker exposure to metals, hydrocarbons, and NOA in soil. The plan should include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other health and safety protocols and procedures for the handling of soil.



 GEOCON CONSULTANTS, INC. 6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915	
SR-13 Storm Damage Repair	
Oakland, California	LOCATION MAP
GEOCON Proj. No. E8721-02-13	
EA No. 04-1SS410	October 2014
Figure 1	



LEGEND:
 ● Boring Location



 GEOCON CONSULTANTS, INC. <small>6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915</small>	
SR-13 Storm Damage Repair	
Oakland, California	SITE PLAN
<small>GEOCON Proj. No. E8721-02-13</small>	
<small>EA No. 04-1SS410</small>	<small>October 2014</small>
<small>Figure 2</small>	

TABLE 1
Boring Coordinates
SR-13 Storm Damage Repair
Oakland, California

Boring	Northing	Easting
B1	2,114,932.362	6,075,895.288
B2	2,114,852.255	6,075,886.546
B3	2,114,782.520	6,075,876.345
B4	2,114,918.669	6,075,890.148
B5	2,114,839.137	6,075,880.169
B6	2,114,769.848	6,075,870.057
B7	2,114,934.437	6,075,880.433
B8	2,114,854.329	6,075,871.690
B9	2,114,784.594	6,075,861.489

Coordinates shown in feet, NAD, 83, Zone 3

TABLE 2
Summary of Lead and pH Results - Soil
SR-13 Storm Damage Repair
Oakland, California

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	TCLP Lead (mg/l)	DI-WET Lead (mg/l)	pH
B1-0	0 to 0.5	1.9	---	---	---	---
B1-1	1 to 1.5	<2.0	---	---	---	---
B1-2	2 to 2.5	8.7	---	---	---	---
B1-5	5 to 5.5	7.2	---	---	---	---
B2-0	0 to 0.5	2.4	---	---	---	---
B2-1	1 to 1.5	<1.0	---	---	---	---
B2-2	2 to 2.5	8.5	---	---	---	---
B2-5	5 to 5.5	19	---	---	---	---
B3-0	0 to 0.5	2.5	---	---	---	---
B3-1	1 to 1.5	3.5	---	---	---	---
B3-2	2 to 2.5	8.3	---	---	---	---
B3-5	5 to 5.5	8.5	---	---	---	---
B4-0	0 to 0.5	190	13	0.12	<1.0	7.7
B4-1	1 to 1.5	36	---	---	---	---
B4-2	2 to 2.5	12	---	---	---	---
B4-5	5 to 5.5	18	---	---	---	---
B5-0	0 to 0.5	240	21	0.23	<1.0	7.6
B5-1	1 to 1.5	120	7.4	0.089	<1.0	7.7
B5-2	2 to 2.5	8.3	---	---	---	---
B5-5	5 to 5.5	9.6	---	---	---	---
B6-0	0 to 0.5	100	6.3	0.060	<1.0	6.7
B6-1	1 to 1.5	9.1	---	---	---	---
B6-2	2 to 2.5	12	---	---	---	---
B6-5	5 to 5.5	8.4	---	---	---	---
B7-0	0 to 0.5	120	8.0	<0.050	<1.0	6.6
B7-1	1 to 1.5	14	---	---	---	---
B7-2	2 to 2.5	19	---	---	---	---
B8-0	0 to 0.5	47	---	---	---	---
B8-1	1 to 1.5	9.8	---	---	---	---
B8-2	2 to 2.5	11	---	---	---	---
B8-5	5 to 5.5	6.8	---	---	---	---

TABLE 2
Summary of Lead and pH Results - Soil
SR-13 Storm Damage Repair
Oakland, California

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	TCLP Lead (mg/l)	DI-WET Lead (mg/l)	pH
B9-0	0 to 0.5	56	3.0	---	---	---
B9-1	1 to 1.5	16	---	---	---	---
B9-2	2 to 2.5	9.4	---	---	---	---
B9-5	5 to 5.5	12	---	---	---	---
Equipment Blank (mg/l)		<0.0050				
<u>Hazardous Waste Criteria</u>						
	TTL (mg/kg)	1,000	---	---	---	---
	STL (mg/l)	---	5.0	---	---	---
	TCLP (mg/l)	---	---	5.0	---	---

Notes:

- mg/kg = Milligrams per kilogram
- mg/l = Milligrams per liter
- WET = Waste Extraction Test using citric acid as the extraction fluid
- DI-WET = Waste Extraction Test using deionized water as the extraction fluid
- TTL = Total Threshold Limit Concentration
- STL = Soluble Threshold Limit Concentration
- TCLP = Toxicity Characteristic Leaching Procedure

TABLE 3
Summary of CAM 17 Metals Results - Soil
SR-13 Storm Damage Repair
Oakland, California

Sample ID	Sample Depth (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
B1-1	1 to 1.5	<4.0	<2.0	33	<2.0	<2.0	55 <i><1.0</i>	20	62	<2.0	0.11	<2.0	46	<2.0	<2.0	<2.0	28	16
B3-2	2 to 2.5	<2.0	10	220	<1.0	<1.0	53 <i><1.0</i>	11	42	8.3	<0.10	<1.0	49	<1.0	<1.0	<1.0	51	67
B5-5	5 to 5.5	<2.0	5.8	180	<1.0	<1.0	42	12	39	9.6	0.11	<1.0	42	<1.0	<1.0	<1.0	47	77
B7-2	2 to 2.5	<2.0	6.6	160	<1.0	1.2	77 <i><1.0</i>	17	290 <i>6.1</i>	19	0.12	<1.0	150	<1.0	<1.0	<1.0	43	220
B9-1	1 to 1.5	<2.0	8.0	180	<1.0	<1.0	77 <i><1.0</i>	19	38	16	<0.10	<1.0	180	<1.0	<1.0	<1.0	43	58
<u>ESLs</u>																		
	Residential Land Use	20	0.39	750	4.0	12	1,000	23	230	80	6.7	40	150	10	20	0.78	200	600
	Commercial/Industrial Land Use	40	1.6	1,500	8.0	12	2,500	80	230	320	10	40	150	10	40	10	200	600
	Construction Worker Exposure	120	10	61,000	180	110	460,000*	49	12,000	320	27	1,500	6,100	1,500	1,500	3.1	1,500	93,000
<u>Hazardous Waste Criteria</u>																		
	TTLC (mg/kg)	500	500	10,000	75	100	2,500	8,000	2,500	1,000	20	3,500	2,000	100	500	700	2,400	5,000
	STLC (mg/l)	15	5.0	100	0.75	1.0	5.0	80	25	5.0	0.2	350	20	1.0	5.0	7.0	24	250
	TCLP (mg/l)	---	5.0	100	---	1.0	6.0	---	---	5.0	0.2	---	---	1.0	5.0	---	---	---

Notes:

Results are shown in milligrams per kilogram (mg/kg).
*Value listed is for Chromium III, as there is no construction exposure standard for total chromium.
Values listed in italics are results of WET analysis
< = Analyte was not detected above the laboratory reporting limit.
ESLs = Environmental Screening Levels, Tables A and K-3, SFRWQCB, December 2013.
TTLC = total threshold limit concentration
STLC = soluble threshold limit concentration
TCLP = toxicity characteristic leaching procedure

TABLE 4
Summary of Petroleum Hydrocarbons Results - Soil
SR-13 Storm Damage Repair
Oakland, California

Sample ID	Sample Depth (ft)	TPHd (mg/kg)	TPHmo (mg/kg)	TPHg (mg/kg)	BTEX/MTBE (mg/kg)
B1-1	1 to 1.5	15	44	---	---
B1-2	2 to 2.5	1.2	1.9	---	---
B1-5	5 to 5.5	1.4	3.2	---	---
B1-30	30 to 30.5	---	---	<1.0	ND
B1-40	40 to 40.5	---	---	<1.0	ND
B3-1	1 to 1.5	6.7	18	---	---
B3-2	2 to 2.5	1.7	2.7	---	---
B3-5	5 to 5.5	<1.0	1.3	---	---
B3-30	30 to 30.5	---	---	<1.0	ND
B5-0	1 to 1.5	340	1,500	---	---
B5-2	2 to 2.5	3.5	9.0	---	---
B5-5	5 to 5.5	5.6	15	---	---
B8-0	1 to 1.5	78	190	---	---
B8-2	2 to 2.5	23	41	---	---
B8-5	5 to 5.5	59	230	---	---
ESLs					
	Residential	100	100	100	100
	Commercial/Industrial	110	500	500	500
	Construction Exposure	900	28,000	2,700	2,700

Notes:

- mg/kg = milligrams per kilogram
- TPHd = Total petroleum hydrocarbons as diesel
- TPHmo = Total petroleum hydrocarbons as motor oil
- TPHg = Total petroleum hydrocarbons as gasoline
- ND = Not Detected
- = Not analyzed
- < = Not detected above the stated laboratory reporting limit
- ESLs = Environmental Screening Levels, Tables A and K-3, SFRWQCB, December 2013.

TABLE 5
Summary of NOA Results - Soil
SR-13 Storm Damage Repair
Oakland, California

Sample ID	Sample Depth (feet)	Asbestos Content (% dry weight)
B1-0	0 to 0.5	ND
B1-10	10 to 10.5	ND
B1-20	20 to 20.5	ND
B1-30	30 to 30.5	ND
B1-40	40 to 40.5	ND
B2-0	0 to 0.5	ND
B2-10	10 to 10.5	ND
B2-20	20 to 20.5	ND
B2-30	30 to 30.5	ND
B2-40	40 to 40.5	ND
B3-0	0 to 0.5	ND
B3-10	10 to 10.5	ND
B3-20	20 to 20.5	<0.25% Chrysotile
B3-30	30 to 30.5	<0.25% Chrysotile
B3-40	40 to 40.5	ND
B4-0	0 to 0.5	ND
B4-5	5 to 5.5	ND
B5-0	0 to 0.5	ND
B5-5	5 to 5.5	ND
B6-0	0 to 0.5	ND
B6-5	5 to 5.5	ND
B7-0	0 to 0.5	ND
B8-0	0 to 0.5	ND
B8-5	5 to 5.5	<0.25% Chrysotile
B9-0	0 to 0.5	1.50% Chrysotile
B9-5	5 to 5.5	<0.25% Chrysotile

ND = None detected at 0.25% target analytical sensitivity.

TABLE 6
Summary of Organics Results - Groundwater
SR-13 Storm Damage Repair
Oakland, California

Sample ID	TPHg (mg/l)	BTEX/MTBE (µg/l)
B1-GW	<0.05	ND
B3-GW	<0.05	ND
ESLs		
GW is current/potential source	0.10	---
GW not current/potential source	0.50	---
Surface Water - Freshwater	0.10	---
Surface Water - Marine	3.7	---
Surface Water - Estuarine	0.5	---

Notes:

- mg/l = milligrams per kilogram
- µg/l = micrograms per kilogram
- TPHd = Total petroleum hydrocarbons as diesel
- TPHmo = Total petroleum hydrocarbons as motor oil
- TPHg = Total petroleum hydrocarbons as gasoline
- = Not Analyzed or no standard exists
- < = Not detected above the stated laboratory reporting limit
- ND = None detected
- ESLs = Environmental Screening Levels (Table F) revised May 2013

TABLE 7
Summary of Lead Statistical Analysis
SR-13 Storm Damage Repair
Oakland, California

Borings B1 to B9

TOTAL LEAD

	90% UCL	95% UCL
0 to 0.5 ft	119	128
1 to 1.5 ft	38.7	42.6
2 to 2.5 ft	12.2	12.6
5 to 5.5 ft	13.2	13.8

EXCAVATION SCENARIOS

Excavation Depth	Weighted Averages		95% UCL Total Lead (mg/kg)
	90% UCL Total Lead (mg/kg)	WET Lead* (mg/l)	
0 to 1 ft <i>Underlying Soil (1 to 5.5 ft)</i>	119 29.9	8.9 2.2	128 32.6
0 to 2 ft <i>Underlying Soil (2 to 5.5 ft)</i>	79 12.3	5.9 0.9	85 12.8
0 to 3 ft <i>Underlying Soil (3 to 5.5 ft)</i>	57 12.4	4.2 0.9	61 12.8
0 to 5 ft <i>Underlying Soil (5 to 5.5 ft)</i>	39 13.2	2.9 1.0	42 13.8
0 to 5.5 ft	37	2.7	39

Notes:

UCL = Upper Confidence Limit (90% UCL is applicable for waste classification; 95% UCL applicable for risk assessment)

mg/kg = milligrams per kilogram

mg/l = milligrams per liter

* = WET lead concentrations are predicted using slope of regression line,
where y = predicted WET lead and x = total lead.

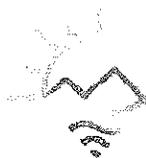
Regression Line Slope: $y = 0.0749 x$

APPENDIX

A



Matthew Rodriguez
Secretary for
Environmental Protection



Department of Toxic Substances Control

Miriam Barcellona Ingenito
Acting Director
1001 "I" Street
P.O. Box 806
Sacramento, California 95812-0806



Edmund G. Brown Jr.
Governor

June 26, 2014

Ms. Katrina C. Pierce, Chief
Division of Environmental Analysis
California Department of Transportation
P.O. Box 942873, MS-27
Sacramento, California 94273-0001

EXTENSION OF STATEWIDE VARIANCE NO. V09HQSCD006 FOR CALTRANS' HANDLING OF AERIALY DEPOSITED LEAD

Dear Ms. Pierce:

The Department of Toxic Substances Control (DTSC) received a letter dated May 30, 2014, from the California Department of Transportation (Caltrans), regarding Variance No. V09HQSCD006 (Variance), issued June 30, 2009. Caltrans is requesting DTSC to grant a six-month extension on the Variance with the new expiration date of December 31, 2014, instead of June 30, 2014. The Variance waives specified hazardous waste management requirements for purposes of Caltrans' handling of roadside soil contaminated with aerially deposited lead, and applies to Caltrans' highway improvement projects in all Caltrans Districts statewide.

Based on recent discussions between Caltrans and DTSC both agreed a six-month extension is necessary to provide adequate time for DTSC to finalize the new (renewal) variance, and for Caltrans to review and provide comments on the renewal variance. Key next steps in DTSC's review process include finalizing the ecological and health risk assessments, working on the California Environmental Quality Act documents, drafting of the renewal variance, and allowing adequate time for a public notice period for the renewal variance.

This letter hereby extends the effective date of Variance No. V09HQSCD006 to December 31, 2014. If you have any questions regarding this extension, please contact Mr. Bob Gipson of my staff at (916) 327-4061 or via email at Bob.Gipson@dtsc.ca.gov.

Sincerely,

Pauline Batarseh, Chief
Policy Implementation and Support Branch
Policy and Program Support Division
Hazardous Waste Management Program

cc: See next page.



*California Environmental Protection Agency
Department of Toxic Substances Control*

VARIANCE

Applicant Names:

Variance No. V09HQSCD006

State of California
Department of Transportation
(Caltrans)
1120 N Street
Sacramento, California 95814

Effective Date: July 1, 2009

Expiration Date: July 1, 2014

Modification History:

Pursuant to California Health and Safety Code, Section 25143, the Department of Toxic Substances Control hereby issues the attached Variance consisting of 9 pages to the Department of Transportation.

A handwritten signature in cursive script that reads "Beverly Rikala".

Beverly Rikala
Team Leader, Operating Facilities Team
Department of Toxic Substances Control

Date: 6/30/09

VARIANCE

1. INTRODUCTION.

a) Pursuant to Health and Safety Code, section 25143, the California Department of Toxic Substances Control (DTSC) grants this variance to the applicant below for waste considered to be hazardous solely because of its lead concentrations and as further specified herein.

b) DTSC hereby grants this variance only from the requirements specified herein and only in accordance with all terms and conditions specified herein.

2. IDENTIFYING INFORMATION.

APPLICANT/OWNER/OPERATOR

State of California
Department of Transportation, (Caltrans)
All Districts

3. TYPE OF VARIANCE.

Generation, Manifest, Transportation, Storage and Disposal.

4. ISSUANCE AND EXPIRATION DATES.

DATE ISSUED: July 1, 2009 EXPIRATION DATE: July 1, 2014

5. APPLICABLE STATUTES AND REGULATIONS. The hazardous waste that is the subject of this variance is fully regulated under Health and Safety Code, section 25100, et seq. and California Code of Regulations, title 22, division 4.5 except as specifically identified in Section 8 of this variance.

6. DEFINITION. For purposes of this variance, "lead-contaminated soil(s)" shall mean soil that meets the criteria for hazardous waste but contains less than 3397 mg/kg total lead and is hazardous primarily because of aeriially-deposited lead contamination associated with exhaust emissions from the operation of motor vehicles.

7. FINDINGS/DETERMINATIONS. DTSC has determined that the variance applicant meets the requirements set forth in Health and Safety Code, section 25143 for a variance from specific regulatory requirements as outlined in Section 8 of this variance. The specific determinations and findings made by DTSC are as follows:

a) Caltrans intends to excavate, stockpile, transport, bury and cover large volumes of soil associated with highway construction projects. In the more urbanized highway corridors around the State this soil is contaminated with lead, primarily due to historic emissions from automobile exhausts. In situ sampling and laboratory testing has shown that some of the soil contains concentrations of lead in excess of State regulatory thresholds, and thus any generated waste from disturbance of the soil

would be regulated as hazardous waste. Such soil contains a Total Threshold Limit Concentration (TTL) of 1000 milligrams per kilogram (mg/kg) or more lead and/or it meets or exceeds the Soluble Threshold Limit Concentration (STLC) for lead of 5 milligrams per liter (mg/l). A Human Health Risk Assessment prepared for this variance concludes that soil contaminated with elevated concentrations of lead can be managed in a way that presents no significant risk to human health.

b) The lead-contaminated soil will be placed only in Caltrans' right-of-way. Depending on concentration levels, the wastes will be covered with a minimum thickness of one (1) foot of non-hazardous soil or asphalt/concrete cover and will always be at least five (5) feet above the highest groundwater elevation. Caltrans will assure that proper health and safety procedures will be followed for workers, including any persons engaged in maintenance work in areas where the waste has been buried and covered.

c) DTSC finds and requires that the lead-contaminated soil excavated, stockpiled, transported, buried and covered pursuant to this variance is a non-RCRA hazardous waste, and that the waste management activity is insignificant as a potential hazard to human health and safety and the environment, when managed in accordance with the conditions, limitations and other requirements specified in this variance.

8. PROVISIONS WAIVED.

Provided Caltrans meets the terms and conditions of this variance, DTSC waives the hazardous waste management requirements of Health and Safety Code, Chapter 6.5 and California Code of Regulations, title 22 for the lead-contaminated soil that Caltrans reuses in projects that would require Caltrans to obtain a permit for a disposal facility and any other generator requirements that concern the transportation, manifesting, storage and land disposal of hazardous waste.

9. SPECIFIC CONDITIONS, LIMITATIONS AND OTHER REQUIREMENTS.

In order for the provisions discussed in section 8 to be waived, lead-contaminated soil must not exceed the contaminant concentrations discussed below and Caltrans management practices must meet all the following conditions:

a) Caltrans implementation of this variance shall comply with all applicable state laws and regulations for water quality control, water quality control plans, waste discharge requirements (including storm water permits), and others issued by the State Water Resources Control Board (SWRCB) and/or a California Regional Water Quality Control Board (RWQCB). Caltrans shall provide written notification to the appropriate RWQCB at least 30 days prior to advertisement for bids of projects that involve invocation of this variance, or as otherwise negotiated with the SWRCB or appropriate RWQCB.

b) The waivers in this variance shall only be applied to lead-contaminated soil that is not a RCRA hazardous waste and is hazardous primarily because of aerially-

deposited lead contamination associated with exhaust emissions from the operation of motor vehicles. The variance is not applicable to any other hazardous waste.

c) Soil containing 1.5 mg/l extractable lead or less (based on a modified waste extraction test using deionized water as the extractant) and 1411 mg/kg or less total lead may be used as fill provided that the lead-contaminated soil is placed a minimum of five (5) feet above the maximum historic water table elevation and covered with at least one (1) foot of nonhazardous soil that will be maintained by Caltrans to prevent future erosion.

d) Soil containing 150 mg/L extractable lead or less (based on a modified waste extraction test using deionized water as the extractant) and 3397 mg/kg or less total lead may be used as fill provided that the lead-contaminated soils are placed a minimum of five (5) feet above the maximum historic water table elevation and protected from infiltration by a pavement structure which will be maintained by Caltrans.

e) Lead-contaminated soil with a pH less than 5.5 but greater than 5.0 shall only be used as fill material under the paved portion of the roadway. Lead-contaminated soil with a pH at or less than 5.0 shall be managed as a hazardous waste.

f) For each project that has the potential to generate waste by disturbing lead-contaminated soil (as defined in 6), Caltrans shall conduct sampling and analysis to adequately characterize the soils containing aerially deposited lead in the areas of planned excavation along the project route. Such sampling and analysis shall include the Toxicity Characteristic Leaching Procedure (TCLP) as prescribed by the United States Environmental Protection Agency to determine whether concentrations of contaminants in soil exceed federal criteria for classification as a hazardous waste.

g) Lead-contaminated soil managed pursuant to this variance shall not be moved outside the designated corridor boundaries (see paragraph t) below. All lead-contaminated soil not buried and covered within the same Caltrans corridor where it originated is not eligible for management under this variance and shall be managed as a hazardous waste.

h) Lead-contaminated soil managed pursuant to this variance shall not be placed in areas where it would become in contact with groundwater or surface water (such as streams and rivers).

i) Lead-contaminated soil managed pursuant to this variance shall be buried and covered only in locations that are protected from erosion that may result from storm water run-on and run-off.

j) The lead-contaminated soil shall be buried and covered in a manner that will prevent accidental or deliberate breach of the asphalt, concrete, and/or cover soil.

k) The presence of lead-contaminated soil shall be incorporated into the projects' as-built drawings. The as-built drawings shall be annotated with the location, representative analytical data, and volume of lead-contaminated soil. The as-built drawings shall also state the depth of the cover. These as-built drawings shall be retained by Caltrans.

l) Caltrans shall ensure that no other hazardous wastes, other than the lead-contaminated hazardous waste soil, are placed in the burial areas.

m) Lead-contaminated soil shall not be buried within ten (10) feet of culverts or locations subject to frequent worker exposure.

n) Excavated lead-contaminated soil not placed into the designated area (fill area, roadbed area) by the end of the working day shall be stockpiled and covered with sheets of polyethylene or at least one foot of non-hazardous soil. The lead-contaminated soil, while stockpiled or under transport, shall be protected from contacting surface water and from being dislodged or transported by wind or storm water. The stockpile covers shall be inspected at least once a week and within 24 hours after rainstorms. If the lead-contaminated soil is stockpiled for more than 4 days from the time of excavation, Caltrans shall restrict public access to the stockpile by using barriers that meet the safety requirements of the construction zone. The lead-contaminated soil shall be stockpiled for no more than 90 days from the time the soil is first excavated. If the contaminated soil is stockpiled beyond the 90 day limit Caltrans shall:

1. notify DTSC in writing of the 90 day exceedance and expected date of removal;
2. perform weekly inspections of the stockpiled material to ensure that there is adequate protection from run-on, runoff, public access, and wind dispersion; and
3. notify DTSC on weekly basis of the stockpile status until the stockpile is removed.

The lead-contaminated soil shall be stockpiled for no more than 180 days from the time the soil is first excavated.

o) Caltrans shall ensure that all stockpiling of lead-contaminated soil remains within the project area of the specified corridor. Stockpiling of lead-contaminated soil within the specified corridor, but outside the project area, is prohibited.

p) Caltrans shall conduct confirmatory sampling of any stockpile area in areas not known or expected to contain lead-contaminated soil after removal of the lead-contaminated soil to ensure that contamination has not been left behind or has not migrated from the stockpiled material to the surrounding soils.

q) Caltrans shall stockpile lead-contaminated soil only on high ground (i.e. no sump areas or low points) so that stockpiled soil will not come in contact with surface

water run-on or run-off.

r) Caltrans shall not stockpile lead-contaminated soil in environmentally and ecologically sensitive areas.

s) Caltrans shall ensure that storm/rain run-off that has come into contact with stockpiled lead-contaminated soil will not flow to storm drains, inlets, or waters of the State.

t) Caltrans may dispose of the lead-contaminated soil only within the operating right-of-way of an existing highway, as defined in Streets and Highways Code, section 23. Caltrans may move lead-contaminated soil from one Caltrans project to another Caltrans project only if the lead-contaminated soil remains within the same designated corridor.

Caltrans shall record any movement of lead-contaminated soil by using a bill of lading. The bill of lading must contain: 1) the US DOT description including shipping name, hazard class and ID number; 2) handling codes; 3) quantity of material; 4) volume of material; 5) date of shipment; 6) origin and destination of shipment; and 7) any specific handling instructions. The bill of lading shall be referenced in and kept on file with the project's as-built drawings. The lead-contaminated soil must be kept covered during transportation.

u) For each specific corridor where this variance is to be implemented, all of the following information shall be submitted in writing to DTSC at least five (5) days before construction of any project begins:

1. plan drawing designating the boundaries of the corridor where lead-contaminated soils will be excavated, stockpiled, buried and covered;
2. a list of the Caltrans projects that the corridor encompasses;
3. a list of Caltrans contractors that will be conducting any phase of work on any project affected by this variance;
4. duration of corridor construction;
5. location where sampling and analytical data used to make lead concentration level determinations are kept (e.g. a particular Caltrans project file);
6. name and phone number (including area code) of project resident engineer and project manager;
7. location where Caltrans and contractor health and safety plan and records are kept;

8. location of project special provisions (including page or section number) for soil excavation, transportation, stockpile, burial and placement of cover material;

9. location of project drawings (including drawing page number) for soil excavation, burial and placement of cover in plan and cross section (for example, "The project plans are located at the resident engineer's office located at 5th and Main Streets, City of Fresno, See pages xxxxx of contract xxx");

10. updated information if a Caltrans project within the corridor is added, changed or deleted; and

11. type of environmental document prepared for each project, date of adoption, document title, Clearing House number and where the document is available for review. A copy of the Caltrans Categorical Exemption, Categorical Exclusion Form, or if filed, the Notice of Exemption for any project shall be submitted to the DTSC Headquarters Project Manager.

v) Changes in location of lead-contaminated soil placement, quantities or protection measures (field changes) shall be noted in the resident engineer's project log within five (5) days of the field change.

w) Caltrans shall ensure that field changes are in compliance with the requirements of this variance.

x) Operational procedures described in the California Environmental Quality Act (CEQA) Special Initial Study shall be followed by Caltrans for activities conducted under this variance.

y) Caltrans shall implement appropriate health and safety procedures to protect its employees and the public, and to prevent or minimize exposure to potentially hazardous wastes. A project-specific health and safety plan must be prepared and implemented. The monitoring and exposure standards shall be based on construction standards for exposure to lead in California Code of Regulations, title 8, section 1532.1.

z) Caltrans shall provide a district Coordinator for this variance. This Coordinator will be the primary point of contact for information flowing to, or received from, DTSC regarding any matter or submission under this variance. Caltrans shall promptly notify DTSC of the name of Coordinator and any change in the Coordinator.

aa) Caltrans shall conduct regular inspections, consistent with Caltrans' Maintenance Division's current Pavement Inspection and Slope Inspection programs, of the locations where lead-contaminated soil has been buried and/or covered pursuant to this variance. If site inspection reveals deterioration of cover so that conditions in the variance are not met, Caltrans shall repair or replace the cover.

bb) Caltrans shall develop and implement a record keeping mechanisms to record and retain permanent records of all locations where lead-contaminated soil has been buried per this variance. The records shall be made available to DTSC.

cc) If areas subject to the terms of this variance are sold, relinquished or abandoned (including roadways), all future property owners shall be notified in writing in advance by Caltrans of the requirements of this variance, and Caltrans shall provide the owner with a copy of the variance. A copy of such a notice shall be sent to DTSC and contain the corridor location and project. Caltrans shall also disclose to DTSC and the new owner the location of areas where lead-contaminated soil has been buried. Future property owners shall be subject to the same requirements as Caltrans.

dd) For the purposes of informing the public about instances where the variance is implemented, Caltrans shall:

1. maintain current fact sheets at all Caltrans resident engineer offices and the Caltrans District office. Caltrans shall make the fact sheets available to anyone expressing an interest in variance-related work.
2. maintain a binder(s) containing copies of all reports submitted to DTSC at the District office. Caltrans shall ensure that the binders are readily accessible to the public.
3. carry out the following actions when it identifies additional projects:
 - (A) notify the public via a display advertisement in a newspaper of general circulation in that area.
 - (B) update and distribute the fact sheet to the mailing list and repository locations.

ee) Lead-contaminated soil may be buried only in areas where access is limited or where lead-contaminated soil is covered and contained by a pavement structure.

ff) Dust containing lead-contaminated soil must be controlled. Water or dust palliative may be applied to control dust. If visible dust migration occurs, all excavation, stockpiling and truck loading and burying must be stopped. The granting of this variance confers no relief on Caltrans from compliance with the laws, regulations and requirements enforced by any local air district or the California Air Resources Board.

gg) Sampling and analysis is required to show the lead-contaminated soil meets the variance criteria. All sampling and analysis must be conducted in accordance with the appropriate methods specified in U.S. EPA SW-846.

hh) DTSC retains the right to require Caltrans or any future owner to remove, and properly dispose of, lead-contaminated soil in the event DTSC determines it is necessary for protection of public health, safety or the environment.

ii) DTSC finds that some projects involving lead-contaminated soil are joint projects between Caltrans and other government entities. In these joint projects, Caltrans may not be the lead agency implementing the project although Caltrans is still involved if the project occurs on its right-of-way.

Caltrans may invoke this variance for joint projects where Caltrans and local government entity are involved provided that 1) the project is within the Caltrans Right-of-Way; 2) Caltrans reviews/ oversees all phases of the project including design, contracting, environmental assessment, construction, operation, and maintenance; and 3) Caltrans oversees the project to verify all variance conditions are complied with. Caltrans will be fully responsible for the variance notification and implementation in these joint projects.

jj) All correspondence shall be directed to the following office:

Hazardous Waste Permitting
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826

Attn: Caltrans Lead Variance Notification Unit

10. DISCLAIMER.

a) The issuance of this variance does not relieve Caltrans of the responsibility for compliance with Health and Safety Code, chapter 6.5, or the regulations adopted thereunder, and any other laws and regulations other than those specifically identified in Section 8 of this variance. Caltrans is subject to all terms and conditions herein. The granting of this variance confers no relief from compliance with any federal, State or local requirements other than those specifically provided herein.

b) The issuance of this variance does not release Caltrans from any liability associated with the handling of hazardous waste, except as specifically provided herein and subject to all terms and conditions of this variance.

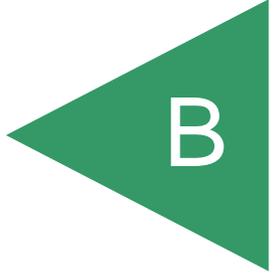
11. VARIANCE MODIFICATION OR REVOCATION. This variance is subject to review at the discretion of DTSC and may be modified or revoked by DTSC upon change of ownership and at any other time pursuant to Health and Safety Code, section 25143.
12. CEQA DETERMINATION. DTSC adopted a Negative Declaration on June 30, 2009.

Approved:

6/30/09
Date

Beverly Rikala
Beverly Rikala
Operating Facilities Team
Department of Toxic Substances Control

APPENDIX



October 08, 2014

Rick Day
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
Tel: (925) 961-5270
Fax:(925) 371-5915

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003
TCEQ No. : T104704502

Re: ATL Work Order Number : 1402914

Client Reference : SR13 STORM DAMAGE REPAIR, E8721-02-13

Enclosed are the results for sample(s) received on October 01, 2014 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,



Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore , CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B1-0	1402914-01	Soil	9/29/14 10:30	10/01/14 8:30
B1-1	1402914-02	Soil	9/29/14 10:35	10/01/14 8:30
B1-2	1402914-03	Soil	9/29/14 10:40	10/01/14 8:30
B1-5	1402914-04	Soil	9/29/14 10:45	10/01/14 8:30
B1-30	1402914-06	Soil	9/29/14 11:15	10/01/14 8:30
B1-40	1402914-07	Soil	9/29/14 11:25	10/01/14 8:30
B2-0	1402914-08	Soil	9/29/14 12:55	10/01/14 8:30
B2-1	1402914-09	Soil	9/29/14 13:00	10/01/14 8:30
B2-2	1402914-10	Soil	9/29/14 0:00	10/01/14 8:30
B1-GW	1402914-11	Groundwater	9/29/14 11:30	10/01/14 8:30
B2-5	1402914-12	Soil	9/29/14 0:00	10/01/14 8:30
B3-0'	1402914-13	Soil	9/30/14 10:30	10/01/14 8:30
B3-1'	1402914-14	Soil	9/30/14 10:35	10/01/14 8:30
B3-2'	1402914-15	Soil	9/30/14 10:35	10/01/14 8:30
B3-5'	1402914-16	Soil	9/30/14 10:40	10/01/14 8:30
B3-30'	1402914-17	Soil	9/30/14 11:00	10/01/14 8:30
B3-GW	1402914-18	Groundwater	9/30/14 11:20	10/01/14 8:30



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore , CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Client Sample ID B1-0

Lab ID: 1402914-01

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	1.9	1.0	1	B4J0145	10/07/2014	10/07/14 17:36	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Client Sample ID B1-1
Lab ID: 1402914-02

Title 22 Metals by ICP-AES EPA 6010B

Analyst: CB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	4.0	2	B4J0144	10/07/2014	10/07/14 17:57	D5
Arsenic	ND	2.0	2	B4J0144	10/07/2014	10/07/14 17:57	D5
Barium	33	2.0	2	B4J0144	10/07/2014	10/07/14 17:57	D5
Beryllium	ND	2.0	2	B4J0144	10/07/2014	10/07/14 17:57	D5
Cadmium	ND	2.0	2	B4J0144	10/07/2014	10/07/14 17:57	D5
Chromium	55	2.0	2	B4J0144	10/07/2014	10/07/14 17:57	D5
Cobalt	20	2.0	2	B4J0144	10/07/2014	10/07/14 17:57	D5
Copper	62	4.0	2	B4J0144	10/07/2014	10/07/14 17:57	D5
Lead	ND	2.0	2	B4J0144	10/07/2014	10/07/14 17:57	D5
Molybdenum	ND	2.0	2	B4J0144	10/07/2014	10/07/14 17:57	D5
Nickel	46	2.0	2	B4J0144	10/07/2014	10/07/14 17:57	D5
Selenium	ND	2.0	2	B4J0144	10/07/2014	10/07/14 17:57	D5
Silver	ND	2.0	2	B4J0144	10/07/2014	10/07/14 17:57	D5
Thallium	ND	2.0	2	B4J0144	10/07/2014	10/07/14 17:57	D5
Vanadium	28	2.0	2	B4J0144	10/07/2014	10/07/14 17:57	D5
Zinc	16	2.0	2	B4J0144	10/07/2014	10/07/14 17:57	D5

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	0.11	0.10	1	B4J0147	10/07/2014	10/07/14 14:51	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	15	1.0	1	B4J0149	10/07/2014	10/07/14 12:58	
ORO	44	1.0	1	B4J0149	10/07/2014	10/07/14 12:58	
<i>Surrogate: p-Terphenyl</i>	94.7 %	40 - 112		B4J0149	10/07/2014	10/07/14 12:58	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore , CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Client Sample ID B1-2
Lab ID: 1402914-03

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	8.7	1.0	1	B4J0145	10/07/2014	10/07/14 17:36	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	1.2	1.0	1	B4J0149	10/07/2014	10/07/14 10:28	
ORO	1.9	1.0	1	B4J0149	10/07/2014	10/07/14 10:28	
<i>Surrogate: p-Terphenyl</i>	79.6 %	40 - 112		B4J0149	10/07/2014	10/07/14 10:28	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore , CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Client Sample ID B1-5

Lab ID: 1402914-04

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	7.2	1.0	1	B4J0145	10/07/2014	10/07/14 17:37	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	1.4	1.0	1	B4J0149	10/07/2014	10/07/14 10:45	
ORO	3.2	1.0	1	B4J0149	10/07/2014	10/07/14 10:45	
<i>Surrogate: p-Terphenyl</i>	85.3 %	40 - 112		B4J0149	10/07/2014	10/07/14 10:45	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Client Sample ID B1-30

Lab ID: 1402914-06

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: AG

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B4J0078	10/03/2014	10/03/14 09:35	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>101 %</i>	<i>33 - 151</i>		B4J0078	10/03/2014	<i>10/03/14 09:35</i>	

Volatile Organic Compounds by EPA 8260B

Analyst: AG

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Benzene	ND	5.0	1	B4J0077	10/03/2014	10/03/14 10:10	
Di-isopropyl ether	ND	5.0	1	B4J0077	10/03/2014	10/03/14 10:10	
Ethyl tert-butyl ether	ND	5.0	1	B4J0077	10/03/2014	10/03/14 10:10	
Ethylbenzene	ND	5.0	1	B4J0077	10/03/2014	10/03/14 10:10	
m,p-Xylene	ND	10	1	B4J0077	10/03/2014	10/03/14 10:10	
MTBE	ND	5.0	1	B4J0077	10/03/2014	10/03/14 10:10	
o-Xylene	ND	5.0	1	B4J0077	10/03/2014	10/03/14 10:10	
tert-Amyl methyl ether	ND	5.0	1	B4J0077	10/03/2014	10/03/14 10:10	
tert-Butanol	ND	100	1	B4J0077	10/03/2014	10/03/14 10:10	
Toluene	ND	5.0	1	B4J0077	10/03/2014	10/03/14 10:10	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>113 %</i>	<i>67 - 152</i>		B4J0077	10/03/2014	<i>10/03/14 10:10</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>97.8 %</i>	<i>59 - 135</i>		B4J0077	10/03/2014	<i>10/03/14 10:10</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>114 %</i>	<i>71 - 150</i>		B4J0077	10/03/2014	<i>10/03/14 10:10</i>	
<i>Surrogate: Toluene-d8</i>	<i>106 %</i>	<i>77 - 129</i>		B4J0077	10/03/2014	<i>10/03/14 10:10</i>	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Client Sample ID B1-40

Lab ID: 1402914-07

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: AG

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B4J0078	10/03/2014	10/03/14 13:32	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>104 %</i>	<i>33 - 151</i>		B4J0078	10/03/2014	<i>10/03/14 13:32</i>	

Volatile Organic Compounds by EPA 8260B

Analyst: AG

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Benzene	ND	5.0	1	B4J0077	10/03/2014	10/03/14 13:19	
Di-isopropyl ether	ND	5.0	1	B4J0077	10/03/2014	10/03/14 13:19	
Ethyl tert-butyl ether	ND	5.0	1	B4J0077	10/03/2014	10/03/14 13:19	
Ethylbenzene	ND	5.0	1	B4J0077	10/03/2014	10/03/14 13:19	
m,p-Xylene	ND	10	1	B4J0077	10/03/2014	10/03/14 13:19	
MTBE	ND	5.0	1	B4J0077	10/03/2014	10/03/14 13:19	
o-Xylene	ND	5.0	1	B4J0077	10/03/2014	10/03/14 13:19	
tert-Amyl methyl ether	ND	5.0	1	B4J0077	10/03/2014	10/03/14 13:19	
tert-Butanol	ND	100	1	B4J0077	10/03/2014	10/03/14 13:19	
Toluene	ND	5.0	1	B4J0077	10/03/2014	10/03/14 13:19	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>112 %</i>	<i>67 - 152</i>		B4J0077	10/03/2014	<i>10/03/14 13:19</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>102 %</i>	<i>59 - 135</i>		B4J0077	10/03/2014	<i>10/03/14 13:19</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>112 %</i>	<i>71 - 150</i>		B4J0077	10/03/2014	<i>10/03/14 13:19</i>	
<i>Surrogate: Toluene-d8</i>	<i>104 %</i>	<i>77 - 129</i>		B4J0077	10/03/2014	<i>10/03/14 13:19</i>	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore , CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Client Sample ID B2-0

Lab ID: 1402914-08

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	2.4	1.0	1	B4J0145	10/07/2014	10/07/14 17:38	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore , CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Client Sample ID B2-1

Lab ID: 1402914-09

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	1.0	1	B4J0145	10/07/2014	10/07/14 17:39	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore , CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Client Sample ID B2-2

Lab ID: 1402914-10

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	8.5	1.0	1	B4J0145	10/07/2014	10/07/14 17:39	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Client Sample ID B1-GW

Lab ID: 1402914-11

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: AG

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	0.05	1	B4J0079	10/03/2014	10/03/14 13:09	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>107 %</i>	<i>70 - 130</i>		B4J0079	10/03/2014	<i>10/03/14 13:09</i>	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Benzene	ND	0.50	1	B4J0039	10/02/2014	10/02/14 14:24	
Di-isopropyl ether	ND	0.50	1	B4J0039	10/02/2014	10/02/14 14:24	
Ethyl tert-butyl ether	ND	0.50	1	B4J0039	10/02/2014	10/02/14 14:24	
Ethylbenzene	ND	0.50	1	B4J0039	10/02/2014	10/02/14 14:24	
m,p-Xylene	ND	1.0	1	B4J0039	10/02/2014	10/02/14 14:24	
MTBE	ND	0.50	1	B4J0039	10/02/2014	10/02/14 14:24	
o-Xylene	ND	0.50	1	B4J0039	10/02/2014	10/02/14 14:24	
tert-Amyl methyl ether	ND	0.50	1	B4J0039	10/02/2014	10/02/14 14:24	
tert-Butanol	ND	10	1	B4J0039	10/02/2014	10/02/14 14:24	
Toluene	ND	0.50	1	B4J0039	10/02/2014	10/02/14 14:24	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>90.6 %</i>	<i>64 - 146</i>		B4J0039	10/02/2014	<i>10/02/14 14:24</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>118 %</i>	<i>60 - 128</i>		B4J0039	10/02/2014	<i>10/02/14 14:24</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>91.1 %</i>	<i>72 - 141</i>		B4J0039	10/02/2014	<i>10/02/14 14:24</i>	
<i>Surrogate: Toluene-d8</i>	<i>81.4 %</i>	<i>61 - 124</i>		B4J0039	10/02/2014	<i>10/02/14 14:24</i>	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Client Sample ID B2-5

Lab ID: 1402914-12

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	19	1.0	1	B4J0145	10/07/2014	10/07/14 17:40	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Client Sample ID B3-0'

Lab ID: 1402914-13

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	2.5	1.0	1	B4J0145	10/07/2014	10/07/14 17:43	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore , CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Client Sample ID B3-1'
Lab ID: 1402914-14

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	3.5	1.0	1	B4J0145	10/07/2014	10/07/14 17:44	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	6.7	1.0	1	B4J0149	10/07/2014	10/07/14 12:42	
ORO	18	1.0	1	B4J0149	10/07/2014	10/07/14 12:42	
<i>Surrogate: p-Terphenyl</i>	85.2 %	40 - 112		B4J0149	10/07/2014	10/07/14 12:42	



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
 Report To : Rick Day
 Reported : 10/08/2014

Client Sample ID B3-2'
Lab ID: 1402914-15

Title 22 Metals by ICP-AES EPA 6010B

Analyst: CB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B4J0144	10/07/2014	10/07/14 16:34	
Arsenic	10	1.0	1	B4J0144	10/07/2014	10/07/14 16:34	
Barium	220	1.0	1	B4J0144	10/07/2014	10/07/14 16:34	
Beryllium	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:34	
Cadmium	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:34	
Chromium	53	1.0	1	B4J0144	10/07/2014	10/07/14 16:34	
Cobalt	11	1.0	1	B4J0144	10/07/2014	10/07/14 16:34	
Copper	42	2.0	1	B4J0144	10/07/2014	10/07/14 16:34	
Lead	8.3	1.0	1	B4J0144	10/07/2014	10/07/14 16:34	
Molybdenum	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:34	
Nickel	49	1.0	1	B4J0144	10/07/2014	10/07/14 16:34	
Selenium	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:34	
Silver	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:34	
Thallium	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:34	
Vanadium	51	1.0	1	B4J0144	10/07/2014	10/07/14 16:34	
Zinc	67	1.0	1	B4J0144	10/07/2014	10/07/14 16:34	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B4J0147	10/07/2014	10/07/14 15:01	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	1.7	1.0	1	B4J0149	10/07/2014	10/07/14 11:51	
ORO	2.7	1.0	1	B4J0149	10/07/2014	10/07/14 11:51	
<i>Surrogate: p-Terphenyl</i>	<i>103 %</i>	<i>40 - 112</i>		B4J0149	10/07/2014	<i>10/07/14 11:51</i>	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore , CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Client Sample ID B3-5'
Lab ID: 1402914-16

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	8.5	1.0	1	B4J0145	10/07/2014	10/07/14 17:44	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	ND	1.0	1	B4J0149	10/07/2014	10/07/14 12:25	
ORO	1.3	1.0	1	B4J0149	10/07/2014	10/07/14 12:25	
<i>Surrogate: p-Terphenyl</i>	83.7 %	40 - 112		B4J0149	10/07/2014	10/07/14 12:25	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Client Sample ID B3-30'

Lab ID: 1402914-17

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: AG

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B4J0078	10/03/2014	10/03/14 13:16	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>92.5 %</i>	<i>33 - 151</i>		B4J0078	10/03/2014	<i>10/03/14 13:16</i>	

Volatile Organic Compounds by EPA 8260B

Analyst: AG

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Benzene	ND	5.0	1	B4J0077	10/03/2014	10/03/14 11:07	
Di-isopropyl ether	ND	5.0	1	B4J0077	10/03/2014	10/03/14 11:07	
Ethyl tert-butyl ether	ND	5.0	1	B4J0077	10/03/2014	10/03/14 11:07	
Ethylbenzene	ND	5.0	1	B4J0077	10/03/2014	10/03/14 11:07	
m,p-Xylene	ND	10	1	B4J0077	10/03/2014	10/03/14 11:07	
MTBE	ND	5.0	1	B4J0077	10/03/2014	10/03/14 11:07	
o-Xylene	ND	5.0	1	B4J0077	10/03/2014	10/03/14 11:07	
tert-Amyl methyl ether	ND	5.0	1	B4J0077	10/03/2014	10/03/14 11:07	
tert-Butanol	ND	100	1	B4J0077	10/03/2014	10/03/14 11:07	
Toluene	ND	5.0	1	B4J0077	10/03/2014	10/03/14 11:07	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>117 %</i>	<i>67 - 152</i>		B4J0077	10/03/2014	<i>10/03/14 11:07</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>95.3 %</i>	<i>59 - 135</i>		B4J0077	10/03/2014	<i>10/03/14 11:07</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>127 %</i>	<i>71 - 150</i>		B4J0077	10/03/2014	<i>10/03/14 11:07</i>	
<i>Surrogate: Toluene-d8</i>	<i>104 %</i>	<i>77 - 129</i>		B4J0077	10/03/2014	<i>10/03/14 11:07</i>	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Client Sample ID B3-GW

Lab ID: 1402914-18

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: AG

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	0.05	1	B4J0079	10/03/2014	10/03/14 13:49	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>104 %</i>	<i>70 - 130</i>		B4J0079	10/03/2014	<i>10/03/14 13:49</i>	

Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result (ug/L)	PQL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Benzene	ND	0.50	1	B4J0039	10/02/2014	10/02/14 15:09	
Di-isopropyl ether	ND	0.50	1	B4J0039	10/02/2014	10/02/14 15:09	
Ethyl tert-butyl ether	ND	0.50	1	B4J0039	10/02/2014	10/02/14 15:09	
Ethylbenzene	ND	0.50	1	B4J0039	10/02/2014	10/02/14 15:09	
m,p-Xylene	ND	1.0	1	B4J0039	10/02/2014	10/02/14 15:09	
MTBE	ND	0.50	1	B4J0039	10/02/2014	10/02/14 15:09	
o-Xylene	ND	0.50	1	B4J0039	10/02/2014	10/02/14 15:09	
tert-Amyl methyl ether	ND	0.50	1	B4J0039	10/02/2014	10/02/14 15:09	
tert-Butanol	ND	10	1	B4J0039	10/02/2014	10/02/14 15:09	
Toluene	ND	0.50	1	B4J0039	10/02/2014	10/02/14 15:09	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>90.5 %</i>	<i>64 - 146</i>		B4J0039	10/02/2014	<i>10/02/14 15:09</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>116 %</i>	<i>60 - 128</i>		B4J0039	10/02/2014	<i>10/02/14 15:09</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>89.6 %</i>	<i>72 - 141</i>		B4J0039	10/02/2014	<i>10/02/14 15:09</i>	
<i>Surrogate: Toluene-d8</i>	<i>80.6 %</i>	<i>61 - 124</i>		B4J0039	10/02/2014	<i>10/02/14 15:09</i>	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

QUALITY CONTROL SECTION

Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0144 - EPA 3050B

Blank (B4J0144-BLK1)

Prepared: 10/7/2014 Analyzed: 10/7/2014

Antimony	ND	2.0		NR
Arsenic	ND	1.0		NR
Barium	ND	1.0		NR
Beryllium	ND	1.0		NR
Cadmium	ND	1.0		NR
Chromium	ND	1.0		NR
Cobalt	ND	1.0		NR
Copper	ND	2.0		NR
Lead	ND	1.0		NR
Molybdenum	ND	1.0		NR
Nickel	ND	1.0		NR
Selenium	ND	1.0		NR
Silver	ND	1.0		NR
Thallium	ND	1.0		NR
Vanadium	ND	1.0		NR
Zinc	ND	1.0		NR

LCS (B4J0144-BS1)

Prepared: 10/7/2014 Analyzed: 10/7/2014

Antimony	46.9480	2.0	50.0000	93.9	80 - 120
Arsenic	47.0110	1.0	50.0000	94.0	80 - 120
Barium	50.7916	1.0	50.0000	102	80 - 120
Beryllium	51.3450	1.0	50.0000	103	80 - 120
Cadmium	47.8132	1.0	50.0000	95.6	80 - 120
Chromium	51.2300	1.0	50.0000	102	80 - 120
Cobalt	49.9275	1.0	50.0000	99.9	80 - 120
Copper	49.9616	2.0	50.0000	99.9	80 - 120
Lead	49.2947	1.0	50.0000	98.6	80 - 120
Molybdenum	49.7854	1.0	50.0000	99.6	80 - 120
Nickel	48.9114	1.0	50.0000	97.8	80 - 120
Selenium	46.2892	1.0	50.0000	92.6	80 - 120
Silver	47.2937	1.0	50.0000	94.6	80 - 120
Thallium	49.3244	1.0	50.0000	98.6	80 - 120
Vanadium	50.6190	1.0	50.0000	101	80 - 120
Zinc	47.5634	1.0	50.0000	95.1	80 - 120

Duplicate (B4J0144-DUP1)

Source: 1402914-02

Prepared: 10/7/2014 Analyzed: 10/7/2014

Antimony	ND	4.0	ND	NR	20	D5
Arsenic	ND	2.0	ND	NR	20	D5
Barium	37.9015	2.0	32.8184	NR	14.4	20 D5
Beryllium	ND	2.0	ND	NR	20	D5



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872

Report To : Rick Day

Reported : 10/08/2014

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0144 - EPA 3050B (continued)

Duplicate (B4J0144-DUP1) - Continued

Source: 1402914-02

Prepared: 10/7/2014 Analyzed: 10/7/2014

Cadmium	ND	2.0		ND	NR			20	D5
Chromium	59.7846	2.0		54.9803	NR		8.37	20	D5
Cobalt	20.3379	2.0		20.3007	NR		0.183	20	D5
Copper	62.6697	4.0		62.0476	NR		0.998	20	D5
Lead	ND	2.0		ND	NR			20	D5
Molybdenum	0.435455	2.0		0.471922	NR		8.04	20	D5
Nickel	41.5404	2.0		45.9634	NR		10.1	20	D5
Selenium	ND	2.0		ND	NR			20	D5
Silver	ND	2.0		ND	NR			20	D5
Thallium	ND	2.0		ND	NR			20	D5
Vanadium	25.4207	2.0		27.8449	NR		9.10	20	D5
Zinc	13.7409	2.0		16.0328	NR		15.4	20	D5

Matrix Spike (B4J0144-MS1)

Source: 1402914-02

Prepared: 10/7/2014 Analyzed: 10/7/2014

Antimony	78.4593	4.0	125.000	ND	62.8	21 - 126			D5
Arsenic	104.274	2.0	125.000	ND	83.4	57 - 113			D5
Barium	140.020	2.0	125.000	32.8184	85.8	29 - 146			D5
Beryllium	106.539	2.0	125.000	ND	85.2	65 - 110			D5
Cadmium	98.8968	2.0	125.000	ND	79.1	56 - 107			D5
Chromium	161.546	2.0	125.000	54.9803	85.3	49 - 127			D5
Cobalt	117.938	2.0	125.000	20.3007	78.1	57 - 112			D5
Copper	173.002	4.0	125.000	62.0476	88.8	56 - 127			D5
Lead	98.6682	2.0	125.000	ND	78.9	33 - 134			D5
Molybdenum	99.4831	2.0	125.000	0.471922	79.2	62 - 108			D5
Nickel	137.713	2.0	125.000	45.9634	73.4	42 - 127			D5
Selenium	101.877	2.0	125.000	ND	81.5	58 - 105			D5
Silver	108.942	2.0	125.000	ND	87.2	63 - 113			D5
Thallium	96.1637	2.0	125.000	ND	76.9	53 - 110			D5
Vanadium	133.820	2.0	125.000	27.8449	84.8	66 - 112			D5
Zinc	112.049	2.0	125.000	16.0328	76.8	28 - 137			D5

Matrix Spike Dup (B4J0144-MSD1)

Source: 1402914-02

Prepared: 10/7/2014 Analyzed: 10/7/2014

Antimony	76.6021	4.0	125.000	ND	61.3	21 - 126	2.40	20	D5
Arsenic	101.513	2.0	125.000	ND	81.2	57 - 113	2.68	20	D5
Barium	125.733	2.0	125.000	32.8184	74.3	29 - 146	10.8	20	D5
Beryllium	101.645	2.0	125.000	ND	81.3	65 - 110	4.70	20	D5
Cadmium	95.2723	2.0	125.000	ND	76.2	56 - 107	3.73	20	D5
Chromium	149.548	2.0	125.000	54.9803	75.7	49 - 127	7.71	20	D5
Cobalt	111.594	2.0	125.000	20.3007	73.0	57 - 112	5.53	20	D5
Copper	163.779	4.0	125.000	62.0476	81.4	56 - 127	5.48	20	D5
Lead	95.4746	2.0	125.000	ND	76.4	33 - 134	3.29	20	D5
Molybdenum	95.5688	2.0	125.000	0.471922	76.1	62 - 108	4.01	20	D5



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
 Report To : Rick Day
 Reported : 10/08/2014

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0144 - EPA 3050B (continued)

Matrix Spike Dup (B4J0144-MSD1) - Continued

Source: 1402914-02

Prepared: 10/7/2014 Analyzed: 10/7/2014

Nickel	127.821	2.0	125.000	45.9634	65.5	42 - 127	7.45	20	D5
Selenium	98.9140	2.0	125.000	ND	79.1	58 - 105	2.95	20	D5
Silver	104.448	2.0	125.000	ND	83.6	63 - 113	4.21	20	D5
Thallium	93.9353	2.0	125.000	ND	75.1	53 - 110	2.34	20	D5
Vanadium	125.974	2.0	125.000	27.8449	78.5	66 - 112	6.04	20	D5
Zinc	107.027	2.0	125.000	16.0328	72.8	28 - 137	4.58	20	D5



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
 Report To : Rick Day
 Reported : 10/08/2014

Lead by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4J0145 - EPA 3050 Modified									
Blank (B4J0145-BLK1)				Prepared: 10/7/2014 Analyzed: 10/7/2014					
Lead	ND	1.0			NR				
Blank (B4J0145-BLK2)				Prepared: 10/7/2014 Analyzed: 10/7/2014					
Lead	ND	1.0			NR				
LCS (B4J0145-BS1)				Prepared: 10/7/2014 Analyzed: 10/7/2014					
Lead	50.6028	1.0	50.0000		101	80 - 120			
Duplicate (B4J0145-DUP1)				Source: 1402915-11 Prepared: 10/7/2014 Analyzed: 10/8/2014					
Lead	10.5214	1.0		12.4633	NR		16.9	20	
Duplicate (B4J0145-DUP2)				Source: 1402914-16 Prepared: 10/7/2014 Analyzed: 10/7/2014					
Lead	9.38512	1.0		8.46687	NR		10.3	20	
Matrix Spike (B4J0145-MS1)				Source: 1402915-11 Prepared: 10/7/2014 Analyzed: 10/8/2014					
Lead	203.985	1.0	250.000	12.4633	76.6	33 - 134			
Matrix Spike (B4J0145-MS2)				Source: 1402914-16 Prepared: 10/7/2014 Analyzed: 10/7/2014					
Lead	224.695	1.0	250.000	8.46687	86.5	33 - 134			
Matrix Spike Dup (B4J0145-MSD1)				Source: 1402915-11 Prepared: 10/7/2014 Analyzed: 10/8/2014					
Lead	230.044	1.0	250.000	12.4633	87.0	33 - 134	12.0	20	



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
 Report To : Rick Day
 Reported : 10/08/2014

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4J0147 - EPA 7471									
Blank (B4J0147-BLK1)				Prepared: 10/7/2014 Analyzed: 10/7/2014					
Mercury	ND	0.10			NR				
LCS (B4J0147-BS1)				Prepared: 10/7/2014 Analyzed: 10/7/2014					
Mercury	0.861792	0.10	0.833333		103	80 - 120			
Duplicate (B4J0147-DUP1)				Source: 1402914-02 Prepared: 10/7/2014 Analyzed: 10/7/2014					
Mercury	0.095927	0.10		0.107923	NR		11.8	20	
Matrix Spike (B4J0147-MS1)				Source: 1402914-02 Prepared: 10/7/2014 Analyzed: 10/7/2014					
Mercury	1.02395	0.10	0.833333	0.107923	110	70 - 130			
Matrix Spike Dup (B4J0147-MSD1)				Source: 1402914-02 Prepared: 10/7/2014 Analyzed: 10/7/2014					
Mercury	1.09000	0.10	0.833333	0.107923	118	70 - 130	6.25	20	
Post Spike (B4J0147-PS1)				Source: 1402914-02 Prepared: 10/7/2014 Analyzed: 10/7/2014					
Mercury	0.007513		5.00000E-3	0.001295	124	85 - 115			M1



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Gasoline Range Organics by EPA 8015B (Modified) - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4J0078 - GCVOAS									
Blank (B4J0078-BLK1)				Prepared: 10/3/2014 Analyzed: 10/3/2014					
Gasoline Range Organics	ND	1.0			NR				
<i>Surrogate: 4-Bromofluorobenzene</i>	0.2043		0.200000		102	33 - 151			
LCS (B4J0078-BS1)				Prepared: 10/3/2014 Analyzed: 10/3/2014					
Gasoline Range Organics	5.00400	1.0	5.00000		100	70 - 130			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.2137		0.200000		107	33 - 151			
Duplicate (B4J0078-DUP1)		Source: 1402914-06		Prepared: 10/3/2014 Analyzed: 10/3/2014					
Gasoline Range Organics	ND	1.0		ND	NR			20	
<i>Surrogate: 4-Bromofluorobenzene</i>	0.1991		0.200000		99.5	33 - 151			
Matrix Spike (B4J0078-MS1)		Source: 1402914-06		Prepared: 10/3/2014 Analyzed: 10/3/2014					
Gasoline Range Organics	4.06400	1.0	5.00000	ND	81.3	33 - 119			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.2060		0.200000		103	33 - 151			
Matrix Spike Dup (B4J0078-MSD1)		Source: 1402914-06		Prepared: 10/3/2014 Analyzed: 10/3/2014					
Gasoline Range Organics	4.08800	1.0	5.00000	ND	81.8	33 - 119	0.589	20	
<i>Surrogate: 4-Bromofluorobenzene</i>	0.2062		0.200000		103	33 - 151			
Batch B4J0079 - GCVOAW									
Blank (B4J0079-BLK1)				Prepared: 10/3/2014 Analyzed: 10/3/2014					
Gasoline Range Organics	ND	0.05			NR				
<i>Surrogate: 4-Bromofluorobenzene</i>	0.09625		0.100000		96.2	70 - 130			
LCS (B4J0079-BS1)				Prepared: 10/3/2014 Analyzed: 10/3/2014					
Gasoline Range Organics	1.02300	0.05	1.00000		102	70 - 130			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.1015		0.100000		101	70 - 130			
LCS Dup (B4J0079-BSD1)				Prepared: 10/3/2014 Analyzed: 10/3/2014					
Gasoline Range Organics	1.00600	0.05	1.00000		101	70 - 130	1.68	20	
<i>Surrogate: 4-Bromofluorobenzene</i>	0.1003		0.100000		100	70 - 130			



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
 Report To : Rick Day
 Reported : 10/08/2014

Gasoline Range Organics by EPA 8015B (Modified) - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	------------------	---------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0079 - GCVOAW (continued)

Duplicate (B4J0079-DUP1)

Source: 1402914-11

Prepared: 10/3/2014 Analyzed: 10/3/2014

Gasoline Range Organics	ND	0.05		ND	NR			20
Surrogate: 4-Bromofluorobenzene	0.1078		0.100000		108	70 - 130		



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore , CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
 Report To : Rick Day
 Reported : 10/08/2014

Diesel Range Organics by EPA 8015B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0149 - GCSEMI_DRO_SOIL_LL

Blank (B4J0149-BLK1)

Prepared: 10/7/2014 Analyzed: 10/7/2014

DRO	ND	1.0				NR			
ORO	ND	1.0				NR			
<i>Surrogate: p-Terphenyl</i>	2.734		2.66667		103	40 - 112			



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore , CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
 Report To : Rick Day
 Reported : 10/08/2014

Diesel Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0149 - GCSEMI_DRO_SOIL_LL (continued)

LCS (B4J0149-BS1)

Prepared: 10/7/2014 Analyzed: 10/7/2014

DRO	32.4827	1.0	33.3333	97.4	51 - 114
Surrogate: <i>p</i> -Terphenyl	2.319		2.66667	87.0	40 - 112



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore , CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
 Report To : Rick Day
 Reported : 10/08/2014

Diesel Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0149 - GCSEMI_DRO_SOIL_LL (continued)

Duplicate (B4J0149-DUP1)

Source: 1402914-04

Prepared: 10/7/2014 Analyzed: 10/7/2014

DRO	1.43600	1.0		1.43700	NR		0.0696	20	
Surrogate: <i>p</i> -Terphenyl	2.528		2.66667		94.8		40 - 112		



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore , CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
 Report To : Rick Day
 Reported : 10/08/2014

Diesel Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0149 - GCSEMI_DRO_SOIL_LL (continued)

Matrix Spike (B4J0149-MS1)

Source: 1402914-04

Prepared: 10/7/2014 Analyzed: 10/7/2014

DRO	27.3747	1.0	33.3333	1.43700	77.8	8 - 121			
Surrogate: <i>p</i> -Terphenyl	2.248		2.66667		84.3	40 - 112			



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
 Report To : Rick Day
 Reported : 10/08/2014

Diesel Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0149 - GCSEMI_DRO_SOIL_LL (continued)

Matrix Spike Dup (B4J0149-MSD1)

Source: 1402914-04

Prepared: 10/7/2014 Analyzed: 10/7/2014

DRO	28.0423	1.0	33.3333	1.43700	79.8	8 - 121	2.41	20	
<i>Surrogate: p-Terphenyl</i>	2.076		2.66667		77.9	40 - 112			



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
 Report To : Rick Day
 Reported : 10/08/2014

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0077 - MSVOAS2

Blank (B4J0077-BLK1)

Prepared: 10/3/2014 Analyzed: 10/3/2014

Benzene	ND	5.0				NR			
Di-isopropyl ether	ND	5.0				NR			
Ethyl tert-butyl ether	ND	5.0				NR			
Ethylbenzene	ND	5.0				NR			
m,p-Xylene	ND	10				NR			
MTBE	ND	5.0				NR			
o-Xylene	ND	5.0				NR			
tert-Amyl methyl ether	ND	5.0				NR			
tert-Butanol	ND	100				NR			
Toluene	ND	5.0				NR			
<hr/>									
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>57.73</i>		<i>50.0000</i>			<i>115</i>		<i>67 - 152</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>49.37</i>		<i>50.0000</i>			<i>98.7</i>		<i>59 - 135</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>58.72</i>		<i>50.0000</i>			<i>117</i>		<i>71 - 150</i>	
<i>Surrogate: Toluene-d8</i>	<i>51.22</i>		<i>50.0000</i>			<i>102</i>		<i>77 - 129</i>	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0077 - MSVOAS2 (continued)

LCS (B4J0077-BS1)

Prepared: 10/3/2014 Analyzed: 10/3/2014

1,1-Dichloroethene	53.0500	5.0	50.0000		106	62 - 129			
Benzene	97.0500	5.0	100.000		97.0	82 - 121			
Chlorobenzene	50.4800	5.0	50.0000		101	83 - 132			
MTBE	50.2100	5.0	50.0000		100	55 - 138			
Toluene	94.5100	5.0	100.000		94.5	80 - 129			
Trichloroethene	51.1000	5.0	50.0000		102	75 - 133			
<hr/>									
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>56.16</i>		<i>50.0000</i>		<i>112</i>	<i>67 - 152</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>50.69</i>		<i>50.0000</i>		<i>101</i>	<i>59 - 135</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>56.72</i>		<i>50.0000</i>		<i>113</i>	<i>71 - 150</i>			
<i>Surrogate: Toluene-d8</i>	<i>50.79</i>		<i>50.0000</i>		<i>102</i>	<i>77 - 129</i>			



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
 Report To : Rick Day
 Reported : 10/08/2014

Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0077 - MSVOAS2 (continued)

Duplicate (B4J0077-DUP1)

Source: 1402914-06

Prepared: 10/3/2014 Analyzed: 10/3/2014

1,1-Dichloroethene	ND	5.0		ND	NR			20	
Benzene	ND	5.0		ND	NR			20	
Chlorobenzene	ND	5.0		ND	NR			20	
MTBE	ND	5.0		ND	NR			20	
Toluene	ND	5.0		ND	NR			20	
Trichloroethene	ND	5.0		ND	NR			20	
<hr/>									
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>57.07</i>		<i>50.0000</i>		<i>114</i>	<i>67 - 152</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>48.02</i>		<i>50.0000</i>		<i>96.0</i>	<i>59 - 135</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>56.53</i>		<i>50.0000</i>		<i>113</i>	<i>71 - 150</i>			
<i>Surrogate: Toluene-d8</i>	<i>53.02</i>		<i>50.0000</i>		<i>106</i>	<i>77 - 129</i>			



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
 Report To : Rick Day
 Reported : 10/08/2014

Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0077 - MSVOAS2 (continued)

Matrix Spike (B4J0077-MS1)

Source: 1402914-06

Prepared: 10/3/2014 Analyzed: 10/3/2014

1,1-Dichloroethene	48.0000	5.0	50.0000	ND	96.0	51 - 125			
Benzene	84.6300	5.0	100.000	ND	84.6	61 - 123			
Chlorobenzene	43.3300	5.0	50.0000	ND	86.7	46 - 140			
MTBE	45.4400	5.0	50.0000	ND	90.9	45 - 135			
Toluene	87.2400	5.0	100.000	ND	87.2	45 - 140			
Trichloroethene	44.4400	5.0	50.0000	ND	88.9	50 - 146			
<hr/>									
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>55.82</i>		<i>50.0000</i>		<i>112</i>	<i>67 - 152</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>50.96</i>		<i>50.0000</i>		<i>102</i>	<i>59 - 135</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>55.40</i>		<i>50.0000</i>		<i>111</i>	<i>71 - 150</i>			
<i>Surrogate: Toluene-d8</i>	<i>51.42</i>		<i>50.0000</i>		<i>103</i>	<i>77 - 129</i>			



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
 Report To : Rick Day
 Reported : 10/08/2014

Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0077 - MSVOAS2 (continued)

Matrix Spike Dup (B4J0077-MSD1)

Source: 1402914-06

Prepared: 10/3/2014 Analyzed: 10/3/2014

1,1-Dichloroethene	43.6900	5.0	50.0000	ND	87.4	51 - 125	9.40	20	
Benzene	83.7700	5.0	100.0000	ND	83.8	61 - 123	1.02	20	
Chlorobenzene	40.9900	5.0	50.0000	ND	82.0	46 - 140	5.55	20	
MTBE	45.8600	5.0	50.0000	ND	91.7	45 - 135	0.920	20	
Toluene	85.3500	5.0	100.0000	ND	85.4	45 - 140	2.19	20	
Trichloroethene	42.8400	5.0	50.0000	ND	85.7	50 - 146	3.67	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>55.24</i>		<i>50.0000</i>		<i>110</i>	<i>67 - 152</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>50.67</i>		<i>50.0000</i>		<i>101</i>	<i>59 - 135</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>57.31</i>		<i>50.0000</i>		<i>115</i>	<i>71 - 150</i>			
<i>Surrogate: Toluene-d8</i>	<i>52.51</i>		<i>50.0000</i>		<i>105</i>	<i>77 - 129</i>			



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
Report To : Rick Day
Reported : 10/08/2014

Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	------------------	---------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0039 - MSVOAW_LL

Blank (B4J0039-BLK1)

Prepared: 10/2/2014 Analyzed: 10/2/2014

Benzene	ND	0.50				NR			
Di-isopropyl ether	ND	0.50				NR			
Ethyl tert-butyl ether	ND	0.50				NR			
Ethylbenzene	ND	0.50				NR			
m,p-Xylene	ND	1.0				NR			
MTBE	ND	0.50				NR			
o-Xylene	ND	0.50				NR			
tert-Amyl methyl ether	ND	0.50				NR			
tert-Butanol	ND	10				NR			
Toluene	ND	0.50				NR			
<hr/>									
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>44.88</i>		<i>50.0000</i>			<i>89.8</i>		<i>64 - 146</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>56.79</i>		<i>50.0000</i>			<i>114</i>		<i>60 - 128</i>	
<i>Surrogate: Dibromofluoromethane</i>	<i>44.36</i>		<i>50.0000</i>			<i>88.7</i>		<i>72 - 141</i>	
<i>Surrogate: Toluene-d8</i>	<i>42.57</i>		<i>50.0000</i>			<i>85.1</i>		<i>61 - 124</i>	



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
 Report To : Rick Day
 Reported : 10/08/2014

Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	------------------	---------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0039 - MSVOAW_LL (continued)

LCS (B4J0039-BS1)

Prepared: 10/2/2014 Analyzed: 10/2/2014

1,1-Dichloroethene	17.5800		20.0000		87.9	56 - 131			
Benzene	35.9000		40.0000		89.8	69 - 139			
Chlorobenzene	19.2400		20.0000		96.2	73 - 127			
MTBE	17.0600		20.0000		85.3	68 - 133			
Toluene	37.2000		40.0000		93.0	62 - 133			
Trichloroethene	19.3400		20.0000		96.7	72 - 139			
<hr/>									
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>46.18</i>		<i>50.0000</i>		<i>92.4</i>	<i>64 - 146</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>56.74</i>		<i>50.0000</i>		<i>113</i>	<i>60 - 128</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>45.44</i>		<i>50.0000</i>		<i>90.9</i>	<i>72 - 141</i>			
<i>Surrogate: Toluene-d8</i>	<i>45.07</i>		<i>50.0000</i>		<i>90.1</i>	<i>61 - 124</i>			



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
 Report To : Rick Day
 Reported : 10/08/2014

Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	------------------	---------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0039 - MSVOAW_LL (continued)

LCS Dup (B4J0039-BSD1)

Prepared: 10/2/2014 Analyzed: 10/2/2014

1,1-Dichloroethene	18.7300		20.0000		93.6	56 - 131	6.33	20	
Benzene	38.4200		40.0000		96.0	69 - 139	6.78	20	
Chlorobenzene	20.0000		20.0000		100	73 - 127	3.87	20	
MTBE	17.7700		20.0000		88.8	68 - 133	4.08	20	
Toluene	39.8500		40.0000		99.6	62 - 133	6.88	20	
Trichloroethene	20.2400		20.0000		101	72 - 139	4.55	20	
<hr/>									
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>45.08</i>		<i>50.0000</i>		<i>90.2</i>	<i>64 - 146</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>55.33</i>		<i>50.0000</i>		<i>111</i>	<i>60 - 128</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>44.78</i>		<i>50.0000</i>		<i>89.6</i>	<i>72 - 141</i>			
<i>Surrogate: Toluene-d8</i>	<i>43.69</i>		<i>50.0000</i>		<i>87.4</i>	<i>61 - 124</i>			



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872
 Report To : Rick Day
 Reported : 10/08/2014

Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	------------------	---------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0039 - MSVOAW_LL (continued)

Duplicate (B4J0039-DUP1)

Source: 1402914-11

Prepared: 10/2/2014 Analyzed: 10/2/2014

1,1-Dichloroethene	ND	0.50		ND	NR			20	
Benzene	ND	0.50		ND	NR			20	
Chlorobenzene	ND	0.50		ND	NR			20	
MTBE	ND	0.50		ND	NR			20	
Toluene	ND	0.50		ND	NR			20	
Trichloroethene	ND	0.50		ND	NR			20	
<hr/>									
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>45.94</i>		<i>50.0000</i>		<i>91.9</i>	<i>64 - 146</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>57.49</i>		<i>50.0000</i>		<i>115</i>	<i>60 - 128</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>46.42</i>		<i>50.0000</i>		<i>92.8</i>	<i>72 - 141</i>			
<i>Surrogate: Toluene-d8</i>	<i>39.92</i>		<i>50.0000</i>		<i>79.8</i>	<i>61 - 124</i>			



Certificate of Analysis

Geocon Consultants, Inc.

6671 Brisa Street

Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E872

Report To : Rick Day

Reported : 10/08/2014

Notes and Definitions

M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
D5	Sample diluted due to failing internal standard in the original run.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Notes:

- (1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
- (2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
- (3) Results are wet unless otherwise specified.



October 16, 2014

Rick Day
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
Tel: (925) 961-5270
Fax: (925) 371-5915

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003
TCEQ No. : T104704502

Re: ATL Work Order Number : 1402914

Client Reference : SR13 STORM DAMAGE REPAIR, E8721-02-13

Enclosed are the results for sample(s) received on October 01, 2014 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,

A handwritten signature in black ink, appearing to read 'E. Rodriguez', is written over a light gray rectangular background.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.

3275 Walnut Avenue, Signal Hill, CA 90755 • Tel: 562-989-4045 • Fax: 562-989-4040
www.atlglobal.com



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E8721-02-13
Report To : Rick Day
Reported : 10/16/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B1-1	1402914-02	Soil	9/29/14 10:35	10/01/14 8:30
B3-2'	1402914-15	Soil	9/30/14 10:35	10/01/14 8:30



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore , CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E8721-02-13
Report To : Rick Day
Reported : 10/16/2014

STLC Metals by ICP-AES by EPA 6010B

Analyte: Chromium

Analyst: SB

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1402914-02	B1-1	ND	mg/L	1.0	20	B4J0408	10/15/2014	10/15/14 17:45	
1402914-15	B3-2'	ND	mg/L	1.0	20	B4J0408	10/15/2014	10/15/14 17:47	



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E8721-02-13
 Report To : Rick Day
 Reported : 10/16/2014

QUALITY CONTROL SECTION

STLC Metals by ICP-AES by EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4J0408 - STLC Extraction									
Blank (B4J0408-BLK1)									
Chromium	ND	1.0							Prepared: 10/15/2014 Analyzed: 10/15/2014 NR
LCS (B4J0408-BS1)									
Chromium	2.00191	1.0	2.00000		100	80 - 120			Prepared: 10/15/2014 Analyzed: 10/15/2014
Duplicate (B4J0408-DUP1)									
Chromium	4.18660	1.0		3.58748	NR		15.4	20	Source: 1402934-92 Prepared: 10/15/2014 Analyzed: 10/15/2014
Matrix Spike (B4J0408-MS1)									
Chromium	5.75161	1.0	2.50000	3.58748	86.6	74 - 121			Source: 1402934-92 Prepared: 10/15/2014 Analyzed: 10/15/2014
Matrix Spike Dup (B4J0408-MSD1)									
Chromium	5.75913	1.0	2.50000	3.58748	86.9	74 - 121	0.131	20	Source: 1402934-92 Prepared: 10/15/2014 Analyzed: 10/15/2014



Certificate of Analysis

Geocon Consultants, Inc.

6671 Brisa Street

Livermore, CA 94550

Project Number : SR13 STORM DAMAGE REPAIR, E8721-02-13

Report To : Rick Day

Reported : 10/16/2014

Notes and Definitions

ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Notes:

- (1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
- (2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
- (3) Results are wet unless otherwise specified.

Diane Galvan

From: Luann Beadle [beadle@geoconinc.com]
Sent: Thursday, October 09, 2014 9:26 AM
To: Diane Galvan
Subject: E8721-02-13 SR-13 Storm Damage (Lab Order 1402914)

Hi Diane,

Please run WET chromium on these samples on a regular TAT:

1402914-15 B3-2'
1402914-02 B1-1

Thanks,
Luann



Luann Beadle | *Senior Staff Scientist*
Geocon Consultants, Inc.
6671 Brisa Street, Livermore, California 94550
Tel 925.371.5900 Cell 925.395.1669
www.geoconinc.com

October 08, 2014

Luann Beadle
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
Tel: (925) 371-5900
Fax:(925) 371-5915

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003
TCEQ No. : T104704502

Re: ATL Work Order Number : 1402915
Client Reference : SR13 SDRP, E8721-02-13

Enclosed are the results for sample(s) received on October 01, 2014 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,



Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Geocon Consultants, Inc.

6671 Brisa Street

Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13

Report To : Luann Beadle

Reported : 10/08/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B4-0	1402915-01	Soil	9/29/14 10:07	10/01/14 8:30
B4-1	1402915-02	Soil	9/29/14 10:10	10/01/14 8:30
B4-2	1402915-03	Soil	9/29/14 10:15	10/01/14 8:30
B4-5	1402915-04	Soil	9/29/14 10:25	10/01/14 8:30
B5-0	1402915-05	Soil	9/29/14 10:35	10/01/14 8:30
B5-1	1402915-06	Soil	9/29/14 10:38	10/01/14 8:30
B5-2	1402915-07	Soil	9/29/14 10:44	10/01/14 8:30
B5-5	1402915-08	Soil	9/29/14 10:55	10/01/14 8:30
B6-0	1402915-09	Soil	9/29/14 11:14	10/01/14 8:30
B6-1	1402915-10	Soil	9/29/14 11:16	10/01/14 8:30
B6-2	1402915-11	Soil	9/29/14 11:21	10/01/14 8:30
B6-5	1402915-12	Soil	9/29/14 11:30	10/01/14 8:30
B7-0	1402915-13	Soil	9/29/14 13:01	10/01/14 8:30
B7-1	1402915-14	Soil	9/29/14 13:04	10/01/14 8:30
B7-2	1402915-15	Soil	9/29/14 13:10	10/01/14 8:30
B8-0	1402915-16	Soil	9/29/14 12:24	10/01/14 8:30
B8-1	1402915-17	Soil	9/29/14 12:27	10/01/14 8:30
B8-2	1402915-18	Soil	9/29/14 12:37	10/01/14 8:30
B8-5	1402915-19	Soil	9/29/14 12:47	10/01/14 8:30
B9-0	1402915-20	Soil	9/29/14 11:46	10/01/14 8:30
B9-1	1402915-21	Soil	9/29/14 11:53	10/01/14 8:30
B9-2	1402915-22	Soil	9/29/14 11:56	10/01/14 8:30
B9-5	1402915-23	Soil	9/29/14 12:05	10/01/14 8:30
EQ. BLK	1402915-24	Aqueous	9/29/14 16:00	10/01/14 8:30



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B4-0

Lab ID: 1402915-01

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	190	1.0	1	B4J0145	10/07/2014	10/07/14 17:47	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B4-1

Lab ID: 1402915-02

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	36	1.0	1	B4J0145	10/07/2014	10/07/14 17:47	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B4-2

Lab ID: 1402915-03

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	12	1.0	1	B4J0145	10/07/2014	10/07/14 17:48	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B4-5

Lab ID: 1402915-04

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	18	1.0	1	B4J0145	10/07/2014	10/07/14 17:49	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore , CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B5-0
Lab ID: 1402915-05

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	240	1.0	1	B4J0145	10/07/2014	10/07/14 17:50	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	340	20	10	B4J0159	10/07/2014	10/07/14 13:56	
ORO	1500	20	10	B4J0159	10/07/2014	10/07/14 13:56	
<i>Surrogate: p-Terphenyl</i>	<i>0%</i>	<i>40 - 112</i>		B4J0159	10/07/2014	<i>10/07/14 13:56</i>	S4



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B5-1
Lab ID: 1402915-06

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	120	1.0	1	B4J0145	10/07/2014	10/08/14 10:38	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B5-2
Lab ID: 1402915-07

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	8.3	1.0	1	B4J0145	10/07/2014	10/08/14 10:39	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	3.5	1.0	1	B4J0159	10/07/2014	10/08/14 10:35	
ORO	9.0	1.0	1	B4J0159	10/07/2014	10/08/14 10:35	
<i>Surrogate: p-Terphenyl</i>	<i>111 %</i>	<i>40 - 112</i>		B4J0159	10/07/2014	<i>10/08/14 10:35</i>	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B5-5
Lab ID: 1402915-08

Title 22 Metals by ICP-AES EPA 6010B

Analyst: CB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B4J0144	10/07/2014	10/07/14 16:38	
Arsenic	5.8	1.0	1	B4J0144	10/07/2014	10/07/14 16:38	
Barium	180	1.0	1	B4J0144	10/07/2014	10/07/14 16:37	
Beryllium	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:37	
Cadmium	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:38	
Chromium	42	1.0	1	B4J0144	10/07/2014	10/07/14 16:37	
Cobalt	12	1.0	1	B4J0144	10/07/2014	10/07/14 16:38	
Copper	39	2.0	1	B4J0144	10/07/2014	10/07/14 16:37	
Lead	9.6	1.0	1	B4J0144	10/07/2014	10/07/14 16:38	
Molybdenum	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:37	
Nickel	42	1.0	1	B4J0144	10/07/2014	10/07/14 16:37	
Selenium	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:38	
Silver	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:37	
Thallium	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:38	
Vanadium	47	1.0	1	B4J0144	10/07/2014	10/07/14 16:37	
Zinc	77	1.0	1	B4J0144	10/07/2014	10/07/14 16:37	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	0.11	0.10	1	B4J0147	10/07/2014	10/07/14 15:03	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	5.6	1.0	1	B4J0159	10/07/2014	10/08/14 10:52	
ORO	15	1.0	1	B4J0159	10/07/2014	10/08/14 10:52	
<i>Surrogate: p-Terphenyl</i>	<i>93.5 %</i>	<i>40 - 112</i>		B4J0159	10/07/2014	<i>10/08/14 10:52</i>	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B6-0

Lab ID: 1402915-09

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	100	1.0	1	B4J0145	10/07/2014	10/08/14 10:40	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B6-1

Lab ID: 1402915-10

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	9.1	1.0	1	B4J0145	10/07/2014	10/08/14 10:40	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B6-2

Lab ID: 1402915-11

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	12	1.0	1	B4J0145	10/07/2014	10/08/14 10:41	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore , CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B6-5

Lab ID: 1402915-12

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	8.4	1.0	1	B4J0146	10/07/2014	10/08/14 10:48	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B7-0

Lab ID: 1402915-13

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	120	1.0	1	B4J0146	10/07/2014	10/08/14 10:49	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B7-1

Lab ID: 1402915-14

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	14	1.0	1	B4J0146	10/07/2014	10/08/14 10:50	



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
 Report To : Luann Beadle
 Reported : 10/08/2014

Client Sample ID B7-2
Lab ID: 1402915-15

Title 22 Metals by ICP-AES EPA 6010B

Analyst: CB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B4J0144	10/07/2014	10/07/14 16:41	
Arsenic	6.6	1.0	1	B4J0144	10/07/2014	10/07/14 16:41	
Barium	160	1.0	1	B4J0144	10/07/2014	10/07/14 16:41	
Beryllium	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:40	
Cadmium	1.2	1.0	1	B4J0144	10/07/2014	10/07/14 16:41	
Chromium	77	1.0	1	B4J0144	10/07/2014	10/07/14 16:41	
Cobalt	17	1.0	1	B4J0144	10/07/2014	10/07/14 16:41	
Copper	290	2.0	1	B4J0144	10/07/2014	10/07/14 16:41	
Lead	19	1.0	1	B4J0144	10/07/2014	10/07/14 16:41	
Molybdenum	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:41	
Nickel	150	1.0	1	B4J0144	10/07/2014	10/07/14 16:41	
Selenium	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:41	
Silver	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:41	
Thallium	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:41	
Vanadium	43	1.0	1	B4J0144	10/07/2014	10/07/14 16:41	
Zinc	220	1.0	1	B4J0144	10/07/2014	10/07/14 16:41	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	0.12	0.10	1	B4J0147	10/07/2014	10/07/14 15:05	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore , CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B8-0
Lab ID: 1402915-16

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	47	1.0	1	B4J0146	10/07/2014	10/08/14 10:50	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	78	5.0	5	B4J0159	10/07/2014	10/08/14 12:16	
ORO	190	5.0	5	B4J0159	10/07/2014	10/08/14 12:16	
<i>Surrogate: p-Terphenyl</i>	<i>58.6 %</i>	<i>40 - 112</i>		B4J0159	10/07/2014	<i>10/08/14 12:16</i>	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B8-1

Lab ID: 1402915-17

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	9.8	1.0	1	B4J0146	10/07/2014	10/08/14 10:51	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B8-2

Lab ID: 1402915-18

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	11	1.0	1	B4J0146	10/07/2014	10/08/14 10:52	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	23	1.0	1	B4J0159	10/07/2014	10/08/14 11:08	
ORO	41	1.0	1	B4J0159	10/07/2014	10/08/14 11:08	
<i>Surrogate: p-Terphenyl</i>	<i>67.2 %</i>	<i>40 - 112</i>		B4J0159	10/07/2014	<i>10/08/14 11:08</i>	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B8-5

Lab ID: 1402915-19

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	6.8	1.0	1	B4J0146	10/07/2014	10/08/14 10:53	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	59	2.0	2	B4J0159	10/07/2014	10/07/14 14:13	
ORO	230	2.0	2	B4J0159	10/07/2014	10/07/14 14:13	
<i>Surrogate: p-Terphenyl</i>	<i>77.8 %</i>	<i>40 - 112</i>		B4J0159	10/07/2014	<i>10/07/14 14:13</i>	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B9-0

Lab ID: 1402915-20

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	56	1.0	1	B4J0146	10/07/2014	10/08/14 10:53	



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
 Report To : Luann Beadle
 Reported : 10/08/2014

Client Sample ID B9-1
Lab ID: 1402915-21

Title 22 Metals by ICP-AES EPA 6010B

Analyst: CB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B4J0144	10/07/2014	10/07/14 16:44	
Arsenic	8.0	1.0	1	B4J0144	10/07/2014	10/07/14 16:44	
Barium	180	1.0	1	B4J0144	10/07/2014	10/07/14 16:44	
Beryllium	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:44	
Cadmium	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:44	
Chromium	77	1.0	1	B4J0144	10/07/2014	10/07/14 16:44	
Cobalt	19	1.0	1	B4J0144	10/07/2014	10/07/14 16:44	
Copper	38	2.0	1	B4J0144	10/07/2014	10/07/14 16:44	
Lead	16	1.0	1	B4J0144	10/07/2014	10/07/14 16:44	
Molybdenum	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:44	
Nickel	180	1.0	1	B4J0144	10/07/2014	10/07/14 16:44	
Selenium	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:44	
Silver	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:44	
Thallium	ND	1.0	1	B4J0144	10/07/2014	10/07/14 16:44	
Vanadium	43	1.0	1	B4J0144	10/07/2014	10/07/14 16:44	
Zinc	58	1.0	1	B4J0144	10/07/2014	10/07/14 16:44	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B4J0147	10/07/2014	10/07/14 15:11	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B9-2

Lab ID: 1402915-22

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	9.4	1.0	1	B4J0146	10/07/2014	10/08/14 10:54	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID B9-5

Lab ID: 1402915-23

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	12	1.0	1	B4J0146	10/07/2014	10/08/14 10:55	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Client Sample ID EQ. BLK

Lab ID: 1402915-24

Lead by ICP-AES EPA 6010B

Analyst: CB

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.0050	1	B4J0148	10/07/2014	10/07/14 15:35	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

QUALITY CONTROL SECTION

Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0144 - EPA 3050B

Blank (B4J0144-BLK1)

Prepared: 10/7/2014 Analyzed: 10/7/2014

Antimony	ND	2.0		NR
Arsenic	ND	1.0		NR
Barium	ND	1.0		NR
Beryllium	ND	1.0		NR
Cadmium	ND	1.0		NR
Chromium	ND	1.0		NR
Cobalt	ND	1.0		NR
Copper	ND	2.0		NR
Lead	ND	1.0		NR
Molybdenum	ND	1.0		NR
Nickel	ND	1.0		NR
Selenium	ND	1.0		NR
Silver	ND	1.0		NR
Thallium	ND	1.0		NR
Vanadium	ND	1.0		NR
Zinc	ND	1.0		NR

LCS (B4J0144-BS1)

Prepared: 10/7/2014 Analyzed: 10/7/2014

Antimony	46.9480	2.0	50.0000	93.9	80 - 120
Arsenic	47.0110	1.0	50.0000	94.0	80 - 120
Barium	50.7916	1.0	50.0000	102	80 - 120
Beryllium	51.3450	1.0	50.0000	103	80 - 120
Cadmium	47.8132	1.0	50.0000	95.6	80 - 120
Chromium	51.2300	1.0	50.0000	102	80 - 120
Cobalt	49.9275	1.0	50.0000	99.9	80 - 120
Copper	49.9616	2.0	50.0000	99.9	80 - 120
Lead	49.2947	1.0	50.0000	98.6	80 - 120
Molybdenum	49.7854	1.0	50.0000	99.6	80 - 120
Nickel	48.9114	1.0	50.0000	97.8	80 - 120
Selenium	46.2892	1.0	50.0000	92.6	80 - 120
Silver	47.2937	1.0	50.0000	94.6	80 - 120
Thallium	49.3244	1.0	50.0000	98.6	80 - 120
Vanadium	50.6190	1.0	50.0000	101	80 - 120
Zinc	47.5634	1.0	50.0000	95.1	80 - 120

Duplicate (B4J0144-DUP1)

Source: 1402914-02

Prepared: 10/7/2014 Analyzed: 10/7/2014

Antimony	ND	4.0	ND	NR	20	D5
Arsenic	ND	2.0	ND	NR	20	D5
Barium	37.9015	2.0	32.8184	NR	14.4	20 D5
Beryllium	ND	2.0	ND	NR	20	D5



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13

Report To : Luann Beadle

Reported : 10/08/2014

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0144 - EPA 3050B (continued)

Duplicate (B4J0144-DUP1) - Continued

Source: 1402914-02

Prepared: 10/7/2014 Analyzed: 10/7/2014

Cadmium	ND	2.0		ND	NR			20	D5
Chromium	59.7846	2.0		54.9803	NR		8.37	20	D5
Cobalt	20.3379	2.0		20.3007	NR		0.183	20	D5
Copper	62.6697	4.0		62.0476	NR		0.998	20	D5
Lead	ND	2.0		ND	NR			20	D5
Molybdenum	0.435455	2.0		0.471922	NR		8.04	20	D5
Nickel	41.5404	2.0		45.9634	NR		10.1	20	D5
Selenium	ND	2.0		ND	NR			20	D5
Silver	ND	2.0		ND	NR			20	D5
Thallium	ND	2.0		ND	NR			20	D5
Vanadium	25.4207	2.0		27.8449	NR		9.10	20	D5
Zinc	13.7409	2.0		16.0328	NR		15.4	20	D5

Matrix Spike (B4J0144-MS1)

Source: 1402914-02

Prepared: 10/7/2014 Analyzed: 10/7/2014

Antimony	78.4593	4.0	125.000	ND	62.8	21 - 126			D5
Arsenic	104.274	2.0	125.000	ND	83.4	57 - 113			D5
Barium	140.020	2.0	125.000	32.8184	85.8	29 - 146			D5
Beryllium	106.539	2.0	125.000	ND	85.2	65 - 110			D5
Cadmium	98.8968	2.0	125.000	ND	79.1	56 - 107			D5
Chromium	161.546	2.0	125.000	54.9803	85.3	49 - 127			D5
Cobalt	117.938	2.0	125.000	20.3007	78.1	57 - 112			D5
Copper	173.002	4.0	125.000	62.0476	88.8	56 - 127			D5
Lead	98.6682	2.0	125.000	ND	78.9	33 - 134			D5
Molybdenum	99.4831	2.0	125.000	0.471922	79.2	62 - 108			D5
Nickel	137.713	2.0	125.000	45.9634	73.4	42 - 127			D5
Selenium	101.877	2.0	125.000	ND	81.5	58 - 105			D5
Silver	108.942	2.0	125.000	ND	87.2	63 - 113			D5
Thallium	96.1637	2.0	125.000	ND	76.9	53 - 110			D5
Vanadium	133.820	2.0	125.000	27.8449	84.8	66 - 112			D5
Zinc	112.049	2.0	125.000	16.0328	76.8	28 - 137			D5

Matrix Spike Dup (B4J0144-MSD1)

Source: 1402914-02

Prepared: 10/7/2014 Analyzed: 10/7/2014

Antimony	76.6021	4.0	125.000	ND	61.3	21 - 126	2.40	20	D5
Arsenic	101.513	2.0	125.000	ND	81.2	57 - 113	2.68	20	D5
Barium	125.733	2.0	125.000	32.8184	74.3	29 - 146	10.8	20	D5
Beryllium	101.645	2.0	125.000	ND	81.3	65 - 110	4.70	20	D5
Cadmium	95.2723	2.0	125.000	ND	76.2	56 - 107	3.73	20	D5
Chromium	149.548	2.0	125.000	54.9803	75.7	49 - 127	7.71	20	D5
Cobalt	111.594	2.0	125.000	20.3007	73.0	57 - 112	5.53	20	D5
Copper	163.779	4.0	125.000	62.0476	81.4	56 - 127	5.48	20	D5
Lead	95.4746	2.0	125.000	ND	76.4	33 - 134	3.29	20	D5
Molybdenum	95.5688	2.0	125.000	0.471922	76.1	62 - 108	4.01	20	D5



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
 Report To : Luann Beadle
 Reported : 10/08/2014

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0144 - EPA 3050B (continued)

Matrix Spike Dup (B4J0144-MSD1) - Continued

Source: 1402914-02

Prepared: 10/7/2014 Analyzed: 10/7/2014

Nickel	127.821	2.0	125.000	45.9634	65.5	42 - 127	7.45	20	D5
Selenium	98.9140	2.0	125.000	ND	79.1	58 - 105	2.95	20	D5
Silver	104.448	2.0	125.000	ND	83.6	63 - 113	4.21	20	D5
Thallium	93.9353	2.0	125.000	ND	75.1	53 - 110	2.34	20	D5
Vanadium	125.974	2.0	125.000	27.8449	78.5	66 - 112	6.04	20	D5
Zinc	107.027	2.0	125.000	16.0328	72.8	28 - 137	4.58	20	D5



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Lead by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec % Rec	Limits Limits	RPD RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	----------------	------------------	------------	--------------	-------

Batch B4J0145 - EPA 3050 Modified

Blank (B4J0145-BLK1)				Prepared: 10/7/2014 Analyzed: 10/7/2014					
Lead	ND	1.0			NR				
Blank (B4J0145-BLK2)				Prepared: 10/7/2014 Analyzed: 10/7/2014					
Lead	ND	1.0			NR				
LCS (B4J0145-BS1)				Prepared: 10/7/2014 Analyzed: 10/7/2014					
Lead	50.6028	1.0	50.0000		101	80 - 120			
Duplicate (B4J0145-DUP1)		Source: 1402915-11		Prepared: 10/7/2014 Analyzed: 10/8/2014					
Lead	10.5214	1.0		12.4633	NR		16.9	20	
Duplicate (B4J0145-DUP2)		Source: 1402914-16		Prepared: 10/7/2014 Analyzed: 10/7/2014					
Lead	9.38512	1.0		8.46687	NR		10.3	20	
Matrix Spike (B4J0145-MS1)		Source: 1402915-11		Prepared: 10/7/2014 Analyzed: 10/8/2014					
Lead	203.985	1.0	250.000	12.4633	76.6	33 - 134			
Matrix Spike (B4J0145-MS2)		Source: 1402914-16		Prepared: 10/7/2014 Analyzed: 10/7/2014					
Lead	224.695	1.0	250.000	8.46687	86.5	33 - 134			
Matrix Spike Dup (B4J0145-MSD1)		Source: 1402915-11		Prepared: 10/7/2014 Analyzed: 10/8/2014					
Lead	230.044	1.0	250.000	12.4633	87.0	33 - 134	12.0	20	

Batch B4J0146 - EPA 3050 Modified

Blank (B4J0146-BLK1)				Prepared: 10/7/2014 Analyzed: 10/8/2014					
Lead	ND	1.0			NR				
LCS (B4J0146-BS1)				Prepared: 10/7/2014 Analyzed: 10/8/2014					
Lead	52.9758	1.0	50.0000		106	80 - 120			
Duplicate (B4J0146-DUP1)		Source: 1402915-23		Prepared: 10/7/2014 Analyzed: 10/8/2014					
Lead	9.61484	1.0		11.5390	NR		18.2	20	
Matrix Spike (B4J0146-MS1)		Source: 1402915-23		Prepared: 10/7/2014 Analyzed: 10/8/2014					
Lead	218.613	1.0	250.000	11.5390	82.8	33 - 134			
Matrix Spike Dup (B4J0146-MSD1)		Source: 1402915-23		Prepared: 10/7/2014 Analyzed: 10/8/2014					
Lead	201.144	1.0	250.000	11.5390	75.8	33 - 134	8.32	20	

Batch B4J0148 - EPA 3010A

Blank (B4J0148-BLK1)				Prepared: 10/7/2014 Analyzed: 10/7/2014					
-----------------------------	--	--	--	---	--	--	--	--	--



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
 Report To : Luann Beadle
 Reported : 10/08/2014

Lead by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4J0148 - EPA 3010A (continued)									
Blank (B4J0148-BLK1) - Continued				Prepared: 10/7/2014 Analyzed: 10/7/2014					
Lead	ND	0.0050			NR				
LCS (B4J0148-BS1)				Prepared: 10/7/2014 Analyzed: 10/7/2014					
Lead	1.01057	0.0050	1.00000		101	80 - 120			
Duplicate (B4J0148-DUP1)				Source: 1402915-24 Prepared: 10/7/2014 Analyzed: 10/7/2014					
Lead	ND	0.0050		ND	NR			20	
Matrix Spike (B4J0148-MS1)				Source: 1402915-24 Prepared: 10/7/2014 Analyzed: 10/7/2014					
Lead	2.44044	0.0050	2.50000	ND	97.6	77 - 121			
Matrix Spike Dup (B4J0148-MSD1)				Source: 1402915-24 Prepared: 10/7/2014 Analyzed: 10/7/2014					
Lead	2.51163	0.0050	2.50000	ND	100	77 - 121	2.87	20	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore , CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0147 - EPA 7471 (continued)

Matrix Spike Dup (B4J0147-MSD1)

Source: 1402914-02

Prepared: 10/7/2014 Analyzed: 10/7/2014

Mercury	1.09000	0.10	0.833333	0.107923	118	70 - 130	6.25	20	
---------	---------	------	----------	----------	-----	----------	------	----	--



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore , CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	------------------	---------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0147 - EPA 7471 (continued)

Post Spike (B4J0147-PS1)

Source: 1402914-02

Prepared: 10/7/2014 Analyzed: 10/7/2014

Mercury	0.007513		5.00000E-3	0.001295	124	85 - 115			M1
---------	----------	--	------------	----------	-----	----------	--	--	----



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Diesel Range Organics by EPA 8015B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0159 - GCSEMI_DRO_SOIL_LL

Blank (B4J0159-BLK1)

Prepared: 10/7/2014 Analyzed: 10/8/2014

DRO	ND	1.0			NR				
ORO	ND	1.0			NR				
Surrogate: <i>p</i> -Terphenyl	1.721		2.66667		64.5	40 - 112			



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore , CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Diesel Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0159 - GCSEMI_DRO_SOIL_LL (continued)

LCS (B4J0159-BS1)

Prepared: 10/7/2014 Analyzed: 10/8/2014

DRO	36.6087	1.0	33.3333		110	51 - 114			
Surrogate: <i>p</i> -Terphenyl	2.849		2.66667		107	40 - 112			



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
 Report To : Luann Beadle
 Reported : 10/08/2014

Diesel Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0159 - GCSEMI_DRO_SOIL_LL (continued)

Duplicate (B4J0159-DUP1)

Source: 1402915-18

Prepared: 10/7/2014 Analyzed: 10/8/2014

DRO	18.3440	1.0		22.8647	NR		21.9	20	R2
<i>Surrogate: p-Terphenyl</i>	<i>1.530</i>		<i>2.66667</i>		<i>57.4</i>		<i>40 - 112</i>		



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
 Report To : Luann Beadle
 Reported : 10/08/2014

Diesel Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0159 - GCSEMI_DRO_SOIL_LL (continued)

Matrix Spike (B4J0159-MS1)

Source: 1402915-18

Prepared: 10/7/2014 Analyzed: 10/8/2014

DRO	37.2767	1.0	33.3333	22.8647	43.2	8 - 121			
Surrogate: <i>p</i> -Terphenyl	2.166		2.66667		81.2	40 - 112			



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
 Report To : Luann Beadle
 Reported : 10/08/2014

Diesel Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0159 - GCSEMI_DRO_SOIL_LL (continued)

Matrix Spike Dup (B4J0159-MSD1)

Source: 1402915-18

Prepared: 10/7/2014 Analyzed: 10/8/2014

DRO	42.1913	1.0	33.3333	22.8647	58.0	8 - 121	12.4	20	
<i>Surrogate: p-Terphenyl</i>	<i>2.051</i>		<i>2.66667</i>		<i>76.9</i>	<i>40 - 112</i>			



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/08/2014

Notes and Definitions

S4	Surrogate was diluted out.
R2	RPD value outside acceptance criteria due to possible matrix interference.
M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
D5	Sample diluted due to failing internal standard in the original run.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

- Notes:
- (1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
 - (2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
 - (3) Results are wet unless otherwise specified.

CHAIN OF CUSTODY RECORD

ADVANCED TECHNOLOGY LABORATORIES
 3275 Walnut Ave., Signal Hill, CA 90755
 Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY:

Method of Transport: Client ATL FedEx GSO Other: _____

Sample Condition Upon Receipt: 1. CHILLED Y N 4. CUSTODY SEAL Y N
 2. HEADSPACE (VOA) Y N 5. # OF SPLS MATCH COC Y N
 3. CONTAINER INTACT Y N 6. PRESERVED Y N

Project #: **E8721-02-13** Sampler: **CHRIS GUNSTON**

Relinquished by: (Signature and Printed Name) *[Signature]* Date: **9/29/14** Time: **1700**

Relinquished by: (Signature and Printed Name) _____ Date: _____ Time: _____

Relinquished by: (Signature and Printed Name) _____ Date: _____ Time: _____

Client: **Geocon Consultants, Inc.** Address: **6671 Brisa Street** City: **Livermore** State: **CA** Zip Code: **94550** TEL: (925) 371-5900 FAX: (925) 371-5915

Attn: **LUANN BEADIE** City: _____ State: _____ Zip: _____

Project Name: **SR13 SDRP** Date: **9/29/14** Time: **1700**

Project Mgr /Submitter: *[Signature]* Date: **9/29/14** Time: **8:30**

Send Report To: _____ Attn: **SAE** City: _____ State: _____ Zip: _____

Project Mgr /Submitter: *[Signature]* Date: **9/29/14** Time: _____

I hereby authorize ATL to perform the work indicated below:
 Project Mgr /Submitter: *[Signature]* Date: **9/29/14** Time: _____

Special Instructions/Comments: _____

LAB USE ONLY:

LAB Batch #:	Sample I.D. / Location	Date	Time
B6-D		9/29/14	1114
B6-1			1116
B6-2			1121
B6-5			1130
B7-D			1301
B7-1			1304
B7-Z			1310

Sample/Records - Archival & Disposal
 Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.

Storage Fees (applies when storage is requested):
 • Sample : \$2.00 / sample / mo (after 45 days)
 • Records : \$1.00 / ATL workorder / mo (after 1 year)

SPECIFY APPROPRIATE MATRIX	Container(s)		TAT	Type	REMARKS
	#	Type			
SEDIMENT					
SOIL					
DRINKING WATER					
WASTEWATER					
STORMWATER					
AQUEOUS					

QA/QC

RTNE CT Legal SWRCB Logcode OTHER _____

Preservatives:
 H=HCl N=HNO₃ S=H₂SO₄ C=4°C
 Z=Zn(Ac)₂ O=NaOH T=Na₂SO₂

Container Types: T=Tube V=VOA L=Liter P=Plastic M=Metal
 J=Jar B=Tedlar G=Glass P=Plastic M=Metal

TAT: A= Overnight ≤ 24 hrs B= Emergency Next workday C= Critical 2 Workdays D= 3 Workdays E= Routine 7 Workdays

DISTRIBUTION: White with report, Yellow to folder, Pink to submitter.



October 21, 2014

Luann Beadle
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
Tel: (925) 371-5900
Fax: (925) 371-5915

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003
TCEQ No. : T104704502

Re: ATL Work Order Number : 1402915
Client Reference : SR13 SDRP, E8721-02-13

Enclosed are the results for sample(s) received on October 01, 2014 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,

A handwritten signature in black ink, appearing to read 'E. Rodriguez', is written over a light gray rectangular background.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Geocon Consultants, Inc.

6671 Brisa Street

Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13

Report To : Luann Beadle

Reported : 10/21/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B4-0	1402915-01	Soil	9/29/14 10:07	10/01/14 8:30
B5-0	1402915-05	Soil	9/29/14 10:35	10/01/14 8:30
B5-1	1402915-06	Soil	9/29/14 10:38	10/01/14 8:30
B6-0	1402915-09	Soil	9/29/14 11:14	10/01/14 8:30
B7-0	1402915-13	Soil	9/29/14 13:01	10/01/14 8:30
B7-2	1402915-15	Soil	9/29/14 13:10	10/01/14 8:30
B9-0	1402915-20	Soil	9/29/14 11:46	10/01/14 8:30
B9-1	1402915-21	Soil	9/29/14 11:53	10/01/14 8:30



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
 Report To : Luann Beadle
 Reported : 10/21/2014

TCLP Metals by ICP-AES EPA 6010B

Analyte: Lead

Analyst: SB

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time	Notes
								Analyzed	
1402915-01	B4-0	0.12	mg/L	0.050	1	B4J0435	10/16/2014	10/16/14 13:33	
1402915-05	B5-0	0.23	mg/L	0.050	1	B4J0435	10/16/2014	10/16/14 13:36	
1402915-06	B5-1	0.089	mg/L	0.050	1	B4J0435	10/16/2014	10/16/14 13:38	
1402915-09	B6-0	0.060	mg/L	0.050	1	B4J0435	10/16/2014	10/16/14 13:45	
1402915-13	B7-0	ND	mg/L	0.050	1	B4J0435	10/16/2014	10/16/14 13:47	

STLC Metals by ICP-AES by EPA 6010B

Analyte: Chromium

Analyst: CB

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time	Notes
								Analyzed	
1402915-21	B9-1	ND	mg/L	1.0	20	B4J0453	10/16/2014	10/17/14 17:03	

STLC Metals by ICP-AES by EPA 6010B

Analyte: Lead

Analyst: CB

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time	Notes
								Analyzed	
1402915-01	B4-0	13	mg/L	1.0	20	B4J0453	10/16/2014	10/17/14 16:44	
1402915-05	B5-0	21	mg/L	1.0	20	B4J0453	10/16/2014	10/17/14 16:46	
1402915-06	B5-1	8.4	mg/L	1.0	20	B4J0453	10/16/2014	10/17/14 16:48	
1402915-09	B6-0	6.3	mg/L	1.0	20	B4J0453	10/16/2014	10/17/14 16:50	
1402915-13	B7-0	8.0	mg/L	1.0	20	B4J0453	10/16/2014	10/17/14 16:52	
1402915-20	B9-0	3.0	mg/L	1.0	20	B4J0453	10/16/2014	10/17/14 17:01	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/21/2014

STLC DI Metals by ICP-AES by EPA 6010B

Analyte: Lead

Analyst: CB

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1402915-01	B4-0	ND	mg/L	1.0	20	B4J0509	10/19/2014	10/20/14 14:53	
1402915-05	B5-0	ND	mg/L	1.0	20	B4J0509	10/19/2014	10/20/14 14:55	
1402915-06	B5-1	ND	mg/L	1.0	20	B4J0509	10/19/2014	10/20/14 14:58	
1402915-09	B6-0	ND	mg/L	1.0	20	B4J0509	10/19/2014	10/20/14 15:06	
1402915-13	B7-0	ND	mg/L	1.0	20	B4J0509	10/19/2014	10/20/14 15:08	

pH by EPA 9045C

Analyte: pH

Analyst: LA

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1402915-01	B4-0	7.7	pH Units	0.10	1	B4J0518	10/20/2014	10/20/14 14:10	
1402915-05	B5-0	7.6	pH Units	0.10	1	B4J0518	10/20/2014	10/20/14 14:10	
1402915-06	B5-1	7.7	pH Units	0.10	1	B4J0518	10/20/2014	10/20/14 14:10	
1402915-09	B6-0	6.7	pH Units	0.10	1	B4J0519	10/20/2014	10/20/14 14:12	
1402915-13	B7-0	6.6	pH Units	0.10	1	B4J0519	10/20/2014	10/20/14 14:12	

Client Sample ID B7-2

Lab ID: 1402915-15

STLC Metals by ICP-AES by EPA 6010B

Analyst: CB

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chromium	ND	1.0	20	B4J0453	10/16/2014	10/17/14 16:55	
Copper	6.1	1.0	20	B4J0453	10/16/2014	10/17/14 16:55	



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
 Report To : Luann Beadle
 Reported : 10/21/2014

QUALITY CONTROL SECTION

TCLP Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4J0435 - EPA 3010A_SOIL									
Blank (B4J0435-BLK1)					Prepared: 10/16/2014 Analyzed: 10/16/2014				
Lead	ND	0.050							NR
Blank (B4J0435-BLK2)					Prepared: 10/16/2014 Analyzed: 10/16/2014				
Lead	ND	0.050							NR
LCS (B4J0435-BS1)					Prepared: 10/16/2014 Analyzed: 10/16/2014				
Lead	0.961468	0.050	1.00000		96.1	80 - 120			
Duplicate (B4J0435-DUP1)					Prepared: 10/16/2014 Analyzed: 10/16/2014				
Lead	0.042821	0.050		0.047236	NR		9.81	20	
Matrix Spike (B4J0435-MS1)					Prepared: 10/16/2014 Analyzed: 10/16/2014				
Lead	2.23596	0.050	2.50000	0.047236	87.5	77 - 121			
Matrix Spike Dup (B4J0435-MSD1)					Prepared: 10/16/2014 Analyzed: 10/16/2014				
Lead	2.50962	0.050	2.50000	0.047236	98.5	77 - 121	11.5	20	



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/21/2014

STLC Metals by ICP-AES by EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4J0453 - STLC Extraction									
Blank (B4J0453-BLK1)					Prepared: 10/16/2014 Analyzed: 10/17/2014				
Chromium	ND	1.0			NR				
Copper	ND	1.0			NR				
Lead	ND	1.0			NR				
Blank (B4J0453-BLK2)					Prepared: 10/16/2014 Analyzed: 10/17/2014				
Chromium	ND	1.0			NR				
Copper	ND	1.0			NR				
Lead	ND	1.0			NR				
LCS (B4J0453-BS1)					Prepared: 10/16/2014 Analyzed: 10/17/2014				
Chromium	1.96333	1.0	2.00000		98.2	80 - 120			
Copper	2.02321	1.0	2.00000		101	80 - 120			
Lead	1.98784	1.0	2.00000		99.4	80 - 120			
Duplicate (B4J0453-DUP1)					Prepared: 10/16/2014 Analyzed: 10/17/2014				
				Source: 1402935-07					
Chromium	0.162746	1.0		0.178689	NR		9.34	20	
Copper	0.286410	1.0		0.289188	NR		0.965	20	
Lead	30.3524	1.0		30.7392	NR		1.27	20	
Duplicate (B4J0453-DUP2)					Prepared: 10/16/2014 Analyzed: 10/17/2014				
				Source: 1402935-37					
Chromium	0.135998	1.0		0.145846	NR		6.99	20	
Copper	0.327527	1.0		0.340858	NR		3.99	20	
Lead	33.3610	1.0		34.6269	NR		3.72	20	
Matrix Spike (B4J0453-MS1)					Prepared: 10/16/2014 Analyzed: 10/17/2014				
				Source: 1402935-07					
Chromium	2.42633	1.0	2.50000	0.178689	89.9	74 - 121			
Copper	2.53521	1.0	2.50000	0.289188	89.8	62 - 129			
Lead	28.1258	1.0	2.50000	30.7392	-105	44 - 130			M1
Matrix Spike (B4J0453-MS2)					Prepared: 10/16/2014 Analyzed: 10/17/2014				
				Source: 1402935-37					
Chromium	2.44730	1.0	2.50000	0.145846	92.1	74 - 121			
Copper	2.64841	1.0	2.50000	0.340858	92.3	62 - 129			
Lead	34.7305	1.0	2.50000	34.6269	4.15	44 - 130			M1
Matrix Spike Dup (B4J0453-MSD1)					Prepared: 10/16/2014 Analyzed: 10/17/2014				
				Source: 1402935-07					
Chromium	2.68759	1.0	2.50000	0.178689	100	74 - 121	10.2	20	
Copper	2.82580	1.0	2.50000	0.289188	101	62 - 129	10.8	20	
Lead	31.2892	1.0	2.50000	30.7392	22.0	44 - 130	10.6	20	M1



Certificate of Analysis

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
Report To : Luann Beadle
Reported : 10/21/2014

STLC DI Metals by ICP-AES by EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
Batch B4J0509 - STLC DI Extraction								
Blank (B4J0509-BLK1)				Prepared: 10/19/2014 Analyzed: 10/20/2014				
Lead	ND	1.0			NR			
Blank (B4J0509-BLK2)				Prepared: 10/19/2014 Analyzed: 10/20/2014				
Lead	ND	1.0			NR			
LCS (B4J0509-BS1)				Prepared: 10/19/2014 Analyzed: 10/20/2014				
Lead	2.26231	1.0	2.00000		113 80 - 120			
Duplicate (B4J0509-DUP1)				Prepared: 10/19/2014 Analyzed: 10/20/2014				
Lead	ND	1.0		0.183487	NR		20	
Duplicate (B4J0509-DUP2)				Prepared: 10/19/2014 Analyzed: 10/20/2014				
Lead	0.159988	1.0		ND	NR		20	
Matrix Spike (B4J0509-MS1)				Prepared: 10/19/2014 Analyzed: 10/20/2014				
Lead	2.61467	1.0	2.50000	ND	105 70 - 130			
Matrix Spike (B4J0509-MS2)				Prepared: 10/19/2014 Analyzed: 10/20/2014				
Lead	2.72690	1.0	2.50000	0.183487	102 70 - 130			
Matrix Spike Dup (B4J0509-MSD1)				Prepared: 10/19/2014 Analyzed: 10/20/2014				
Lead	2.59886	1.0	2.50000	ND	104 70 - 130	0.606	20	



Certificate of Analysis

Geocon Consultants, Inc.
 6671 Brisa Street
 Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13
 Report To : Luann Beadle
 Reported : 10/21/2014

pH by EPA 9045C - Quality Control

Analyte	Result (pH Units)	PQL (pH Units)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	----------------------	-------------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B4J0518 - Prep_WC_1_S

Duplicate (B4J0518-DUP1)

Source: 1402828-35

Prepared: 10/20/2014 Analyzed: 10/20/2014

pH	6.44000	0.10		6.36000	NR		1.25	20	
----	---------	------	--	---------	----	--	------	----	--

Batch B4J0519 - Prep_WC_1_S

Duplicate (B4J0519-DUP1)

Source: 1402915-09

Prepared: 10/20/2014 Analyzed: 10/20/2014

pH	7.05000	0.10		6.73000	NR		4.64	20	
----	---------	------	--	---------	----	--	------	----	--



Certificate of Analysis

Geocon Consultants, Inc.

6671 Brisa Street

Livermore, CA 94550

Project Number : SR13 SDRP, E8721-02-13

Report To : Luann Beadle

Reported : 10/21/2014

Notes and Definitions

M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Notes:

- (1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
- (2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
- (3) Results are wet unless otherwise specified.

Diane Galvan

From: Luann Beadle [beadle@geoconinc.com]
Sent: Tuesday, October 14, 2014 1:19 PM
To: Diane Galvan
Subject: Lab Order 1402915

Hi Diane,

Please run DI-WET and TCLP lead as well as pH on samples:

1402915-09	B6-0
1402915-06	B5-1
1402915-13	B7-0
1402915-01	B4-0
1402915-05	B5-0

Regular TAT, please.
Thanks,
Luann



Luann Beadle | Senior Staff Scientist
Geocon Consultants, Inc.
6671 Brisa Street, Livermore, California 94550
Tel 925.371.5900 Cell 925.395.1669
www.geoconinc.com

Diane Galvan

From: Luann Beadle [beadle@geoconinc.com]
Sent: Monday, October 13, 2014 2:09 PM
To: Diane Galvan
Subject: E8721-02-13 SR-13 (Lab Order 1402915)

Hi Diane,

Please run the following WET analyses on a regular TAT:

1402915-15	B7-2	Chromium
1402915-21	B9-1	Chromium
1402915-15	B7-2	Copper
1402915-20	B9-0	Lead
1402915-09	B6-0	Lead
1402915-06	B5-1	Lead
1402915-13	B7-0	Lead
1402915-01	B4-0	Lead
1402915-05	B5-0	Lead

Thanks,
Luann



Luann Beadle | *Senior Staff Scientist*
Geocon Consultants, Inc.
6671 Brisa Street, Livermore, California 94550
Tel 925.371.5900 Cell 925.395.1669
www.geoconinc.com

**EMSL Analytical, Inc**

2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577

Phone/Fax: (510) 895-3675 / (510) 895-3680

<http://www.EMSL.com>sanleandrolab@emsl.com

EMSL Order:	091415063
CustomerID:	GECN21
CustomerPO:	E8721-02-13
ProjectID:	E8721-02-xx

Attn: **Luann Beadle**
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Phone: (925) 371-5900
 Fax: (925) 371-5915
 Received: 10/02/14 10:15 AM
 Analysis Date: 10/14/2014
 Collected: 9/30/2014

Project: **E8721-02-13**

Test Report: PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
B1-0 <i>091415063-0001</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B1-10 <i>091415063-0002</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B1-20 <i>091415063-0003</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B1-30 <i>091415063-0004</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B1-40 <i>091415063-0005</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B2-0 <i>091415063-0006</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B2-10 <i>091415063-0007</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected

Analyst(s)

Amanda Sherman (18)
Matthew Batongbacal (8)

Derrick Tanner, Laboratory Manager
 or other approved signatory

This report relates only to the samples listed above and may not be reproduced except in full, without EMSL's written approval. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. EMSL is not responsible for sample collection activities or method limitations. Some samples may contain asbestos fibers below the resolution limit of PLM. EMSL recommends that samples reported as none detected or less than the limit of detection undergo additional analysis via TEM. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc San Leandro, CA

Initial report from 10/14/2014 18:37:19



EMSL Analytical, Inc

2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577

Phone/Fax: (510) 895-3675 / (510) 895-3680

<http://www.EMSL.com>

sanleandrolab@emsl.com

EMSL Order:	091415063
CustomerID:	GECN21
CustomerPO:	E8721-02-13
ProjectID:	E8721-02-xx

Attn: **Luann Beadle**
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Phone: (925) 371-5900
 Fax: (925) 371-5915
 Received: 10/02/14 10:15 AM
 Analysis Date: 10/14/2014
 Collected: 9/30/2014

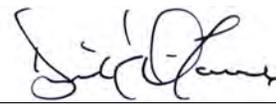
Project: **E8721-02-13**

Test Report: PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
B2-20 <i>091415063-0008</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B2-30 <i>091415063-0009</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B2-40 <i>091415063-0010</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B4-0 <i>091415063-0011</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B4-5 <i>091415063-0012</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B5-0 <i>091415063-0013</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B5-5 <i>091415063-0014</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected

Analyst(s)

 Amanda Sherman (18)
 Matthew Batongbacal (8)



 Derrick Tanner, Laboratory Manager
 or other approved signatory

This report relates only to the samples listed above and may not be reproduced except in full, without EMSL's written approval. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. EMSL is not responsible for sample collection activities or method limitations. Some samples may contain asbestos fibers below the resolution limit of PLM. EMSL recommends that samples reported as none detected or less than the limit of detection undergo additional analysis via TEM. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc San Leandro, CA

Initial report from 10/14/2014 18:37:19



EMSL Analytical, Inc

2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577

Phone/Fax: (510) 895-3675 / (510) 895-3680

<http://www.EMSL.com>

sanleandrolab@emsl.com

EMSL Order:	091415063
CustomerID:	GECN21
CustomerPO:	E8721-02-13
ProjectID:	E8721-02-xx

Attn: **Luann Beadle**
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Phone: (925) 371-5900
 Fax: (925) 371-5915
 Received: 10/02/14 10:15 AM
 Analysis Date: 10/14/2014
 Collected: 9/30/2014

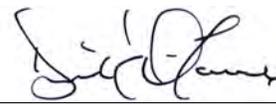
Project: **E8721-02-13**

Test Report: PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
B6-0 <i>091415063-0015</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B6-5 <i>091415063-0016</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B7-0 <i>091415063-0017</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B8-0 <i>091415063-0018</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B8-5 <i>091415063-0019</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	<0.25% Chrysotile
B9-0 <i>091415063-0020</i>		Brown Non-Fibrous Homogeneous		98.50% Non-fibrous (other)	1.50% Chrysotile
B9-5 <i>091415063-0021</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	<0.25% Chrysotile

Analyst(s)

 Amanda Sherman (18)
 Matthew Batongbacal (8)



 Derrick Tanner, Laboratory Manager
 or other approved signatory

This report relates only to the samples listed above and may not be reproduced except in full, without EMSL's written approval. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. EMSL is not responsible for sample collection activities or method limitations. Some samples may contain asbestos fibers below the resolution limit of PLM. EMSL recommends that samples reported as none detected or less than the limit of detection undergo additional analysis via TEM. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc San Leandro, CA

Initial report from 10/14/2014 18:37:19



EMSL Analytical, Inc

2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577

Phone/Fax: (510) 895-3675 / (510) 895-3680

<http://www.EMSL.com>

sanleandrolab@emsl.com

EMSL Order:	091415063
CustomerID:	GECN21
CustomerPO:	E8721-02-13
ProjectID:	E8721-02-xx

Attn: **Luann Beadle**
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

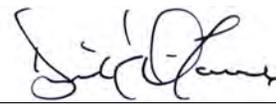
Phone: (925) 371-5900
 Fax: (925) 371-5915
 Received: 10/02/14 10:15 AM
 Analysis Date: 10/14/2014
 Collected: 9/30/2014

Project: **E8721-02-13**

Test Report: PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
B3-0 <i>091415063-0022</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B3-10 <i>091415063-0023</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B3-20 <i>091415063-0024</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	<0.25% Chrysotile
B3-30 <i>091415063-0025</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	<0.25% Chrysotile
B3-40 <i>091415063-0026</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected

Analyst(s)
 Amanda Sherman (18)
 Matthew Batongbacal (8)


 Derrick Tanner, Laboratory Manager
 or other approved signatory

This report relates only to the samples listed above and may not be reproduced except in full, without EMSL's written approval. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. EMSL is not responsible for sample collection activities or method limitations. Some samples may contain asbestos fibers below the resolution limit of PLM. EMSL recommends that samples reported as none detected or less than the limit of detection undergo additional analysis via TEM. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc San Leandro, CA

Initial report from 10/14/2014 18:37:19



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody
EMSL Order Number (Lab Use Only):

#091415063

EMSL ANALYTICAL, INC.
2235 POLVOROSA DR., STE. 230
SAN LEANDRO, CA 94577
PHONE: (510) 895-3675
FAX: (510) 895-3680

Company: GEOCON		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different note instructions in Comments**	
Street: 6671 BRISA ST		Third Party Billing requires written authorization from third party	
City: LIVERMORE	State/Province: CA	Zip/Postal Code: 94550	Country:
Report To (Name): LUANN BEADLE		Fax #:	
Telephone #: 925-371-5900		Email Address: BEADLE@GEOCONINC.COM	
Project Name/Number: EB721-02-13			
Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email		Purchase Order:	U.S. State Samples Taken:

Turnaround Time (TAT) Options* - Please Check

3 Hour
 6 Hour
 24 Hour
 48 Hour
 72 Hour
 96 Hour
 1 Week
 2 Week

*For TEM Air 3 hours/6 hours, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

PCM - Air <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA	TEM - Air <input type="checkbox"/> 4-4.5hr TAT (AHERA only) <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312	TEM - Dust <input type="checkbox"/> Microvac - ASTM D 5755 <input type="checkbox"/> Wipe - ASTM D6480 <input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167)
PLM - Bulk (reporting limit) <input type="checkbox"/> PLM EPA 600/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <input type="checkbox"/> NYS 198.1 (friable in NY) <input type="checkbox"/> NYS 198.6 NOB (non-friable-NY) <input type="checkbox"/> NIOSH 9002 (<1%)	TEM - Bulk <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP <input type="checkbox"/> TEM Mass Analysis-EPA 600 sec 2.5	Soil/Rock/Vermiculite <input checked="" type="checkbox"/> PLM CARB 435 - A (0.25% sensitivity) <input type="checkbox"/> PLM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - C (0.01% sensitivity) <input type="checkbox"/> EPA Protocol (Semi-Quantitative) <input type="checkbox"/> EPA Protocol (Quantitative)
TEM - Water: EPA 100.2 Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking		Other: <input type="checkbox"/>

Check For Positive Stop - Clearly Identify Homogenous Group

Samplers Name: **CHRIS GIUNTOU**
CHRIS MERRIT

Samplers Signature: *Chris Merritt*
CHRIS MERRIT

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
B1-0	SOIL		9/29/14
B1-10	↓		↓
B1-20			
B1-30			
B1-40			
B2-0			
B2-10			
B2-20			

Client Sample # (s): - Total # of Samples:

Relinquished (Client): *Theresa Grant* Date: **10/2/14** Time: **10:18**

Received (Lab): *Chris Merritt* Date: **10/2/14** Time: **10:15am**

Comments/Special Instructions: **(W-11)**



EMSL ANALYTICAL, INC.
LABORATORY PRODUCTS TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only)

EMSL ANALYTICAL, INC.
2235 POLVOROSA DR., STE 230
SAN LEANDRO, CA 94577
PHONE: (510) 895-3675
FAX: (510) 895-3680

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled	
B2-30	SOIL		9/29/14	
B2-40	↓			
B4-0				
B4-5				
B5-0				
B5-5				
B6-0				
B6-5				
B7-0				
B8-0				
B8-5				
B9-0				
B9-5				↓
B3-0				9/30/14
B3-10				↓
B3-20				↓
*Comments/Special Instructions:				



EMSL ANALYTICAL, INC
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only)

#091415063

EMSL ANALYTICAL, INC.
2235 POLVOROSA DR., STE. 230
SAN LEANDRO, CA 94577
PHONE: (510) 895-3675
FAX: (510) 895-3680

Company: GEOCON		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different <small>If Bill to is Different note instructions in Comments**</small>	
Street: 6671 BRISA ST		<i>Third Party Billing requires written authorization from third party</i>	
City: LIVERMORE	State/Province: CA	Zip/Postal Code: 94550	Country:
Report To (Name): Lv Ann Beadle		Fax #:	
Telephone #: 925-371-5900		Email Address: beadle@geoconinc.com	
Project Name/Number: E8721-02-13			
Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email		Purchase Order: _____ U.S. State Samples Taken: _____	

Turnaround Time (TAT) Options* - Please Check

3 Hour
 6 Hour
 24 Hour
 48 Hour
 72 Hour
 96 Hour
 1 Week
 2 Week

*For TEM Air 3 hours/6 hours, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide

PCM - Air <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA PLM - Bulk (reporting limit) <input type="checkbox"/> PLM EPA 600/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <input type="checkbox"/> NYS 198 1 (friable in NY) <input type="checkbox"/> NYS 198 6 NOB (non-friable-NY) <input type="checkbox"/> NIOSH 9002 (<1%)	TEM - Air <input type="checkbox"/> 4-4.5hr TAT (AHERA only) <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312 TEM - Bulk <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP <input type="checkbox"/> TEM Mass Analysis-EPA 600 sec 2.5 TEM - Water: EPA 100.2 Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking	TEM- Dust <input type="checkbox"/> Microvac - ASTM D 5755 <input type="checkbox"/> Wipe - ASTM D6480 <input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167) Soil/Rock/Vermiculite <input checked="" type="checkbox"/> PLM CARB 435 - A (0.25% sensitivity) <input type="checkbox"/> PLM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - C (0.01% sensitivity) <input type="checkbox"/> EPA Protocol (Semi-Quantitative) <input type="checkbox"/> EPA Protocol (Quantitative) Other: <input type="checkbox"/>
--	---	---

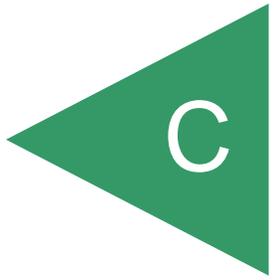
Check For Positive Stop - Clearly Identify Homogenous Group

Samplers Name: Chris Girotoli John Love	Samplers Signature: <i>[Signature]</i>
--	--

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
B3-30	soil		9/30/14
B3-40	↓		↓

Client Sample # (s): _____	Total # of Samples: _____
Relinquished (Client): <i>[Signature]</i> Date: 10/2/14	Time: 7:01B
Received (Lab): <i>[Signature]</i> Date: 10/2/14	Time: 10:15am
Comments/Special Instructions: (w/)	

APPENDIX



PROJECT NO. **E8721-02-13 SR13 STORM DAMAGE REPAIR**

DEPTH IN FEET	BLOW COUNT	SAMPLE NO.	LITHOLOGY	BORING NO. B1		SOIL (USCS)	HEADSPACE (PPM)
				DATE DRILLED <u>9/29/2014</u>	WATER LEVEL (ATD) <u>38.5'</u>		
				EQUIPMENT <u>Marl M-11</u> DRILLER <u>Gregg Drilling</u>			
SOIL DESCRIPTION							
1	26	B1-0 1030	ASPHALT CONCRETE	ASPHALT CONCRETE		GP	
2		B1-1 1035	AGGREGATE BASE	AGGREGATE BASE			
3		B1-2 1040	Dense, humid, light gray green, Sandy GRAVEL	Dense, humid, light gray green, Sandy GRAVEL			
4							
5	22	B1-5 1045	Stiff, moist/humid, light grayish green to brown/dark brown, mixed CLAY with gravel and sand	Stiff, moist/humid, light grayish green to brown/dark brown, mixed CLAY with gravel and sand		CL	
6							
7							
8	25		Stiff, moist, brown, Gravelly Silty CLAY	Stiff, moist, brown, Gravelly Silty CLAY		CL	
9							
10		B1-10 1050	Stiff, moist, brown, Gravelly Silty CLAY	Stiff, moist, brown, Gravelly Silty CLAY			
11							
12	18		Medium dense, moist, gray and rust brown, Sandy GRAVEL with clay	Medium dense, moist, gray and rust brown, Sandy GRAVEL with clay		GC	
13							
14							
15							
16							
17							
18							
19	18	B1-20	Stiff, moist, gray and brown and rust, Sandy CLAY with gravel	Stiff, moist, gray and brown and rust, Sandy CLAY with gravel		CL	
20							
21							
22							
23							
24							

Log of Boring B1, page 1 of 2

ENV_NO_WELL E8721-02-13 SR 13 BORING LOGS.GPJ 10/09/14

BORING ELEVATION:	ENGINEER/GEOLOGIST: Chris Merritt
-------------------	--

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **E8721-02-13 SR13 STORM DAMAGE REPAIR**

DEPTH IN FEET	BLOW COUNT	SAMPLE NO.	LITHOLOGY	BORING NO. B1		SOIL (USCS)	HEADSPACE (PPM)
				DATE DRILLED <u>9/29/2014</u>	WATER LEVEL (ATD) <u>38.5'</u>		
				EQUIPMENT <u>Marl M-11</u>	DRILLER <u>Gregg Drilling</u>		
SOIL DESCRIPTION							
26				- wet area			
27							
28							
29							
30	50/5	B1-30		Very dense, moist, brown/variable, Sandy GRAVEL with clay		GC	
31							
32							
33							
34							
35							
36							
37							
38							
39	35	B1-40		Dense, wet, yellowish brown, Clayey Sandy GRAVEL		GC	
40							
				BORING TERMINATED AT 40.5 FEET GROUNDWATER SAMPLED AT 1130			

Log of Boring B1, page 2 of 2

ENV_NO_WELL E8721-02-13 SR 13 BORING LOGS.GPJ 10/09/14

BORING ELEVATION:	ENGINEER/GEOLOGIST: Chris Merritt
-------------------	--

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **E8721-02-13 SR13 STORM DAMAGE REPAIR**

DEPTH IN FEET	BLOW COUNT	SAMPLE NO.	LITHOLOGY	BORING NO. B2		SOIL (USCS)	HEADSPACE (PPM)
				DATE DRILLED <u>9/29/2014</u>	WATER LEVEL (ATD) _____		
				EQUIPMENT <u>Marl M-11</u>			
				DRILLER <u>Gregg Drilling</u>			
SOIL DESCRIPTION							
1	22	B2-0 1255		ASPHALT CONCRETE		GP	
2	33	B2-1 1300		AGGREGATE BASE Medium dense, humid, brown to light gray green, Sandy			
3		B2-2 1300		GRAVEL Stiff, humid, brown, Silty CLAY, root noted		CL	
4							
5	18	B2-5 1305		Stiff, moist, brown, Gravelly CLAY		CL	
6							
7						CL	
8							
9						CL	
10	13	B2-10 1310		Medium stiff, moist, brown, CLAY, some sand and gravel			
11						CL	
12							
13						CL	
14							
15						CL	
16							
17						CL	
18							
19						CL	
20	22	B2-20		Stiff, moist, brown/dark brown, Gravelly Sandy CLAY (mixed, looks like fill)			
21						CL	
22							
23						CL	
24							

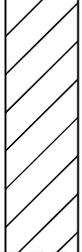
Log of Boring B2, page 1 of 2

ENV_NO_WELL E8721-02-13 SR 13 BORING LOGS.GPJ 10/09/14

BORING ELEVATION:	ENGINEER/GEOLOGIST: Chris Merritt
-------------------	--

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **E8721-02-13 SR13 STORM DAMAGE REPAIR**

DEPTH IN FEET	BLOW COUNT	SAMPLE NO.	LITHOLOGY	BORING NO. B2		SOIL (USCS)	HEADSPACE (PPM)
				DATE DRILLED <u>9/29/2014</u>	WATER LEVEL (ATD) _____		
				EQUIPMENT <u>Marl M-11</u>		DRILLER <u>Gregg Drilling</u>	
SOIL DESCRIPTION							
26							
27							
28							
29							
30	40	B2-30 1325		Stiff, moist, light orange brown, Gravelly Sandy CLAY - wet		CL	
31							
32				- transitions to medium dense, wet, orange/yellow brown, Clayey			
33				GRAVEL with sand			
34							
35							
36							
37							
38							
39							
40	27	B2-40 1340		Medium dense, moist, brown/rusty, Clayey Sandy GRAVEL		GC	
				BORING TERMINATED AT 40.5 FEET			

Log of Boring B2, page 2 of 2

ENV_NO_WELL E8721-02-13 SR 13 BORING LOGS.GPJ 10/09/14

BORING ELEVATION:	ENGINEER/GEOLOGIST: Chris Merritt
-------------------	--

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **E8721-02-13 SR13 STORM DAMAGE REPAIR**

DEPTH IN FEET	BLOW COUNT	SAMPLE NO.	LITHOLOGY	BORING NO. B3		SOIL (USCS)	HEADSPACE (PPM)		
				DATE DRILLED <u>9/30/2014</u>	WATER LEVEL (ATD) _____				
				EQUIPMENT <u>Marl M-11</u>		DRILLER <u>Gregg Drilling</u>			
SOIL DESCRIPTION									
1	20	B3-0		ASPHALT CONCRETE		GW			
2		1030		Slightly dense, slightly moist, brown to light brown, Sandy GRAVEL					
3		B3-1							
4		1035							
5	11	B3-5		Stiff, slightly moist, reddish brown, Silty SAND, some fine gravel		SM			
6		1040							
7									
8	13	B3-10		Medium stiff, moist, brown and black, Sandy CLAY		CL			
10				1045					
11									
12									
13	39	B3-20		Stiff, moist, orangeish brown, Gravelly Sandy CLAY		CL			
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									

Log of Boring B3, page 1 of 2

ENV_NO_WELL E8721-02-13 SR 13 BORING LOGS.GPJ 10/09/14

BORING ELEVATION:	ENGINEER/GEOLOGIST: John Love
-------------------	--------------------------------------

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **E8721-02-13 SR13 STORM DAMAGE REPAIR**

DEPTH IN FEET	BLOW COUNT	SAMPLE NO.	LITHOLOGY	BORING NO. B3		SOIL (USCS)	HEADSPACE (PPM)
				DATE DRILLED <u>9/30/2014</u>	WATER LEVEL (ATD) _____		
				EQUIPMENT <u>Marl M-11</u>			
				DRILLER <u>Gregg Drilling</u>			
SOIL DESCRIPTION							
26							
27							
28							
29							
30	23	B3-30 1100		Loose, saturated, Sandy GRAVEL		GW	
31							
32							
33							
34							
35							
36							
37							
38							
39		B3-40 1115		- weathered melange, saturated, variegated			
40							
BORING TERMINATED AT 40 FEET							

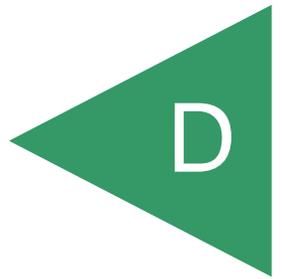
Log of Boring B3, page 2 of 2

ENV_NO_WELL E8721-02-13 SR 13 BORING LOGS.GPJ 10/09/14

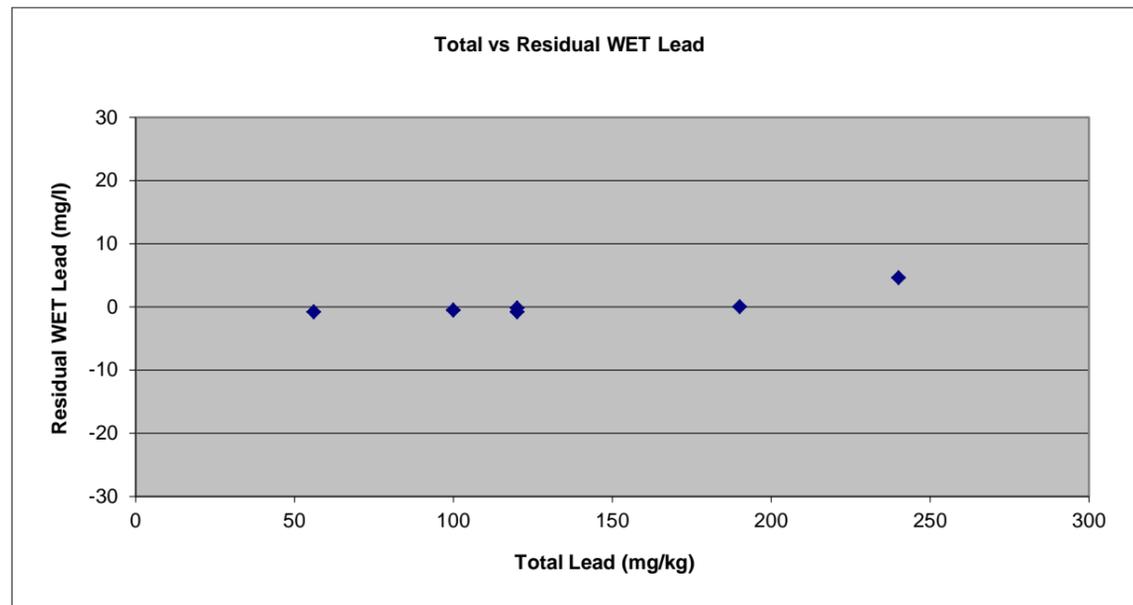
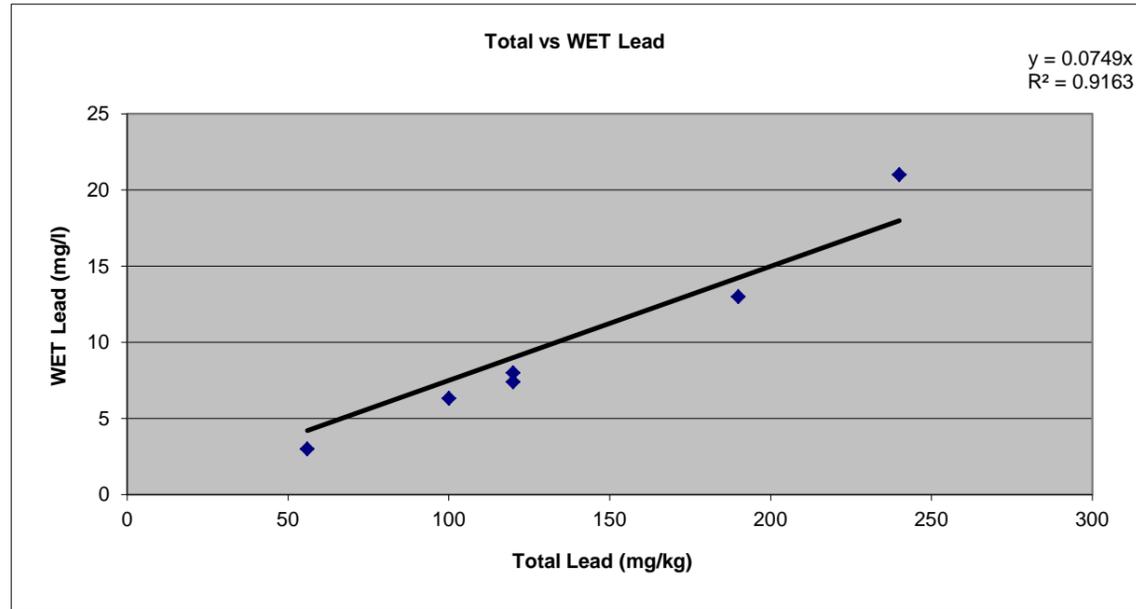
BORING ELEVATION:	ENGINEER/GEOLOGIST: John Love
-------------------	--------------------------------------

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

APPENDIX



Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	Residual WET Lead (mg/l)	Squared Residual WET Lead (mg/l)
B4-0	0 to 0.5	190	13	0.00	0.00
B7-0	0 to 0.5	120	8.0	-0.21	0.04
B6-0	0 to 0.5	100	6.3	-0.54	0.29
B5-1	1 to 1.5	120	7.4	-0.81	0.66
B9-0	0 to 0.5	56	3.0	-0.83	0.69
B5-0	0 to 0.5	240	21	4.58	20.97



Pb - 0

Number of Valid Observations	9
Number of Distinct Observations	9
Minimum	1.9
Maximum	240
Mean	84.4
Median	56
SD	86.11
Variance	7415
Coefficient of Variation	1.02
Skewness	0.819
Mean of log data	3.381
SD of log data	1.996
90% Standard Bootstrap UCL	119
95% Standard Bootstrap UCL	128

Pb - 1

Number of Valid Observations	9
Number of Distinct Observations	9
Minimum	0.5
Maximum	120
Mean	23.3
Median	9.8
SD	37.82
Variance	1431
Coefficient of Variation	1.622
Skewness	2.579
Mean of log data	2.093
SD of log data	1.701
90% Standard Bootstrap UCL	38.7
95% Standard Bootstrap UCL	42.6

Pb - 2

Number of Valid Observations	9
Number of Distinct Observations	7
Minimum	8.3
Maximum	19
Mean	10.8
Median	9.4
SD	3.434
Variance	11.79
Coefficient of Variation	0.318
Skewness	1.983
Mean of log data	2.343
SD of log data	0.272
90% Standard Bootstrap UCL	12.2
95% Standard Bootstrap UCL	12.6

Pb - 5

Number of Valid Observations	8
Number of Distinct Observations	8
Minimum	6.8
Maximum	19
Mean	11.2
Median	9.05
SD	4.792
Variance	22.97
Coefficient of Variation	0.428
Skewness	1.039
Mean of log data	2.343
SD of log data	0.395
90% Standard Bootstrap UCL	13.2
95% Standard Bootstrap UCL	13.8

Pb - Site

Number of Valid Observations	35
Number of Distinct Observations	29
Minimum	0.5
Maximum	240
Mean	33.0
Median	9.8
SD	55.28
Variance	3056
Coefficient of Variation	1.673
Skewness	2.575
Mean of log data	2.545
SD of log data	1.388
95% Standard Bootstrap UCL	48.0

As

Number of Valid Observations	5
Number of Distinct Observations	5
Minimum	1
Maximum	10
Mean	6.28
Median	6.6
SD	3.354
Variance	11.25
Coefficient of Variation	0.534
Skewness	-1.001
Mean of log data	1.605
SD of log data	0.921
95% Standard Bootstrap UCL	8.49

Ni

Number of Valid Observations	5
Number of Distinct Observations	5
Minimum	42
Maximum	180
Mean	93.4
Median	49
SD	66.26
Variance	4391
Coefficient of Variation	0.709
Skewness	0.717
Mean of log data	4.332
SD of log data	0.707
95% Standard Bootstrap UCL	137

TPHd

Number of Valid Observations	12
Number of Distinct Observations	12
Minimum	0.5
Maximum	340
Mean	44.6
Median	6.15
SD	96.35
Variance	9283
Coefficient of Variation	2.159
Skewness	3.081
Mean of log data	2.112
SD of log data	1.961
95% Standard Bootstrap UCL	87.2

TPHmo

Number of Valid Observations	12
Number of Distinct Observations	12
Minimum	1.3
Maximum	1500
Mean	171
Median	16.5
SD	425.4
Variance	180998
Coefficient of Variation	2.483
Skewness	3.273
Mean of log data	3.029
SD of log data	2.172
95% Standard Bootstrap UCL	366