PRELIMINARY SITE INVESTIGATION REPORT

HIGHWAY 17 VINE HILL ROAD IMPROVEMENT PROJECT SANTA CRUZ COUNTY, CALIFORNIA

PREPARED FOR:
CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 5
50 HIGUERA STREET
SAN LUIS OBISPO, CALIFORNIA

Caltrans

PREPARED BY:
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GEOCON

GEOCON PROJECT NO. S9200-06-57
CALTRANS EA 05-0P8100

FEBRUARY 2009

GEOCON
CONSULTANTS, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. S9200-06-57
February 18, 2009

Mr. Isaac Leyva
California Department of Transportation - District 5
Central Region Environmental Analysis
50 Higuera Street
San Luis Obispo, California 93401

Subject: HIGHWAY 17 VINE HILL ROAD IMPROVEMENT PROJECT
SANTA CRUZ COUNTY, CALIFORNIA
CONTRACT NO. 06A1141
TASK ORDER NO. 57, EA NO. 05-0P8100
PRELIMINARY SITE INVESTIGATION REPORT

Dear Mr. Leyva:

In accordance with California Department of Transportation (Caltrans) Contract No. 06A1141, Task Order Number 57, and Expense Authorization 05-0P8100, Geocon Consultants, Inc. has performed environmental engineering services for the subject project. The project area consists of the unpaved northbound shoulder areas of Highway 17 between Post Miles (PM) 7.2 and 7.3 in Santa Cruz County, California. The accompanying report summarizes the services performed, including the advancement of hand-auger borings, soil sampling, and laboratory testing.

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.

Please contact us if there are any questions concerning the contents of this report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

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Senior Staff Geologist

Richard Day, CEG, CHG
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TABLE OF CONTENTS

PRELIMINARY SITE INVESTIGATION REPORT Page

PRELIMINARY SITE INVESTIGATION REPORT

1.0 INTRODUCTION

This Preliminary Site Investigation Report for the Highway 17 Vine Hill Road Improvement project was prepared by Geocon Consultants, Inc. under California Department of Transportation (Caltrans) Contract No. 06A1141, Task Order Number 57 (TO-57), and Expense Authorization (EA) 05-0P8100.

1.1 Project Description and Proposed Improvements

The project area consists of the unpaved northbound shoulder of Highway 17 (SR17) between Post Miles (PM) 7.2 and 7.3 (the Site) in Santa Cruz County, California. Proposed improvements include northbound shoulder widening and construction of a retaining wall. The approximate project location is depicted on the Vicinity Map, Figure 1.

1.2 General Objectives

The purpose of the scope of services outlined in TO-57 was to evaluate whether impacts due to metals, including aerially deposited lead (ADL) from motor vehicle exhaust, exist in the surface and near surface soils within the project boundaries. The investigative results will be used by Caltrans to inform the construction contractor(s) if metals-impacted soil is present within the project boundaries for health, safety, management, and disposal evaluation purposes.

2.0 BACKGROUND

2.1 Potential Lead Soil Impacts

Ongoing testing by Caltrans throughout California has indicated that ADL exists along major freeway routes due to emissions from vehicles powered by leaded gasoline. At sites where soil has not been disturbed, the ADL is generally limited to the upper 2 feet of soil within unpaved shoulder and median areas.

2.2 Hazardous Waste Determination Criteria

Regulatory criteria to classify a waste as "California hazardous" for handling and disposal purposes are contained in the California Code of Regulations (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 total metal content exceeds the respective Total Threshold Limit Concentration (TTLC); or 2) the soluble metal content exceeds the respective Soluble Threshold Limit Concentration (STLC) based on the standard Waste Extraction Test (WET). A waste may have 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 soluble metal content exceeds the Federal regulatory level based on the Toxicity Characteristic Leaching Procedure (TCLP). The TTLC value for lead is 1,000 milligrams per kilogram (mg/kg). The STLC and TCLP values for lead are both 5.0 milligrams per liter (mg/l).

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., 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 corrosivity. Waste that is classified as either California hazardous or RCRA hazardous requires management as a hazardous waste.

The Department of Toxic Substances Control (DTSC) regulates and interprets hazardous waste laws in California. DTSC generally considers excavated or transported materials that exhibit "hazardous waste" characteristics to be a "waste" requiring proper management, treatment and disposal. Soil that contains lead above hazardous waste thresholds and is left in-place would not be necessarily classified by DTSC as a "waste." The DTSC has provided site-specific determinations that "movement of wastes within an area of contamination does not constitute "land disposal" and, thus, does not trigger hazardous waste disposal requirements." Therefore, lead-impacted soil that is scarified in-place, moisture-conditioned, and recompacted during roadway improvement activities might not be considered a "waste." DTSC should be consulted to confirm waste classification. It is noted that in addition to DTSC regulations, health and safety requirements and other local agency requirements may also apply to the handling and disposal of lead-impacted soil.

2.3 Environmental Screening Levels

The San Francisco Bay Regional Water Quality Control Board (SFRWQCB) has prepared a technical report entitled *Screening For Environmental Concerns At Sites With Contaminated Soil and Groundwater, Interim Final* (November 2007), which presents Environmental Screening Levels (ESLs) for soil, groundwater, soil gas, and surface water, to assist in evaluating sites impacted by releases of hazardous chemicals The ESLs are conservative values for more than 100 commonly detected contaminants, which may be used to compare with environmental data collected at a site. ESLs are strictly risk assessment tools and "not regulatory clean up standards." The presence of a chemical at concentrations in excess of an ESL does not necessarily indicate that adverse impacts to human health or the environment are occurring; this simply indicates that a potential for adverse risk may exist and that additional evaluation is or "may be" warranted (SFRWQCB, 2007).

The most restrictive ESL table was used for this characterization: *Table A – Shallow Soil (≤3 meters below ground surface; bgs) – Groundwater is a Current or Potential Source of Drinking Water*. The respective ESLs are listed at the end of Table 3 for comparative purposes.

3.0 SCOPE OF SERVICES

We performed the following scope of services as requested by Caltrans in TO-57:

3.1 Pre-field Activities

- Prepared the *Aerially-Deposited Lead Site Investigation Workplan*, dated December 16, 2008, which was verbally approved by Caltrans in the field on January 9, 2009.
- Prepared a *Health and Safety Plan* dated December 16, 2008, to provide guidelines on the use of personal protective equipment and the health and safety procedures implemented during the field activities.
- Retained the services of Advanced Technology Laboratories (ATL) to perform the chemical analysis of soil samples.
- Notified Underground Service Alert (USA) at least 48 hours prior to fieldwork.

3.2 Field Activities

Field activities were completed on January 9, 2009, and consisted of collecting a total of 36 soil samples along the unpaved northbound shoulder of SR17 from six hand-auger borings (NB-1 through NB-6) at the following depth intervals:

0 to 0.5 feet	4.0 to 4.5 feet
1.0 to 1.5 feet	6.0 to 6.5 feet
2.0 to 2.5 feet	8.0 to 8.5 feet

4.0 INVESTIGATIVE METHODS

4.1 Boring Location Rationale

Soil boring locations were designated by Caltrans. The borings were advanced along the northbound SR-17 shoulder, approximately 6 feet from the edge of pavement (EOP). Boring coordinates were determined using a differential global positioning system (GPS). The GPS equipment was used to locate the position of each boring with an error of no more than one meter. Boring coordinates are summarized in Table 1 and boring locations are depicted on the Site Plan, Figure 2.

4.2 Sampling Procedures

Sample depths were determined in the field using a tape measure. Soil borings were advanced using hand auger methods. Soil samples were collected in pre-cleaned plastic or metal containers, labeled,

and placed into a chilled cooler for transport to the laboratory. The soil samples were delivered to ATL for analytical testing under chain-of-custody (COC) documentation.

Quality assurance/quality control (QA/QC) procedures performed during the field activities included decontamination of sampling equipment before each boring was advanced. The soil sampling equipment was cleansed between each boring by washing the equipment with an Alconox™ solution followed by a double rinse with deionized water. The borings were backfilled with the soil cuttings generated at each location. The decontamination water was discharged to the ground surface away from surface water bodies or storm drain inlets. The field sampling activities were performed under the supervision of Geocon's field manager.

4.3 Laboratory Analyses

ATL was instructed to homogenize the total lead soil samples prior to analysis in accordance with Contract 06A1141 requirements. The soil samples were analyzed for the following under a routine seven-day turn-around-time (TAT).

- A total of 33 soil samples for total lead following United States Environmental Protection Agency (EPA) Test Method 6010B.
- Three randomly selected soil samples for Title 22 (CAM17) metals using EPA Test Methods 6010B/7471A.
- A total of 21 soil samples with total lead concentrations greater than or equal to 50 mg/kg (i.e. ten times the lead STLC of 5.0 mg/l) were further analyzed for soluble WET lead by EPA Test Method 6010B.
- A total of 16 soil samples with soluble WET lead concentrations greater than the STLC of 5.0 mg/l and total lead concentrations exceeding 100 mg/kg were further analyzed for soluble TCLP lead using EPA Test Method 1311.
- Three randomly selected soil samples for soil pH by EPA Test Method 9045.

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 the spike made at ten times the detection limit or at the analyte level.

Prior to submitting the soil samples to the laboratory, the COC documentation was reviewed for accuracy and completeness. Reproductions of the laboratory reports and COC documentation are presented in Appendix A.

5.0 FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS

5.1 Site Conditions

Soil encountered during the advancement of borings generally consisted of loamy and silty sand to the maximum depth explored of approximately 8.5 feet. Groundwater was not encountered during the advancement of the soil borings.

5.2 Soil Analytical Results

The soil analytical results are presented in Tables 2 and 3 and are summarized as follows:

- Total lead was reported in the soil samples at concentrations ranging from less than the laboratory reporting limit of 5.0 to 700 mg/kg.
- The following CAM17 metals were reported in the soil samples at concentrations below ten times their respective STLCs: arsenic, barium, chromium, cobalt, copper, nickel, selenium, vanadium, and zinc. Remaining CAM17 metals were not detected above their respective laboratory reporting limits.
- Soluble WET lead was reported in the 21 soil samples analyzed at concentrations ranging from 3.3 to 73 mg/l, with 19 soil samples exceeding the lead STLC of 5.0 mg/l.
- Soluble TCLP lead was reported in the 16 samples analyzed at concentrations ranging from 0.30 to 2.8 mg/l.
- Soil pH values ranged from 4.6 to 6.5.

5.3 Laboratory Quality Assurance/Quality Control

We reviewed the analytical laboratory QA/QC data provided with the laboratory report. These data show acceptable non-detect results and surrogate recoveries for the method blanks and acceptable recoveries and relative percent differences (RPDs) for the matrix spikes and matrix spike duplicates (MS/MSDs), with some exceptions. The RPDs for several of the analyses were outside criteria, and a number of the samples required dilution. However, the laboratory report indicated that the analytical batches were validated by the Laboratory Control Sample (LCS).

Based on the laboratory QA/QC results, no additional qualification of the data presented herein is necessary, and the data are of sufficient quality for the purposes of this report.

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 soluble lead concentrations exists that would allow the prediction of soluble lead concentrations based on calculated UCLs. The statistical methods used are discussed in a book entitled *Statistical Methods for Environmental Pollution Monitoring,* by Richard Gilbert (1987); in an EPA *Technology Support Center Issue* document entitled, *The Lognormal Distribution in Environmental Applications,* by Ashok Singh et. al., (December 1997); and in a book entitled *An Introduction to the Bootstrap,* by Bradley Efron and Robert J. Tibshirani (1993).

The lead data for the Site were treated as a single sample population for statistical evaluation, which consisted of the samples collected from borings NB-1 through NB-6.

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 used to calculate the UCLs are discussed in the previously referenced EPA document and in *An Introduction to the Bootstrap.* For those samples in which total lead was not detected at concentrations exceeding the laboratory test method reporting limit (MRL), a value equal to one-half of the detection limit was used in the UCL calculation. The bootstrap results are included in Appendix B. The calculated UCLs and statistical results are summarized in the following table.

Northbound Shoulder Borings (NB-1 through NB-6)

SAMPLE INTERVAL (feet)	90% TOTAL LEAD UCL (mg/kg)	95% TOTAL LEAD UCL (mg/kg)	TOTAL LEAD MEAN (mg/kg)	MINIMUM VALUE (mg/kg)	MAXIMUM VALUE (mg/kg)
0 to 0.5	290.9	312.4	215.5	45	480
1.0 to 1.5	326.1	344.1	261.3	98	430
2.0 to 2.5	324.3	356.7	222.8	23	630
4.0 to 4.5	316.0	354.4	191.3	9.6	700
6.0 to 6.5	46.7	50.4	33.8	6.0	75
8.0 to 8.5	14.1	15.4	8.7	2.5	32

5.4.2 Correlation of Total and Soluble Lead

Total and corresponding soluble WET lead concentrations are bivariate data with a linear structure. This linear structure should allow for the prediction of soluble WET lead concentrations based on the maximum total lead concentrations and the UCLs calculated above in Section 5.4.1.

To estimate the degree of interrelation between total and corresponding soluble 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 21 (*x, y*) data points (i.e., soil samples analyzed for both total lead [*x*] and soluble WET lead [*y*]). The resulting *coefficient of determination* (r^2) equaled 0.843, which yields a corresponding *correlation coefficient* (*r*) of 0.918.

For the *correlation coefficient* that indicates a linear relationship between total and soluble 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 $y = 0.087(x)$, where *x* represents total lead concentrations and *y* represents predicted soluble lead WET concentrations.

This equation was used to estimate the expected WET soluble lead concentrations for the maximum total lead concentrations and the UCLs calculated in for samples collected from the Site (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 B. The predicted soluble WET lead concentrations for the soil samples collected at the Site are summarized in Table 4.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Waste classifications are evaluated based on the 90% UCL of the lead content for the relevant excavation depths; this has historically been considered sufficient to satisfy a good faith effort by the EPA as discussed in SW-846. Risk assessment characterization is based on the 95% UCL of the lead content in the waste for the relevant depths; this is in accordance with the Risk Assessment Guidance for Superfund (RAGS) Volume 1 Documentation for Exposure Assessment. Per Caltrans, the 90% UCLs are to be used to evaluate onsite reuse and the 95% UCLs are to be used to evaluate offsite disposal.

6.1 Predicted Soluble Lead

The following table summarizes the predicted soluble WET lead concentrations and the waste classification for excavated soil based on the calculated total lead UCLs and the relationship between total and soluble WET lead for data collected at the Site. The total and soluble WET lead calculations are summarized in Table 4.

	90% UCL		**95% UCL**		
Excavation Depth	**Total Lead (mg/kg)**	**Predicted WET Lead (mg/l)**	**Total Lead (mg/kg)**	**Predicted WET Lead (mg/l)**	**Waste Classification**
0 to 1.0 ft	291	**25**	312	**27**	**Hazardous**
Underlying soil (1.0 to 8.5 ft)	*228*	***20***	*250*	***22***	***Hazardous***
0 to 2.0 ft	309	**27**	328	**29**	**Hazardous**
Underlying soil (2.0 to 8.5 ft)	*212*	***18***	*235*	***20***	***Hazardous***
0 to 4.0 ft	316	**28**	342	**30**	**Hazardous**
Underlying soil (4.0 to 8.5 ft)	163	**14**	182	**16**	***Hazardous***
0 to 6.0 ft	316	**28**	346	**30**	**Hazardous**
Underlying soil (6.0 to 8.5 ft)	40	3.5	43	3.8	*Non-Hazardous*
0 to 8.0 ft	249	**22**	272	**24**	**Hazardous**
Underlying soil (8.0 to 8.5 ft)	14	1.2	15	1.3	*Non-Hazardous*
0 to 8.5 ft	235	**20**	257	**22**	**Hazardous**

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

Based on the data presented in the table above, soil excavated from the surface to a depth of 6.0 feet would be classified as a California hazardous waste, since the 90% UCL-predicted soluble (WET) lead concentration is greater than the lead STLC of 5.0 mg/l. Consequently, if excavated separately, the top 6.0 feet of soil should be either (1) managed and disposed of as a California hazardous waste or (2) stockpiled and resampled to confirm waste classification in accordance with specific disposal facility acceptance criteria, if applicable. Underlying soil would not be considered a hazardous waste based on

lead content. Additionally, if excavated as a whole, soil from the surface to depths of 8.5 feet should also be managed as California hazardous waste or resampled to confirm waste classification.

Based on the soluble TCLP lead concentrations, soil will not be classified as a RCRA hazardous waste.

6.2 Other CAM 17 Metals

Based on the total CAM17 metals concentrations, with the exception of lead, soil excavated from the Site would not be considered a hazardous waste.

The CAM17 metals concentrations in soil were compared to ESLs (SFRWQCB, November 2007, Table A) and with published background levels typically found in California soils as presented in *Background Concentrations of Trace and Major Elements in California Soils* (Kearney Foundation of Soil Science, Division of Agriculture and Natural Resources, University of California, March 1996). Reported arsenic concentrations were between 4.3 and 4.6 mg/kg, exceeding the residential land use ESL of 0.38 mg/kg and the commercial/industrial land use ESL of 1.5 mg/kg for shallow soil (≤3 meters; SFRWQCB, Table A). In addition, vanadium was detected in the soil samples at concentrations between 40 and 57 mg/kg, exceeding the residential land use ESL of 15 mg/kg for shallow soil.

The maximum arsenic and vanadium concentrations, ESLs, and published background concentrations are summarized in the table below:

Metal	Maximum	Residential ESL	Commercial/ Industrial ESL	PUBLISHED BACKGROUND MEAN[1]	PUBLISHED BACKGROUND RANGE [1]
Arsenic	4.6	0.38	1.5	3.5	0.6 to 11.0
Vanadium	57	15	190	112	39 to 288

Concentrations reported in milligrams per kilogram (mg/kg); [1] Kearney Foundation of Soil Science, March 1996

The maximum reported concentration of arsenic for soil samples collected at the Site is greater than the ESLs; however is within the published background concentration 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 (Kearney Foundation of Soil Science, 1996).

The maximum reported vanadium concentration in the soil samples collected at the Site is greater than the residential land use ESL, and is less than both the commercial/industrial land use ESL and published background concentrations.

Based on the maximum reported arsenic and vanadium concentrations, and comparisons to ESLs and the published background concentrations, offsite disposal of soil may be restricted based on metals content, depending on proposed use.

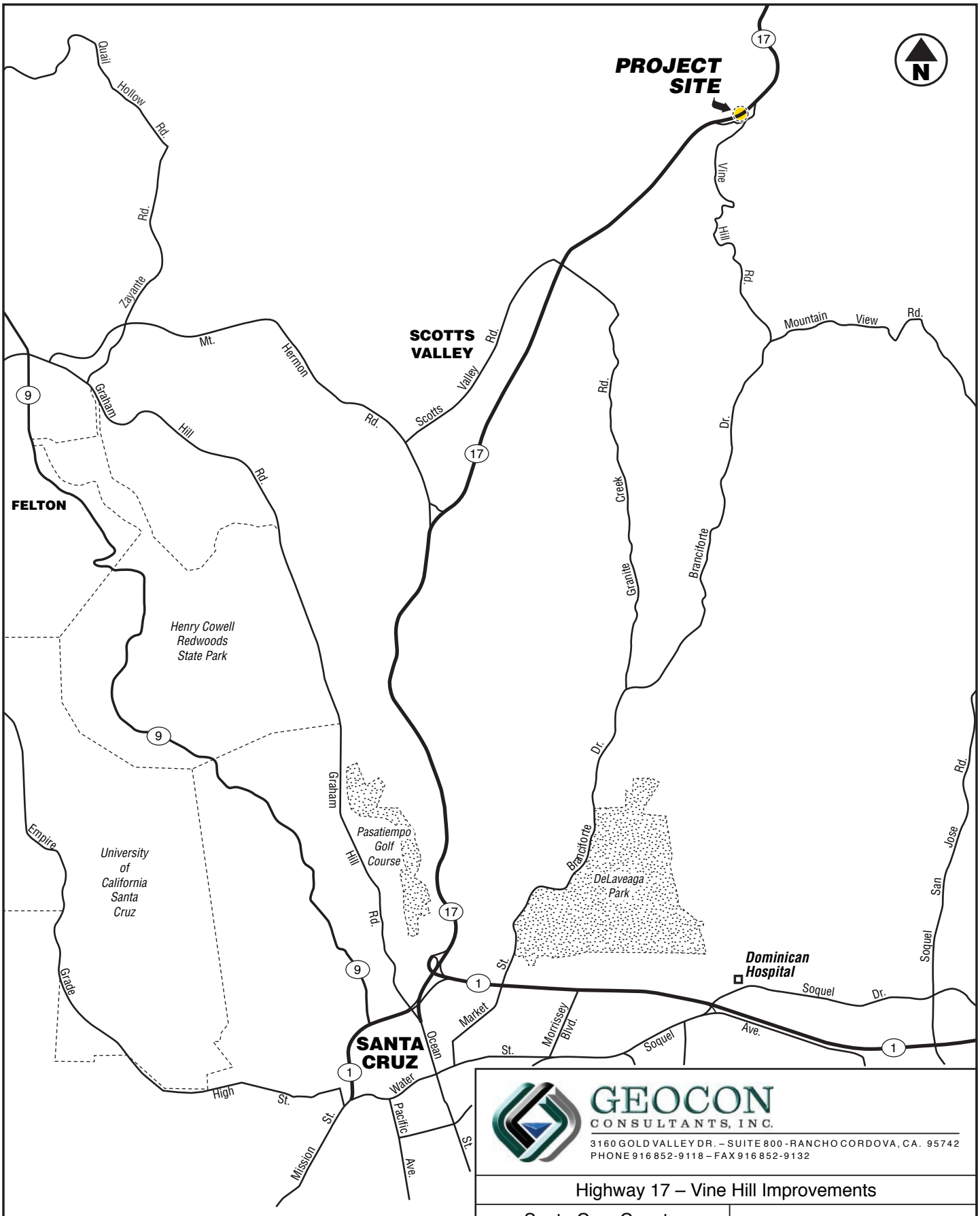
6.3 Worker Protection

Per Caltrans' requirements, the contractor(s) should prepare a project-specific lead compliance plan (CCR Title 8, Section 1532.1, the "Lead in Construction" standard) to minimize worker exposure to lead-impacted 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 lead-impacted soil.

7.0 REPORT LIMITATIONS

This report has been prepared exclusively for Caltrans. 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. We 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.



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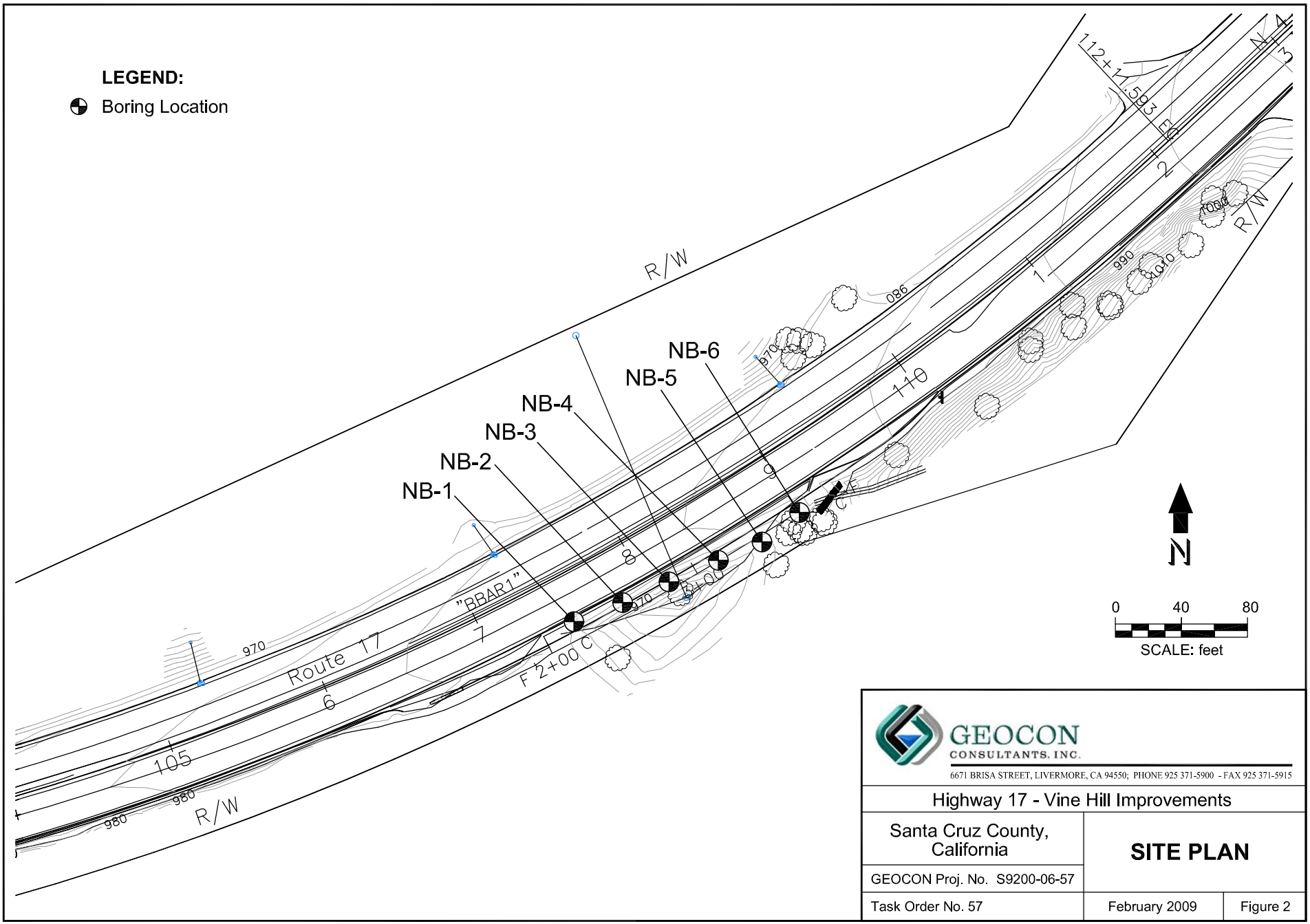
Highway 17 – Vine Hill Improvements

Santa Cruz County, California	**VICINITY MAP**	
GEOCON Proj. No. S9200-06-57		
Task Order No. 57	February 2009	Figure 1



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Highway 17 - Vine Hill Improvements

Santa Cruz County, California

SITE PLAN

GEOCON Proj. No. S9200-06-57

Task Order No. 57 | February 2009 | Figure 2

SITE0109

TABLE 1
SUMMARY OF SOIL BORING COORDINATES
HIGHWAY 17 - VINE HILL IMPROVEMENTS
SANTA CRUZ COUNTY, CALIFORNIA

BORING	NORTHING	EASTING
NB-1	1,854,018.036	6,129,375.163
NB-2	1,854,060.035	6,129,405.034
NB-3	1,854,042.117	6,129,432.682
NB-4	1,854,061.154	6,129,450.983
NB-5	1,854,066.326	6,129,489.001
NB-6	1,854,084.134	6,129,511.675

Notes:

Easting and Northing shown in feet, NAD 83 (Zone 3)

TABLE 2
SUMMARY OF LEAD AND SOIL pH ANALYTICAL RESULTS
HIGHWAY 17 - VINE HILL IMPROVEMENTS
SANTA CRUZ COUNTY, CALIFORNIA

SAMPLE ID	SAMPLE DEPTH (ft)	TOTAL LEAD (mg/kg)	WET LEAD (mg/l)	TCLP LEAD (mg/l)	SOIL pH
NB-1-0	0	170	11	0.47	---
NB-1-1	1	98	7.1	---	---
NB-1-2	2	200	21	1.5	---
NB-1-4	4	9.6	---	---	4.6
NB-1-6	6	75	5.9	---	---
NB-1-8	8	32	---	---	---
NB-2-0	0	45	---	---	---
NB-2-1	1	110	7.9	0.50	---
NB-2-2	2	290	31	1.2	---
NB-2-4	4	220	5.1	0.59	---
NB-2-6	6	19	---	---	---
NB-2-8	8	<5.0	---	---	---
NB-3-0	0	88	6.7	---	---
NB-3-1	1	310	31	1.5	---
NB-3-2	2	120	7.0	0.30	---
NB-3-4	4	700	73	2.8	---
NB-3-6	6	27	---	---	---
NB-3-8	8	6.9	---	---	---
NB-4-0	0	310	34	1.9	---
NB-4-1	1	430	49	2.8	---
NB-4-2	2	630	51	2.1	---
NB-4-4	4	30	---	---	---
NB-4-6	6	17	---	---	6.2
NB-4-8	8	<5.0	---	---	---
NB-5-0	0	480	23	0.93	---
NB-5-1	1	370	27	0.78	---
NB-5-2	2	23	---	---	---
NB-5-4	4	150	13	0.43	---
NB-5-6	6	6.0	---	---	---
NB-5-8	8	5.7	---	---	---
NB-6-0	0	200	9.9	0.64	---
NB-6-1	1	250	23	0.97	---
NB-6-2	2	74	3.3	---	6.5
NB-6-4	4	38	---	---	---
NB-6-6	6	59	4.9	---	---
NB-6-8	8	<5.0	---	---	---

Notes:
WET = Waste Extraction Test using citric acid as the extraction fluid
TCLP = Toxicity Characteristic Leaching Procedure
mg/kg = milligrams per kilogram
mg/l = milligrams per liter
--- = Not analyzed
< = Analyte was not detected at or above the stated reporting limit

TABLE 3
SUMMARY OF CAM 17 METALS RESULTS
HIGHWAY 17 - VINE HILL IMPROVEMENTS
SANTA CRUZ COUNTY, CALIFORNIA

Sample ID	Sample Depth (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury
NB-1-4	4	<2.0	4.6	130	<1.0	<1.0	26	4.2	10	9.6	<1.0	18	2.2	<1.0	<1.0	57	43	<0.10
NB-4-6	6	<2.0	4.3	77	<1.0	<1.0	25	11	8.6	17	<1.0	15	1.7	<1.0	<1.0	44	35	<0.10
NB-6-2	2	<2.0	4.3	160	<1.0	<1.0	21	11	11	74	<1.0	16	1.7	<1.0	<1.0	40	45	<0.10
ESLs																		
Shallow Soils (≤3 m bgs)																		
Residential		6.1	0.38	750	4.0	1.7	750*	40	230	200	40	150	10	20	1.2	15	600	1.0
Commercial/Industrial		40	1.5	1,500	8.0	7.4	750*	80	230	750	40	150	10	40	15	190	600	100

Notes:

Results are shown in milligrams per kilogram

< = Analyte was not detected at or above the stated reporting limit

ESLs = Environmental Screening Levels, SFRWQCB, November 2007, Tables A and C

* = Value is for Chromium III, no standard for total chromium

TABLE 4
SUMMARY OF LEAD STATISTICAL ANALYSIS
HIGHWAY 17 - VINE HILL IMPROVEMENTS
SANTA CRUZ COUNTY, CALIFORNIA

Borings NB-1 through NB-6

TOTAL LEAD UCLs

	Total Lead (mg/kg)	
	90% UCL	**95% UCL**
0 to 0.5 ft	290.9	312.4
1.0 to 1.5 ft	326.1	344.1
2.0 to 2.5 ft	324.3	356.7
4.0 to 4.5 ft	316.0	354.4
6.0 to 6.5 ft	46.7	50.4
8.0 to 8.5 ft	14.1	15.4

EXCAVATION SCENARIOS

Excavation Depth	90% UCL Total Lead (mg/kg)	90% UCL Soluble (WET) Lead* (mg/l)	95% UCL Total Lead (mg/kg)	95% UCL Soluble (WET) Lead* (mg/l)
0 to 1.0 ft	291	25	312	27
Underlying Soil 1.0 to 8.5 ft	*228*	*20*	*250*	*22*
0 to 2.0 ft	309	27	328	29
Underlying Soil 2.0 to 8.5 ft	*212*	*18*	*235*	*20*
0 to 4.0 ft	316	28	342	30
Underlying Soil 4.0 to 8.5 ft	*163*	*14*	*182*	*16*
0 to 6.0 ft	316	28	346	30
Underlying Soil 6.0 to 8.5 ft	*40*	*3.5*	*43*	*3.8*
0 to 8.0 ft	249	22	272	24
Underlying Soil 8.0 to 8.5 ft	*14*	*1.2*	*15*	*1.3*
0 to 8.5 ft	235	20	257	22

Notes:

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

mg/kg = milligrams per kilogram

mg/l = milligrams per liter

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

Regression Line Slope: $y = 0.087\ x$

APPENDIX A

January 23, 2009

Dave Watts
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
TEL: (925) 371-5900
FAX: (925) 371-5915

ELAP No.: 1838
NELAP No.: 02107CA
NEVADA.: CA-401
Arizona: AZ0689
CSDLAC No.: 10196
Workorder No.: 103203

RE: VINE HILL RD., S9200-06-57

Attention: Dave Watts

Enclosed are the results for sample(s) received on January 12, 2009 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an addendum report. Please incorporate with documentation previously submitted.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

Eddie F. Rodriguez
Laboratory Director

CLIENT: Geocon Consultants, Inc.
Project: VINE HILL RD., S9200-06-57
Lab Order: 103203

CASE NARRATIVE

Analytical Comments for Method 7420

Dilution was necessary for samples 103203-001A, 103203-003A, 103203-007A, 103203-008A, 103203-013A, 103203-015A, 103203-018A, 103203-019A, 103203-020A, 103203-023A, 103203-024A, 103203-026A and 103203-030A, due to sample matrix.

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

Date: 1/23/2009

ANALYTICAL RESULTS

LEAD BY ATOMIC ABSORPTION (STLC)
WET/ EPA 7420

CLIENT:	Geocon Consultants, Inc.	**Lab Order:**	103203
Project:	VINE HILL RD., S9200-06-57	**Date Received**	1/12/2009 9:50:00 AM
Project No:		**Matrix:**	Soil
Analyte:	Lead	**Analyst:**	LKN

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
103203-001A	NB-1-0	11	mg/L	R104814	0.50	2	1/9/2009	1/23/2009
103203-002A	NB-1-1	7.1	mg/L	R104814	0.25	1	1/9/2009	1/23/2009
103203-003A	NB-1-2	21	mg/L	R104814	1.0	4	1/9/2009	1/23/2009
103203-004A	NB-1-6	5.9	mg/L	R104814	0.25	1	1/9/2009	1/23/2009
103203-007A	NB-2-1	7.9	mg/L	R104814	0.25	1	1/9/2009	1/23/2009
103203-008A	NB-2-2	31	mg/L	R104814	1.2	5	1/9/2009	1/23/2009
103203-009A	NB-2-4	5.1	mg/L	R104814	0.25	1	1/9/2009	1/23/2009
103203-012A	NB-3-0	6.7	mg/L	R104814	0.25	1	1/9/2009	1/23/2009
103203-013A	NB-3-1	31	mg/L	R104814	1.2	5	1/9/2009	1/23/2009
103203-014A	NB-3-2	7.0	mg/L	R104814	0.25	1	1/9/2009	1/23/2009
103203-015A	NB-3-4	73	mg/L	R104814	2.5	10	1/9/2009	1/23/2009
103203-018A	NB-4-0	34	mg/L	R104814	1.2	5	1/9/2009	1/23/2009
103203-019A	NB-4-1	49	mg/L	R104814	1.2	5	1/9/2009	1/23/2009
103203-020A	NB-4-2	51	mg/L	R104814	2.5	10	1/9/2009	1/23/2009
103203-023A	NB-5-0	23	mg/L	R104814	1.0	4	1/9/2009	1/23/2009
103203-024A	NB-5-1	27	mg/L	R104814	1.0	4	1/9/2009	1/23/2009
103203-026A	NB-5-4	13	mg/L	R104814	0.50	2	1/9/2009	1/23/2009
103203-029A	NB-6-0	9.9	mg/L	R104814	0.25	1	1/9/2009	1/23/2009

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

Date: 1/23/2009

ANALYTICAL RESULTS

LEAD BY ATOMIC ABSORPTION (STLC)
WET/ EPA 7420

CLIENT:	Geocon Consultants, Inc.	**Lab Order:**	103203
Project:	VINE HILL RD., S9200-06-57	**Date Received**	1/12/2009 9:50:00 AM
Project No:		**Matrix:**	Soil
Analyte:	Lead	**Analyst:**	LKN

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
103203-030A	NB-6-1	23	mg/L	R104814	1.0	4	1/9/2009	1/23/2009
103203-032A	NB-6-6	4.9	mg/L	R104814	0.25	1	1/9/2009	1/23/2009
103203-036A	NB-6-2	3.3	mg/L	R104822	0.25	1	1/9/2009	1/23/2009

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

Date: 1/29/2009

ANALYTICAL RESULTS

LEAD BY ATOMIC ABSORPTION (TCLP)
EPA 1311/ 7420

CLIENT:	Geocon Consultants, Inc.	**Lab Order:**	103203
Project:	VINE HILL RD., S9200-06-57	**Date Received**	1/12/2009 9:50:00 AM
Project No:		**Matrix:**	Soil
Analyte:	Lead	**Analyst:**	VV

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
103203-001A	NB-1-0	0.47	mg/L	R105034	0.25	1	1/9/2009	1/29/2009
103203-003A	NB-1-2	1.5	mg/L	R105034	0.25	1	1/9/2009	1/29/2009
103203-007A	NB-2-1	0.50	mg/L	R105034	0.50	2	1/9/2009	1/29/2009
103203-008A	NB-2-2	1.2	mg/L	R105034	0.25	1	1/9/2009	1/29/2009
103203-009A	NB-2-4	0.59	mg/L	R105034	0.25	1	1/9/2009	1/29/2009
103203-013A	NB-3-1	1.5	mg/L	R105034	0.25	1	1/9/2009	1/29/2009
103203-014A	NB-3-2	0.30	mg/L	R105034	0.25	1	1/9/2009	1/29/2009
103203-015A	NB-3-4	2.8	mg/L	R105034	0.25	1	1/9/2009	1/29/2009
103203-018A	NB-4-0	1.9	mg/L	R105034	0.25	1	1/9/2009	1/29/2009
103203-019A	NB-4-1	2.8	mg/L	R105034	0.25	1	1/9/2009	1/29/2009
103203-020A	NB-4-2	2.1	mg/L	R105034	0.25	1	1/9/2009	1/29/2009
103203-023A	NB-5-0	0.93	mg/L	R105034	0.25	1	1/9/2009	1/29/2009
103203-024A	NB-5-1	0.78	mg/L	R105034	0.25	1	1/9/2009	1/29/2009
103203-026A	NB-5-4	0.43	mg/L	R105034	0.25	1	1/9/2009	1/29/2009
103203-029A	NB-6-0	0.64	mg/L	R105034	0.25	1	1/9/2009	1/29/2009
103203-030A	NB-6-1	0.97	mg/L	R105034	0.25	1	1/9/2009	1/29/2009

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: Geocon Consultants, Inc.
Work Order: 103203
Project: VINE HILL RD., S9200-06-57

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_ST

Sample ID: **MB-52278A**	SampType: **MBLK**	TestCode: **7420_ST**	Units: **mg/L**	Prep Date:	RunNo: **104814**
Client ID: **PBS**	Batch ID: **R104814**	TestNo: **WET/ EPA 74**		Analysis Date: **1/23/2009**	SeqNo: **1639819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **LCS-52278**	SampType: **LCS**	TestCode: **7420_ST**	Units: **mg/L**	Prep Date:	RunNo: **104814**
Client ID: **LCSS**	Batch ID: **R104814**	TestNo: **WET/ EPA 74**		Analysis Date: **1/23/2009**	SeqNo: **1639820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.217	0.25	5.000	0	104	80	120				

Sample ID: **103203-014A-DUP**	SampType: **DUP**	TestCode: **7420_ST**	Units: **mg/L**	Prep Date:	RunNo: **104814**
Client ID: **NB-3-2**	Batch ID: **R104814**	TestNo: **WET/ EPA 74**		Analysis Date: **1/23/2009**	SeqNo: **1639831**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	7.104	0.25						7.033	1.00	20	

Sample ID: **103203-014A-MS**	SampType: **MS**	TestCode: **7420_ST**	Units: **mg/L**	Prep Date:	RunNo: **104814**
Client ID: **NB-3-2**	Batch ID: **R104814**	TestNo: **WET/ EPA 74**		Analysis Date: **1/23/2009**	SeqNo: **1639832**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	12.136	0.50	5.000	7.033	102	80	120				

Sample ID: **MB-52278B**	SampType: **MBLK**	TestCode: **7420_ST**	Units: **mg/L**	Prep Date:	RunNo: **104814**
Client ID: **PBS**	Batch ID: **R104814**	TestNo: **WET/ EPA 74**		Analysis Date: **1/23/2009**	SeqNo: **1639833**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.175	0.25									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 103203
Project: VINE HILL RD., S9200-06-57

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_ST

Sample ID: **103203-032A-DUP**	SampType: **DUP**	TestCode: **7420_ST**	Units: **mg/L**	Prep Date:	RunNo: **104814**
Client ID: **NB-6-6**	Batch ID: **R104814**	TestNo: **WET/ EPA 74**		Analysis Date: **1/23/2009**	SeqNo: **1639844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	4.996	0.25						4.859	2.79	20	

Sample ID: **103203-032A-MS**	SampType: **MS**	TestCode: **7420_ST**	Units: **mg/L**	Prep Date:	RunNo: **104814**
Client ID: **NB-6-6**	Batch ID: **R104814**	TestNo: **WET/ EPA 74**		Analysis Date: **1/23/2009**	SeqNo: **1639845**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	10.791	0.50	5.000	4.859	119	80	120				

Sample ID: **103203-032A-MSD**	SampType: **MSD**	TestCode: **7420_ST**	Units: **mg/L**	Prep Date:	RunNo: **104814**
Client ID: **NB-6-6**	Batch ID: **R104814**	TestNo: **WET/ EPA 74**		Analysis Date: **1/23/2009**	SeqNo: **1639846**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	10.674	0.50	5.000	4.859	116	80	120	10.79	1.09	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 103203
Project: VINE HILL RD., S9200-06-57

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_ST

Sample ID: **MB-52279A**	SampType: **MBLK**	TestCode: **7420_ST**	Units: **mg/L**	Prep Date:	RunNo: **104822**
Client ID: **PBS**	Batch ID: **R104822**	TestNo: **WET/ EPA 74**		Analysis Date: **1/23/2009**	SeqNo: **1639847**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.199	0.25									

Sample ID: **LCS-52279**	SampType: **LCS**	TestCode: **7420_ST**	Units: **mg/L**	Prep Date:	RunNo: **104822**
Client ID: **LCSS**	Batch ID: **R104822**	TestNo: **WET/ EPA 74**		Analysis Date: **1/23/2009**	SeqNo: **1639848**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.515	0.25	5.000	0.1991	106	80	120				

Sample ID: **103203-036A-DUP**	SampType: **DUP**	TestCode: **7420_ST**	Units: **mg/L**	Prep Date:	RunNo: **104822**
Client ID: **NB-6-2**	Batch ID: **R104822**	TestNo: **WET/ EPA 74**		Analysis Date: **1/23/2009**	SeqNo: **1639850**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	3.177	0.25						3.343	5.10	20	

Sample ID: **103203-036A-MS**	SampType: **MS**	TestCode: **7420_ST**	Units: **mg/L**	Prep Date:	RunNo: **104822**
Client ID: **NB-6-2**	Batch ID: **R104822**	TestNo: **WET/ EPA 74**		Analysis Date: **1/23/2009**	SeqNo: **1639851**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	8.104	0.25	5.000	3.343	95.2	80	120				

Sample ID: **103203-036A-MSD**	SampType: **MSD**	TestCode: **7420_ST**	Units: **mg/L**	Prep Date:	RunNo: **104822**
Client ID: **NB-6-2**	Batch ID: **R104822**	TestNo: **WET/ EPA 74**		Analysis Date: **1/23/2009**	SeqNo: **1639852**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	8.077	0.25	5.000	3.343	94.7	80	120	8.104	0.333	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 103203
Project: VINE HILL RD., S9200-06-57

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_TC

Sample ID: **MB-52481A**	SampType: **MBLK**	TestCode: **7420_TC**	Units: **mg/L**	Prep Date:	RunNo: **105034**
Client ID: **PBS**	Batch ID: **R105034**	TestNo: **EPA 1311/ 74**		Analysis Date: **1/29/2009**	SeqNo: **1643401**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **MB-52463A TCLP**	SampType: **MBLK**	TestCode: **7420_TC**	Units: **mg/L**	Prep Date:	RunNo: **105034**
Client ID: **PBS**	Batch ID: **R105034**	TestNo: **EPA 1311/ 74**		Analysis Date: **1/29/2009**	SeqNo: **1643402**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **LCS-52481**	SampType: **LCS**	TestCode: **7420_TC**	Units: **mg/L**	Prep Date:	RunNo: **105034**
Client ID: **LCSS**	Batch ID: **R105034**	TestNo: **EPA 1311/ 74**		Analysis Date: **1/29/2009**	SeqNo: **1643403**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.985	0.25	1.000	0	98.5	80	120				

Sample ID: **103203-019A-DUP**	SampType: **DUP**	TestCode: **7420_TC**	Units: **mg/L**	Prep Date:	RunNo: **105034**
Client ID: **NB-4-1**	Batch ID: **R105034**	TestNo: **EPA 1311/ 74**		Analysis Date: **1/29/2009**	SeqNo: **1643414**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.790	0.25						2.809	0.671	20	

Sample ID: **103203-019A-MS**	SampType: **MS**	TestCode: **7420_TC**	Units: **mg/L**	Prep Date:	RunNo: **105034**
Client ID: **NB-4-1**	Batch ID: **R105034**	TestNo: **EPA 1311/ 74**		Analysis Date: **1/29/2009**	SeqNo: **1643415**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.386	0.25	2.500	2.809	103	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 103203
Project: VINE HILL RD., S9200-06-57

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_TC

Sample ID: **MB-52481B**	SampType: **MBLK**	TestCode: **7420_TC**	Units: **mg/L**	Prep Date:	RunNo: **105034**
Client ID: **PBS**	Batch ID: **R105034**	TestNo: **EPA 1311/ 74**		Analysis Date: **1/29/2009**	SeqNo: **1643416**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.169	0.25									

Sample ID: **MB-52463B TCLP**	SampType: **MBLK**	TestCode: **7420_TC**	Units: **mg/L**	Prep Date:	RunNo: **105034**
Client ID: **PBS**	Batch ID: **R105034**	TestNo: **EPA 1311/ 74**		Analysis Date: **1/29/2009**	SeqNo: **1643417**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.141	0.25									

Sample ID: **103203-030A-DUP**	SampType: **DUP**	TestCode: **7420_TC**	Units: **mg/L**	Prep Date:	RunNo: **105034**
Client ID: **NB-6-1**	Batch ID: **R105034**	TestNo: **EPA 1311/ 74**		Analysis Date: **1/29/2009**	SeqNo: **1643424**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1.005	0.25						0.9718	3.35	20	

Sample ID: **103203-030A-MS**	SampType: **MS**	TestCode: **7420_TC**	Units: **mg/L**	Prep Date:	RunNo: **105034**
Client ID: **NB-6-1**	Batch ID: **R105034**	TestNo: **EPA 1311/ 74**		Analysis Date: **1/29/2009**	SeqNo: **1643425**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.979	0.25	2.500	0.9718	80.3	70	130				

Sample ID: **103203-030A-MSD**	SampType: **MSD**	TestCode: **7420_TC**	Units: **mg/L**	Prep Date:	RunNo: **105034**
Client ID: **NB-6-1**	Batch ID: **R105034**	TestNo: **EPA 1311/ 74**		Analysis Date: **1/29/2009**	SeqNo: **1643426**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	3.020	0.25	2.500	0.9718	81.9	70	130	2.979	1.34	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Diane Galvan

From: David Watts [watts@geoconinc.com]
Sent: Monday, January 19, 2009 10:29 AM
To: Diane Galvan
Cc: Isaac Leyva; Jim Tkach
Subject: Results - VINE HILL RD (103203)
Attachments: 103203.pdf

Diane,

Lead is the only metal detected at levels that require WET and/or TCLP.
Please proceed with WETs on samples with total Pb results ≥ 50 ppm (I count 21 results).
Please run TCLPs on samples that fail WET ***and*** have a TTLC ≥ 100 ppm.
Standard TAT.

Thanks.

David Watts
Senior Project Scientist
Please visit our new website at http://www.geoconinc.com

GEOCON Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
925-371-5900 (office)
925-371-5915 (fax)
925-785-5340 (mobile)
watts@geoconinc.com

GEOTECHNICAL - ENVIRONMENTAL - MATERIALS

San Diego Murrieta Burbank San Bernardino Bakersfield Sacramento Livermore Carson City Las Vegas Portland

January 16, 2009

Dave Watts
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
TEL: (925) 371-5900
FAX: (925) 371-5915

ELAP No.: 1838
NELAP No.: 02107CA
NEVADA.: CA-401
Arizona: AZ0689
CSDLAC No.: 10196
Workorder No.: 103203

RE: VINE HILL RD., S9200-06-57

Attention: Dave Watts

Enclosed are the results for sample(s) received on January 12, 2009 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

Eddie F. Rodriguez
Laboratory Director

CLIENT: Geocon Consultants, Inc.
Project: VINE HILL RD., S9200-06-57
Lab Order: 103203

CASE NARRATIVE

Analytical Comments for Method 6010

RPD for Duplicate (DUP) and/or Matrix Spike (MS)/Matrix Spike Duplicate (MSD) is outside criteria for samples 103203-018ADUP, 103203-033ADUP, 103203-036ADUP and 103203-036AMSD; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

Date: 1/16/2009

ANALYTICAL RESULTS

LEAD BY ICP
EPA 6010B

CLIENT:	Geocon Consultants, Inc.	**Lab Order:**	103203
Project:	VINE HILL RD., S9200-06-57	**Date Received**	1/12/2009 9:50:00 AM
Project No:		**Matrix:**	Soil
Analyte:	Lead	**Analyst:**	CL

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
103203-001A	NB-1-0	170	mg/Kg	52084	5.0	1	1/9/2009	1/14/2009
103203-002A	NB-1-1	98	mg/Kg	52084	5.0	1	1/9/2009	1/14/2009
103203-003A	NB-1-2	200	mg/Kg	52084	5.0	1	1/9/2009	1/14/2009
103203-004A	NB-1-6	75	mg/Kg	52084	5.0	1	1/9/2009	1/14/2009
103203-005A	NB-1-8	32	mg/Kg	52084	5.0	1	1/9/2009	1/14/2009
103203-006A	NB-2-0	45	mg/Kg	52084	5.0	1	1/9/2009	1/14/2009
103203-007A	NB-2-1	110	mg/Kg	52084	5.0	1	1/9/2009	1/14/2009
103203-008A	NB-2-2	290	mg/Kg	52084	5.0	1	1/9/2009	1/14/2009
103203-009A	NB-2-4	220	mg/Kg	52084	5.0	1	1/9/2009	1/14/2009
103203-010A	NB-2-6	19	mg/Kg	52084	5.0	1	1/9/2009	1/14/2009
103203-011A	NB-2-8	ND	mg/Kg	52084	5.0	1	1/9/2009	1/14/2009
103203-012A	NB-3-0	88	mg/Kg	52084	5.0	1	1/9/2009	1/14/2009
103203-013A	NB-3-1	310	mg/Kg	52084	5.0	1	1/9/2009	1/14/2009
103203-014A	NB-3-2	120	mg/Kg	52084	5.0	1	1/9/2009	1/14/2009
103203-015A	NB-3-4	700	mg/Kg	52084	5.0	1	1/9/2009	1/14/2009
103203-016A	NB-3-6	27	mg/Kg	52084	5.0	1	1/9/2009	1/14/2009
103203-017A	NB-3-8	6.9	mg/Kg	52084	5.0	1	1/9/2009	1/14/2009
103203-018A	NB-4-0	310	mg/Kg	52084	5.0	1	1/9/2009	1/14/2009

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

Date: 1/16/2009

ANALYTICAL RESULTS

LEAD BY ICP
EPA 6010B

CLIENT:	Geocon Consultants, Inc.	**Lab Order:**	103203
Project:	VINE HILL RD., S9200-06-57	**Date Received**	1/12/2009 9:50:00 AM
Project No:		**Matrix:**	Soil
Analyte:	Lead	**Analyst:**	CL

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
103203-019A	NB-4-1	430	mg/Kg	52085	5.0	1	1/9/2009	1/14/2009
103203-020A	NB-4-2	630	mg/Kg	52085	5.0	1	1/9/2009	1/14/2009
103203-021A	NB-4-4	30	mg/Kg	52085	5.0	1	1/9/2009	1/14/2009
103203-022A	NB-4-8	ND	mg/Kg	52085	5.0	1	1/9/2009	1/14/2009
103203-023A	NB-5-0	480	mg/Kg	52085	5.0	1	1/9/2009	1/14/2009
103203-024A	NB-5-1	370	mg/Kg	52085	5.0	1	1/9/2009	1/14/2009
103203-025A	NB-5-2	23	mg/Kg	52085	5.0	1	1/9/2009	1/14/2009
103203-026A	NB-5-4	150	mg/Kg	52085	5.0	1	1/9/2009	1/14/2009
103203-027A	NB-5-6	6.0	mg/Kg	52085	5.0	1	1/9/2009	1/14/2009
103203-028A	NB-5-8	5.7	mg/Kg	52085	5.0	1	1/9/2009	1/14/2009
103203-029A	NB-6-0	200	mg/Kg	52085	5.0	1	1/9/2009	1/14/2009
103203-030A	NB-6-1	250	mg/Kg	52085	5.0	1	1/9/2009	1/14/2009
103203-031A	NB-6-4	38	mg/Kg	52085	5.0	1	1/9/2009	1/14/2009
103203-032A	NB-6-6	59	mg/Kg	52085	5.0	1	1/9/2009	1/14/2009
103203-033A	NB-6-8	ND	mg/Kg	52085	5.0	1	1/9/2009	1/14/2009

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

Date: 1/16/2009

ANALYTICAL RESULTS

pH
EPA 9045C

CLIENT:	Geocon Consultants, Inc.	**Lab Order:**	103203
Project:	VINE HILL RD., S9200-06-57	**Date Received**	1/12/2009 9:50:00 AM
Project No:		**Matrix:**	Soil
Analyte:	pH	**Analyst:**	PU

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
103203-034A	NB-1-4	4.6	pH Units	R104325	0.10	1	1/9/2009	1/13/2009
103203-035A	NB-4-6	6.2	pH Units	R104325	0.10	1	1/9/2009	1/13/2009
103203-036A	NB-6-2	6.5	pH Units	R104325	0.10	1	1/9/2009	1/13/2009

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	NB-1-4
Lab Order:	103203	**Collection Date:**	1/9/2009 11:49:00 AM
Project:	VINE HILL RD., S9200-06-57	**Matrix:**	SOIL
Lab ID:	103203-034A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_090114E	QC Batch: 52090			PrepDate:	1/13/2009	Analyst: **CL**
Antimony	ND	2.0		mg/Kg	1	1/14/2009 06:30 PM
Arsenic	4.6	1.0		mg/Kg	1	1/14/2009 06:30 PM
Barium	130	1.0		mg/Kg	1	1/14/2009 06:30 PM
Beryllium	ND	1.0		mg/Kg	1	1/14/2009 06:30 PM
Cadmium	ND	1.0		mg/Kg	1	1/14/2009 06:30 PM
Chromium	26	1.0		mg/Kg	1	1/14/2009 06:30 PM
Cobalt	4.2	1.0		mg/Kg	1	1/14/2009 06:30 PM
Copper	10	2.0		mg/Kg	1	1/14/2009 06:30 PM
Lead	9.6	1.0		mg/Kg	1	1/16/2009 10:57 AM
Molybdenum	ND	1.0		mg/Kg	1	1/14/2009 06:30 PM
Nickel	18	1.0		mg/Kg	1	1/14/2009 06:30 PM
Selenium	2.2	1.0		mg/Kg	1	1/14/2009 06:30 PM
Silver	ND	1.0		mg/Kg	1	1/14/2009 06:30 PM
Thallium	ND	1.0		mg/Kg	1	1/14/2009 06:30 PM
Vanadium	57	1.0		mg/Kg	1	1/14/2009 06:30 PM
Zinc	43	1.0		mg/Kg	1	1/14/2009 06:30 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_090116B	QC Batch: 52088			PrepDate:	1/13/2009	Analyst: **LKN**
Mercury	ND	0.10		mg/Kg	1	1/16/2009 11:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	NB-4-6
Lab Order:	103203	**Collection Date:**	1/9/2009 12:31:00 PM
Project:	VINE HILL RD., S9200-06-57	**Matrix:**	SOIL
Lab ID:	103203-035A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_090114E	QC Batch: 52090			PrepDate:	1/13/2009	Analyst: **CL**
Antimony	ND	2.0		mg/Kg	1	1/14/2009 06:35 PM
Arsenic	4.3	1.0		mg/Kg	1	1/14/2009 06:35 PM
Barium	77	1.0		mg/Kg	1	1/14/2009 06:35 PM
Beryllium	ND	1.0		mg/Kg	1	1/14/2009 06:35 PM
Cadmium	ND	1.0		mg/Kg	1	1/14/2009 06:35 PM
Chromium	25	1.0		mg/Kg	1	1/14/2009 06:35 PM
Cobalt	11	1.0		mg/Kg	1	1/14/2009 06:35 PM
Copper	8.6	2.0		mg/Kg	1	1/14/2009 06:35 PM
Lead	17	1.0		mg/Kg	1	1/16/2009 10:59 AM
Molybdenum	ND	1.0		mg/Kg	1	1/14/2009 06:35 PM
Nickel	15	1.0		mg/Kg	1	1/14/2009 06:35 PM
Selenium	1.7	1.0		mg/Kg	1	1/14/2009 06:35 PM
Silver	ND	1.0		mg/Kg	1	1/14/2009 06:35 PM
Thallium	ND	1.0		mg/Kg	1	1/14/2009 06:35 PM
Vanadium	44	1.0		mg/Kg	1	1/14/2009 06:35 PM
Zinc	35	1.0		mg/Kg	1	1/14/2009 06:35 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_090116B	QC Batch: 52088			PrepDate:	1/13/2009	Analyst: **LKN**
Mercury	ND	0.10		mg/Kg	1	1/16/2009 11:22 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	NB-6-2
Lab Order:	103203	**Collection Date:**	1/9/2009 12:57:00 PM
Project:	VINE HILL RD., S9200-06-57	**Matrix:**	SOIL
Lab ID:	103203-036A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_090114E	QC Batch: 52090			PrepDate:	1/13/2009	Analyst: **CL**
Antimony	ND	2.0		mg/Kg	1	1/14/2009 06:39 PM
Arsenic	4.3	1.0		mg/Kg	1	1/14/2009 06:39 PM
Barium	160	1.0		mg/Kg	1	1/14/2009 06:39 PM
Beryllium	ND	1.0		mg/Kg	1	1/14/2009 06:39 PM
Cadmium	ND	1.0		mg/Kg	1	1/14/2009 06:39 PM
Chromium	21	1.0		mg/Kg	1	1/14/2009 06:39 PM
Cobalt	11	1.0		mg/Kg	1	1/14/2009 06:39 PM
Copper	11	2.0		mg/Kg	1	1/14/2009 06:39 PM
Lead	74	1.0		mg/Kg	1	1/16/2009 11:01 AM
Molybdenum	ND	1.0		mg/Kg	1	1/14/2009 06:39 PM
Nickel	16	1.0		mg/Kg	1	1/14/2009 06:39 PM
Selenium	1.7	1.0		mg/Kg	1	1/14/2009 06:39 PM
Silver	ND	1.0		mg/Kg	1	1/14/2009 06:39 PM
Thallium	ND	1.0		mg/Kg	1	1/14/2009 06:39 PM
Vanadium	40	1.0		mg/Kg	1	1/14/2009 06:39 PM
Zinc	45	1.0		mg/Kg	1	1/14/2009 06:39 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_090116B	QC Batch: 52088			PrepDate:	1/13/2009	Analyst: **LKN**
Mercury	ND	0.10		mg/Kg	1	1/16/2009 11:16 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: Geocon Consultants, Inc.
Work Order: 103203
Project: VINE HILL RD., S9200-06-57

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **MB-52090** SampType: **MBLK** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **1/13/2009** RunNo: **104487**
Client ID: **PBS** Batch ID: **52090** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **1/14/2009** SeqNo: **1633704**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0									
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Molybdenum	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	0.071	1.0									
Thallium	ND	1.0									
Vanadium	ND	1.0									
Zinc	ND	1.0									

Sample ID: **LCS-52090** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **1/13/2009** RunNo: **104487**
Client ID: **LCSS** Batch ID: **52090** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **1/14/2009** SeqNo: **1633705**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	49.572	2.0	50.00	0	99.1	80	120				
Arsenic	48.194	1.0	50.00	0	96.4	80	120				
Barium	50.583	1.0	50.00	0	101	80	120				
Beryllium	49.697	1.0	50.00	0	99.4	80	120				
Cadmium	49.129	1.0	50.00	0	98.3	80	120				
Chromium	46.407	1.0	50.00	0	92.8	80	120				
Cobalt	51.127	1.0	50.00	0	102	80	120				
Copper	50.908	2.0	50.00	0	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 103203
Project: VINE HILL RD., S9200-06-57

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **LCS-52090**	SampType: **LCS**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104487**
Client ID: **LCSS**	Batch ID: **52090**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **1/14/2009**	SeqNo: **1633705**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	50.153	1.0	50.00	0	100	80	120				
Nickel	48.739	1.0	50.00	0	97.5	80	120				
Selenium	44.983	1.0	50.00	0	90.0	80	120				
Silver	49.360	1.0	50.00	0.07109	98.6	80	120				
Thallium	47.565	1.0	50.00	0	95.1	80	120				
Vanadium	51.214	1.0	50.00	0	102	80	120				
Zinc	48.259	1.0	50.00	0	96.5	80	120				

Sample ID: **103203-036ADUP**	SampType: **DUP**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104487**
Client ID: **NB-6-2**	Batch ID: **52090**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **1/14/2009**	SeqNo: **1633709**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.848	2.0						0.4706	0	20	
Arsenic	4.046	1.0						4.312	6.36	20	
Barium	139.969	1.0						157.2	11.6	20	
Beryllium	ND	1.0						0	0	20	
Cadmium	0.684	1.0						0.5840	0	20	
Chromium	26.218	1.0						20.77	23.2	20	R
Cobalt	8.729	1.0						10.53	18.7	20	
Copper	10.584	2.0						11.15	5.24	20	
Molybdenum	0.562	1.0						0.7767	0	20	
Nickel	18.900	1.0						15.56	19.4	20	
Selenium	1.904	1.0						1.675	12.8	20	
Silver	ND	1.0						0	0	20	
Thallium	0.330	1.0						0	0	20	
Vanadium	53.007	1.0						39.59	29.0	20	R
Zinc	53.382	1.0						45.50	16.0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 103203
Project: VINE HILL RD., S9200-06-57

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **103203-036AMS** SampType: **MS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **1/13/2009** RunNo: **104487**
Client ID: **NB-6-2** Batch ID: **52090** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **1/14/2009** SeqNo: **1633710**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	84.782	2.0	125.0	0.4706	67.4	25	106				
Arsenic	105.402	1.0	125.0	4.312	80.9	42	113				
Barium	241.929	1.0	125.0	157.2	67.7	19	140				
Beryllium	108.828	1.0	125.0	0	87.1	50	109				
Cadmium	103.772	1.0	125.0	0.5840	82.6	48	106				
Chromium	123.659	1.0	125.0	20.77	82.3	44	116				
Cobalt	112.601	1.0	125.0	10.53	81.7	47	107				
Copper	128.645	2.0	125.0	11.15	94.0	49	124				
Molybdenum	103.941	1.0	125.0	0.7767	82.5	46	111				
Nickel	119.060	1.0	125.0	15.56	82.8	43	111				
Selenium	97.952	1.0	125.0	1.675	77.0	43	104				
Silver	110.160	1.0	125.0	0	88.1	53	114				
Thallium	103.145	1.0	125.0	0	82.5	41	107				
Vanadium	146.092	1.0	125.0	39.59	85.2	48	116				
Zinc	145.487	1.0	125.0	45.50	80.0	24	129				

Sample ID: **103203-036AMSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **1/13/2009** RunNo: **104487**
Client ID: **NB-6-2** Batch ID: **52090** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **1/14/2009** SeqNo: **1633711**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	81.507	2.0	125.0	0.4706	64.8	25	106	84.78	3.94	20	
Arsenic	104.121	1.0	125.0	4.312	79.8	42	113	105.4	1.22	20	
Barium	252.532	1.0	125.0	157.2	76.2	19	140	241.9	4.29	20	
Beryllium	107.294	1.0	125.0	0	85.8	50	109	108.8	1.42	20	
Cadmium	101.770	1.0	125.0	0.5840	80.9	48	106	103.8	1.95	20	
Chromium	123.677	1.0	125.0	20.77	82.3	44	116	123.7	0.0145	20	
Cobalt	111.333	1.0	125.0	10.53	80.6	47	107	112.6	1.13	20	
Copper	128.703	2.0	125.0	11.15	94.0	49	124	128.6	0.0454	20	
Molybdenum	101.719	1.0	125.0	0.7767	80.8	46	111	103.9	2.16	20	
Nickel	119.462	1.0	125.0	15.56	83.1	43	111	119.1	0.337	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: Geocon Consultants, Inc.
Work Order: 103203
Project: VINE HILL RD., S9200-06-57

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **103203-036AMSD**	SampType: **MSD**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104487**
Client ID: **NB-6-2**	Batch ID: **52090**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **1/14/2009**	SeqNo: **1633711**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	97.393	1.0	125.0	1.675	76.6	43	104	97.95	0.572	20	
Silver	108.352	1.0	125.0	0	86.7	53	114	110.2	1.65	20	
Thallium	101.637	1.0	125.0	0	81.3	41	107	103.1	1.47	20	
Vanadium	151.483	1.0	125.0	39.59	89.5	48	116	146.1	3.62	20	
Zinc	149.367	1.0	125.0	45.50	83.1	24	129	145.5	2.63	20	

Sample ID: **MB-52090**	SampType: **MBLK**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104492**
Client ID: **PBS**	Batch ID: **52090**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **1/16/2009**	SeqNo: **1633790**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.184	1.0									

Sample ID: **LCS-52090**	SampType: **LCS**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104492**
Client ID: **LCSS**	Batch ID: **52090**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **1/16/2009**	SeqNo: **1633791**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	52.493	1.0	50.00	0.1844	105	80	120				

Sample ID: **103203-036ADUP**	SampType: **DUP**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104492**
Client ID: **NB-6-2**	Batch ID: **52090**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **1/16/2009**	SeqNo: **1633795**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	36.222	1.0						74.15	68.7	20	R

Sample ID: **103203-036AMS**	SampType: **MS**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104492**
Client ID: **NB-6-2**	Batch ID: **52090**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **1/16/2009**	SeqNo: **1633796**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	143.135	1.0	125.0	74.15	55.2	33	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 103203
Project: VINE HILL RD., S9200-06-57

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **103203-036AMSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **1/13/2009** RunNo: **104492**
Client ID: **NB-6-2** Batch ID: **52090** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **1/16/2009** SeqNo: **1633797**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	182.746	1.0	125.0	74.15	86.9	33	120	143.1	24.3	20	R

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 103203
Project: VINE HILL RD., S9200-06-57

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: **MB-52084A**	SampType: **MBLK**	TestCode: **6010_SPB**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104414**
Client ID: **PBS**	Batch ID: **52084**	TestNo: **EPA 6010B**	**EPA 3050M**	Analysis Date: **1/14/2009**	SeqNo: **1632545**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	5.0									

Sample ID: **LCS-52084**	SampType: **LCS**	TestCode: **6010_SPB**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104414**
Client ID: **LCSS**	Batch ID: **52084**	TestNo: **EPA 6010B**	**EPA 3050M**	Analysis Date: **1/14/2009**	SeqNo: **1632546**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	260.135	5.0	250.0	0	104	80	120				

Sample ID: **103203-008ADUP**	SampType: **DUP**	TestCode: **6010_SPB**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104414**
Client ID: **NB-2-2**	Batch ID: **52084**	TestNo: **EPA 6010B**	**EPA 3050M**	Analysis Date: **1/14/2009**	SeqNo: **1632557**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	246.431	5.0						286.7	15.1	20	

Sample ID: **103203-008AMS**	SampType: **MS**	TestCode: **6010_SPB**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104414**
Client ID: **NB-2-2**	Batch ID: **52084**	TestNo: **EPA 6010B**	**EPA 3050M**	Analysis Date: **1/14/2009**	SeqNo: **1632558**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	414.368	5.0	250.0	286.7	51.1	33	120				

Sample ID: **MB-52084B**	SampType: **MBLK**	TestCode: **6010_SPB**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104414**
Client ID: **PBS**	Batch ID: **52084**	TestNo: **EPA 6010B**	**EPA 3050M**	Analysis Date: **1/14/2009**	SeqNo: **1632559**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	5.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 103203
Project: VINE HILL RD., S9200-06-57

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: **103203-018ADUP**	SampType: **DUP**	TestCode: **6010_SPB**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104414**
Client ID: **NB-4-0**	Batch ID: **52084**	TestNo: **EPA 6010B**	**EPA 3050M**	Analysis Date: **1/14/2009**	SeqNo: **1632570**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	431.858	5.0						307.9	33.5	20	R

Sample ID: **103203-018AMS**	SampType: **MS**	TestCode: **6010_SPB**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104414**
Client ID: **NB-4-0**	Batch ID: **52084**	TestNo: **EPA 6010B**	**EPA 3050M**	Analysis Date: **1/14/2009**	SeqNo: **1632571**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	491.099	5.0	250.0	307.9	73.3	33	120				

Sample ID: **103203-018AMSD**	SampType: **MSD**	TestCode: **6010_SPB**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104414**
Client ID: **NB-4-0**	Batch ID: **52084**	TestNo: **EPA 6010B**	**EPA 3050M**	Analysis Date: **1/14/2009**	SeqNo: **1632572**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	555.437	5.0	250.0	307.9	99.0	33	120	491.1	12.3	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 103203
Project: VINE HILL RD., S9200-06-57

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: **MB-52085A**	SampType: **MBLK**	TestCode: **6010_SPB**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104415**
Client ID: **PBS**	Batch ID: **52085**	TestNo: **EPA 6010B**	**EPA 3050M**	Analysis Date: **1/14/2009**	SeqNo: **1632573**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	5.0									

Sample ID: **LCS-52085**	SampType: **LCS**	TestCode: **6010_SPB**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104415**
Client ID: **LCSS**	Batch ID: **52085**	TestNo: **EPA 6010B**	**EPA 3050M**	Analysis Date: **1/14/2009**	SeqNo: **1632574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	265.549	5.0	250.0	0	106	80	120				

Sample ID: **103203-028ADUP**	SampType: **DUP**	TestCode: **6010_SPB**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104415**
Client ID: **NB-5-8**	Batch ID: **52085**	TestNo: **EPA 6010B**	**EPA 3050M**	Analysis Date: **1/14/2009**	SeqNo: **1632585**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.591	5.0						5.747	2.76	20	

Sample ID: **103203-028AMS**	SampType: **MS**	TestCode: **6010_SPB**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104415**
Client ID: **NB-5-8**	Batch ID: **52085**	TestNo: **EPA 6010B**	**EPA 3050M**	Analysis Date: **1/14/2009**	SeqNo: **1632586**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	172.293	5.0	250.0	5.747	66.6	33	120				

Sample ID: **MB-52085B**	SampType: **MBLK**	TestCode: **6010_SPB**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104415**
Client ID: **PBS**	Batch ID: **52085**	TestNo: **EPA 6010B**	**EPA 3050M**	Analysis Date: **1/14/2009**	SeqNo: **1632587**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	5.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 103203
Project: VINE HILL RD., S9200-06-57

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: **103203-033ADUP**	SampType: **DUP**	TestCode: **6010_SPB**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104415**
Client ID: **NB-6-8**	Batch ID: **52085**	TestNo: **EPA 6010B**	**EPA 3050M**	Analysis Date: **1/14/2009**	SeqNo: **1632593**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.917	5.0						4.358	30.3	20	R

Sample ID: **103203-033AMS**	SampType: **MS**	TestCode: **6010_SPB**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104415**
Client ID: **NB-6-8**	Batch ID: **52085**	TestNo: **EPA 6010B**	**EPA 3050M**	Analysis Date: **1/14/2009**	SeqNo: **1632594**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	175.945	5.0	250.0	4.358	68.6	33	120				

Sample ID: **103203-033AMSD**	SampType: **MSD**	TestCode: **6010_SPB**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104415**
Client ID: **NB-6-8**	Batch ID: **52085**	TestNo: **EPA 6010B**	**EPA 3050M**	Analysis Date: **1/14/2009**	SeqNo: **1632595**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	171.667	5.0	250.0	4.358	66.9	33	120	175.9	2.46	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 103203
Project: VINE HILL RD., S9200-06-57

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S

Sample ID: **MB-52088**	SampType: **MBLK**	TestCode: **7471_S**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104494**
Client ID: **PBS**	Batch ID: **52088**	TestNo: **EPA 7471A**		Analysis Date: **1/16/2009**	SeqNo: **1633817**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10									

Sample ID: **103203-036A-MS**	SampType: **MS**	TestCode: **7471_S**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104494**
Client ID: **NB-6-2**	Batch ID: **52088**	TestNo: **EPA 7471A**		Analysis Date: **1/16/2009**	SeqNo: **1633818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.975	0.10	0.8300	0.06322	110	70	130				

Sample ID: **103203-036A-MSD**	SampType: **MSD**	TestCode: **7471_S**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104494**
Client ID: **NB-6-2**	Batch ID: **52088**	TestNo: **EPA 7471A**		Analysis Date: **1/16/2009**	SeqNo: **1633819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.016	0.10	0.8300	0.06322	115	70	130	0.9751	4.14	20	

Sample ID: **LCS-52088**	SampType: **LCS**	TestCode: **7471_S**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104494**
Client ID: **LCSS**	Batch ID: **52088**	TestNo: **EPA 7471A**		Analysis Date: **1/16/2009**	SeqNo: **1633820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.965	0.10	0.8300	0	116	80	120				

Sample ID: **103203-036A-DUP**	SampType: **DUP**	TestCode: **7471_S**	Units: **mg/Kg**	Prep Date: **1/13/2009**	RunNo: **104494**
Client ID: **NB-6-2**	Batch ID: **52088**	TestNo: **EPA 7471A**		Analysis Date: **1/16/2009**	SeqNo: **1633822**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10						0.06322	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 103203
Project: VINE HILL RD., S9200-06-57

ANALYTICAL QC SUMMARY REPORT

TestCode: 9045_S

Sample ID: **103156-053GDUP** SampType: **DUP** TestCode: **9045_S** Units: **pH Units** Prep Date: RunNo: **104325**
Client ID: **ZZZZZZ** Batch ID: **R104325** TestNo: **EPA 9045C** Analysis Date: **1/13/2009** SeqNo: **1630492**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.790	0.10						7.750	0.515	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CHAIN OF CUSTODY RECORD

Pg 1 of 1

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
(562) 989-4045 • Fax (562) 989-4040

FOR LABORATORY USE ONLY:

P.O.#: _____

Logged By: _____ Date: 1/12/09

Method of Transport
Client ☐
ATL ☐
CA OverN ☐
FEDEX ☐
Other: UPS

Sample Condition Upon Receipt 17.2
1. CHILLED Y☐ N☐ N/A 4. SEALED Y☐ N☑
2. HEADSPACE (VOA) Y☐ N/A N☐ 5. # OF SPLS MATCH COC Y☑ N☐
3. CONTAINER INTACT Y☑ N☐ 6. PRESERVED Y☐ N☐

Client: GEOCON
Attn: D. WATTS
Address: 6671 BRISA ST.
City LIVERMORE State CA Zip Code 94550
TEL: (925) 371-5900
FAX: (") " 5915

Project Name: VINE HILL RD. Project #: 9200-06-57 Sampler: (Printed Name) D. WATTS (Signature)

Relinquished by: (Signature and Printed Name)	Date: 1/9/09	Time: 1630	Received by: (Signature and Printed Name)	UPS	Date: 1/9/09	Time: 1630
Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Margo	Date: 1/12/09	Time: 9:50
Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)		Date:	Time:

I hereby authorize ATL to perform the work indicated below:
Project Mgr./Submitter:
D. WATTS 9 JAN 2009
Print Name Date
Signature

Send Report To:
Attn: _____
Co: SEE "CLIENT"
Address _____
City _____ State _____ Zip _____

Bill To:
Attn: _____
Co: _____
Address _____
City _____ State _____ Zip _____

Special Instructions/Comments:
HOMOGENIZE Pb SAMPLES
DO NOT COMPOSITE SAMPLE SETS

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)

Circle or Add Analysis(es) Requested

SPECIFY APPROPRIATE MATRIX

PRESERVATION

Q A / Q C
RTNE ☐
CT ☒
SWRCB ☐
Logcode ____
OTHER ____

ITEM	LAB USE ONLY: Batch # / Lab No.	Sample Description: Sample I.D. / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal) - Pb	8015B (GRO) / 8020 (BTEX)	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000) PH	SOIL	WATER	GROUND WATER	WASTEWATER	TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
	103203-1,2,3,4,5	NB-1-0,1,2,6,8	9JAN09	VAR				X						X				STD	5	Bg P	C	
	6,7,8,9,10,11	NB-2-0,1,2,4,6,8																	6			
	12,13,14,15,16,17	NB-3-0,1,2,4,6,8																	6			
	18,19,20,21,22	NB-4-0,1,2,4,8																	5			
	23,24,25,26,27,28	NB-5-0,1,2,4,6,8																	6			
	29,30,31,32,33	NB-6-0,1,4,6,8																	5			
	34	NB-1-4		1149						X	X								1	T	M	
	35	NB-4-6		1231																		
	36	NB-6-2		1257																		

• TAT starts 8 a.m. following day if samples received after 3 p.m.

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

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

Preservatives: H=Hcl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

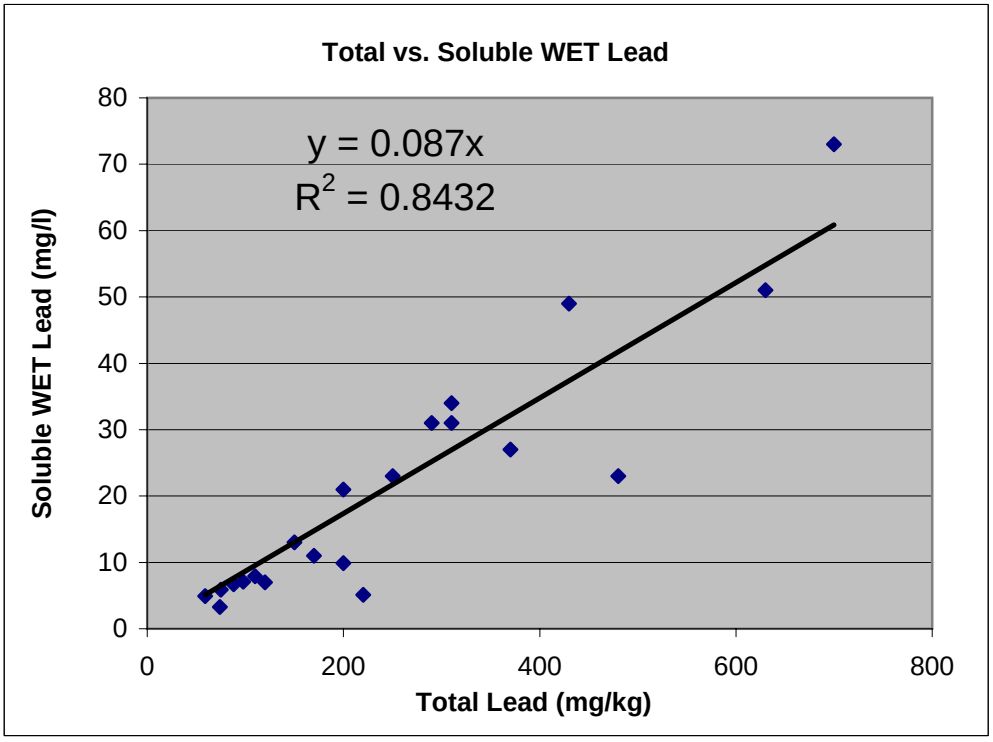
DISTRIBUTION: **White** with report, **Yellow** to folder, **Pink** to submitter.

APPENDIX B

APPENDIX B
Lead Regression

SAMPLE ID	SAMPLE DEPTH (ft)	TOTAL LEAD (mg/kg)	WET LEAD (mg/l)
NB-1-0	0	170	11
NB-3-0	0	88	6.7
NB-4-0	0	310	34
NB-5-0	0	480	23
NB-6-0	0	200	9.9
NB-1-1	1	98	7.1
NB-2-1	1	110	7.9
NB-3-1	1	310	31
NB-4-1	1	430	49
NB-5-1	1	370	27
NB-6-1	1	250	23
NB-1-2	2	200	21
NB-2-2	2	290	31
NB-3-2	2	120	7.0
NB-4-2	2	630	51
NB-6-2	2	74	3.3
NB-2-4	4	220	5.1
NB-3-4	4	700	73
NB-5-4	4	150	13
NB-1-6	6	75	5.9
NB-6-6	6	59	4.9

R = 0.9183



APPENDIX B - LEAD UCLs

0 ft

Number of Valid Observations	6
Number of Distinct Observations	6
Minimum	45
Maximum	480
Mean	215.5
Median	185
SD	159.1
Variance	25306
Coefficient of Variation	0.738
Skewness	0.911
Mean of log data	5.105
SD of log data	0.855
90% Standard Bootstrap UCL	290.9
95% Standard Bootstrap UCL	312.4

1 ft

Number of Valid Observations	6
Number of Distinct Observations	6
Minimum	98
Maximum	430
Mean	261.3
Median	280
SD	135.9
Variance	18467
Coefficient of Variation	0.52
Skewness	-0.195
Mean of log data	5.42
SD of log data	0.63
90% Standard Bootstrap UCL	326.1
95% Standard Bootstrap UCL	344.1

2 ft

Number of Valid Observations	6
Number of Distinct Observations	6
Minimum	23
Maximum	630
Mean	222.8
Median	160
SD	220.7
Variance	48695
Coefficient of Variation	0.99
Skewness	1.547
Mean of log data	4.94
SD of log data	1.15
90% Standard Bootstrap UCL	324.3
95% Standard Bootstrap UCL	356.7

4 ft

Number of Valid Observations	6
Number of Distinct Observations	6
Minimum	9.6
Maximum	700
Mean	191.3
Median	94
SD	262.2
Variance	68768
Coefficient of Variation	1.371
Skewness	1.96
Mean of log data	4.376
SD of log data	1.558
90% Standard Bootstrap UCL	316
95% Standard Bootstrap UCL	354.4

6 ft

Number of Valid Observations	6
Number of Distinct Observations	6
Minimum	6
Maximum	75
Mean	33.83
Median	23
SD	27.03
Variance	730.6
Coefficient of Variation	0.799
Skewness	0.848
Mean of log data	3.21
SD of log data	0.918
90% Standard Bootstrap UCL	46.66
95% Standard Bootstrap UCL	50.39

8 ft

Number of Valid Observations	6
Number of Distinct Observations	4
Minimum	2.5
Maximum	32
Mean	8.683
Median	4.1
SD	11.58
Variance	134.1
Coefficient of Variation	1.334
Skewness	2.306
Mean of log data	1.648
SD of log data	1
90% Standard Bootstrap UCL	14.12
95% Standard Bootstrap UCL	15.42