INFORMATION HANDOUT

For Contract No. 04-2G8704
At 04-Mrn-1-R1.4

Identified by
Project ID 0400021257

MATERIALS INFORMATION

Foundation Report

Preliminary Site Investigation Report (portion)

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

Flex your power!
Be energy efficient!

To: MS. KELLY HOLDEN
Office Chief
Bridge Design-West

Attention: M. Omran

Date: February 18, 2014

File: 04-MRN-001, PM 1.4
EA: 04-2G8701
E-FIS 0400021257
Shoreline Highway

From: DAVID NESBITT
Transportation Engineer
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

MAHMOOD MOMENZADEH
Chief, Branch C
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

Subject: FOUNDATION REPORT

SCOPE OF WORK

This Foundation Report supersedes the Foundation Report dated January 22, 2014, and the Preliminary Foundation Report for this project dated October 17, 2013. The site is located along Shoreline Highway (Route 1) in Marin County. The scope of work includes the following:

- Field reconnaissance to observe and document site conditions.
- Review of geology open files and as-built plans.
- Correspondence and meeting with Structural Design on the alternative wall types.
- Engineering analyses and developing foundation recommendations.

PROJECT DESCRIPTION

The project is located along the southbound shoulder of Route 1, between Ash Street and Spruce Street, near the City of Mill Valley, Marin County (Figure 1). Route 1 at the project location, is a two lane highway with non-standard shoulders in a residential area. The existing retaining wall is located below the southbound shoulder of Route 1. There is a concrete line channel located approximately 10 ft south of the existing structure. The scope of the project is to replace the failed structure at this location, and widen the shoulder 4 feet. Caltrans Structure Design has recommended a 70 ft long soil nail wall to replace the existing structure.

EXISTING STRUCTURE

The existing structure consists of a 6 ft high soldier pile wall constructed out of wood. The existing structure has a wooden handrail approximately 4 feet high. The existing wall is approximately 70 feet long. The wooden posts of the soldier pile wall have deteriorated over time, causing the wall to fail. The handrail has also been struck by a vehicle which caused additional damage to the structure. We were unable to locate any as-built plans for the existing structure.

FIELD INVESTIGATION and SUBSURFACE CONDITIONS

A subsurface investigation consisting of one vertical soil boring was conducted on November 18, 2013 for the geotechnical investigation. The number of boring and its location was dictated by the site traffic and presence of the buried utilities. The soil boring was drilled through the shoulder of the roadway to a depth of 25 feet. In-situ Standard Penetration Test (SPT) blow counts were recorded at 5 foot interval to evaluate the consistency of the on-site soils. Soil samples were collected from the SPT sampler, and retained for identification. At a depth of 15 feet, drill crew switched rotary wire line to HQ (3.7") core barrel to core through rock.

The subsurface investigation indicates stiff to very stiff lean clay to a depth of approximately 10 feet below ground surface (bgs). At approximately 10 feet bgs, the material changes to a very dense clayey sand with gravel. From 15 to 16 feet, a hard metabasalt was encountered. From 16 to 25 feet bgs, decomposed metabasalt (very dense clayey sand with gravel) was encountered. A piezometer was installed once the soil boring was completed groundwater reading was conducted on November 25, 2013, and groundwater was measured 12.1 ft bgs. The depths to the bedrock and the groundwater along the proposed wall could vary from the depth encounter in our boring due to the respective depositional and seasonal reasons. The Log-of-Test Boring (LOTB) will be forwarded once it is completed.

LABORATORY TESTING

A soil sample was collected for corrosion testing, and sent to the Translab in Sacramento for testing. A rock core sample was sent to the Translab in Sacramento for point load testing. Due to the fractures in the rock core, there was not enough material to perform an unconfined compression test. Alternately a point load test was conducted, and the result of which is located in Appendix A. The point load index, $I_{s(50)}$, is 650 psi. Based on this index, the Unconfined Compression Strength (UCS), of the rock at this location could be in excess of 10,000 psi.

SITE GEOLOGICAL INFORMATION

Physical Setting

Climate

The project is located in between the cities of Sausalito and Mill Valley. The site climate is considered Mediterranean, which is warm during summer, when temperatures tend to be in the high 60's and cool during winter when temperatures tend to be 40's and 50's. The warmest months are July and August, with an average maximum temperature of 69.1°F, while the coldest month of the year is December and January, with an average minimum temperature of 48.5°. The annual average precipitation is 37.6 inches. Winter months tend to be wetter than summer months. The wettest month of the year is January, with rainfall of 7.3 inches, and the driest month is July around 0.1 inches. (http://www.idcide.com/ weather/ca/millvalley.htm)

Topography & Drainage

The project is approximately 25 feet above sea level, within the horseshoe shaped Tamalpias Valley. The hills that enclose the valley range from a peak of 1031 feet at Coyote Ridge Trail, and drops to 5 feet where the valley opens to Richardson Bay. This bay is located a mile east of the project site. The project sits in Coyote Creek Watershed. Within the watershed smaller tributaries drain into Coyote Creek and then drain east to Richardson Bay. The project site is located east of a portion of Coyote Creek that is located within the open-top concrete culvert.

Prior Land Use

Prior to the 1900s, the Tamalpais Valley was mostly farmland, then after the turn of the century a working class and rural community grew as more families settled in the area. By the 1950s, the valley had become a suburban settlement with its own primary school, sewer system and local government. In the sixties, Coyote Creek was channelized, and, by then, most of the farms had gone and residential housing had taken over the valley. (The Mill Valley Historical Society Review; Spring 2009; Tamalpais Valley History; by Elizabeth McKee)

Geology

Regional Geology

The project site is located within the California Coast Range geomorphic province. This range was formed when the Farallon Plate was subducted under the North American Plate and the Coast Range was accreted on to the continent. Tectonically, the San Andreas Fault forms the boundary between the Pacific Plate and the North American Plate, and was formed following the cessation of the subduction of the Farllon Plate. Once the plate was subducted, the San Andreas

Fault was the new contact between the Pacific Plate and the North American Plate. This fault is a right-lateral strike-slip fault, and is part of a larger system including the Hayward, San Gregorio, and Rodgers Creek, which accommodate the stresses formed by the migrating plates.

Site Geology

The site is in the Tamalpias Valley, which has been down cut by the Coyote Creek. This valley was filled in by Quaternary marine and marsh deposits which include mud, with organic material, silty mud, silt, and sand; very soft to soft when wet. These deposits where then covered over by artificial fill to the present level. Geology is presented on Figure 2. (USGS, 2000 Geologic map and map database of parts of Marin, San Francisco, Alameda, Contra Costa, and Sonoma Counties, California; by Blake, et. al)

Soils

Route 1, at this location was constructed on artificial fill, so native soils will not be encountered during this project. The soils are considered Xerorthents-Urban land Complex, and as for many of the soils classified an urban land, no hydrological data is available for the selected map units. (The USDA, NRCS; Custom Soil Resource Report for Solano County, California; 2012 can be supplied upon request.)

SCOUR EVALUATION

There is no water crossing at within the limits of the project, therefore scour will not evaluated for this project. The possible rise of water in the adjacent channel would not undermine the wall since the wall extends two ft below the finished grade in front of wall.

CORROSION EVALUATION

One sample was collected from the soil boring for corrosion testing. A copy of the test result is located in Appendix A.

Table 1 Corrosivity Test Result

Boring No.	Depth	Minimum Resistivity (ohm-cm)	pH	Chloride (ppm)	Sulfate (ppm)	Is Sample Corrosive
RW-13-001	5-10 ft	2651	6.15	-	-	No

SEIMIC RECOMMENDATIONS

Numerous active faults within the San Francisco Bay Area have the potential to produce large earthquakes, such as: the San Andreas and the San Gregorio faults. (Caltrans ARS Online

(v2.2.06)) As shown on the Regional Fault Map, Figure 3. The closest of these faults is the San Andreas Fault (North Coast), which lies approximately five miles west of the project site. This fault is a 90° right-lateral strike-slip fault. Based on the Caltrans ARS Online Application, this fault is the controlling fault for this project. Table 2 presents the ARS results for the closest faults to the project. Data is from Caltrans 2007 Seismic Hazard Report Database. Maximum Magnitudes (MMax) are given in Mw (moment magnitude) and are a function of the length and width of a fault zone and not of recent or historical events. With the presence of Quaternary alluvial deposits beneath the site a shear wave velocity of 560m/sec was used to calculate the peak ground acceleration.

Table 2: Seismic Data

FAULT	Fault No.	Distance (Miles)	Fault Type	Maximum Magnitude	Peak Ground Acceleration (560 m/s shear wave velocity)
San Andreas (North Coast)	80	5.2	Right Lateral Strike Slip	8.0	0.38g
San Andreas (Peninsula)	134	5.5	Right Lateral Strike Slip	8.0	0.37g
San Gregorio	124	6.9	Right Lateral Strike Slip	7.4	0.29g
Probabilistic Model USGS Seismic Hazard Map(2008) 975 Year Return Period, calculated at 560m/s					0.67g

Geohazard Considerations

Seismic Hazards

Potential seismic hazards in such an active region include primary surface rupture and fault creep, but since there are no faults within the project limits these do not pose a hazard. Though, there are hazards from secondary effects due to strong ground shaking. The following describes the hazards that may be encountered during either surface rupture or ground shaking and possible mitigation procedures to use during design and/or construction.

Primary Seismic Hazards

Ground shaking

The potential for strong ground shaking in the project area during the life of the project is high, and will affect both roadways and structures. Loose, saturated soils pose the greatest threat during episodes of strong shaking.

Liquefaction

Potentially liquefiable deposits are generally composed of clean sand with a high ratio of void space and soft silts. USGS liquefaction susceptibility map shows the project location is in an area of high liquefaction susceptibility. (http://earthquake.usgs.gov/regional/nca/bayarea/liquefaction.php) Liquefaction Susceptibility is presented on Figure 4.

Secondary Seismic Hazards

Flooding

According to the Association of Bay Area Government, the project is located in a Zone X500 year flood zone (Figure 5). This means there is a 1% chance of annual flooding, because the drainage area is less than one square mile. Once the wall is constructed there should be no geotechnical issues as long the wall is designed to current standards.

Settlement

The roadway is built on an embankment and no settlement problems have been recorded at this location in the past.

Landslides

This site is located in a stream valley, but according to the USGS geologic mapping program few landslide have occurred in this area. The nearest slide to the project site is 0.8 miles west of the current slide. This slide consists of a slope failure above the northbound shoulder of Route 1. The slope failure was near vertical, and resulted in slope debris covering the northbound lane of SR 1.

GEOTECHNICAL RECOMMENDATIONS

Wall Type and Construction Method

Caltrans Structure Design requested a foundation design for a soil nail wall based on cost considerations. Geotechnical Design provided recommendations for both soldier beam wall and soil nail wall options in the Preliminary Foundation Report (PFR) dated October 17, 2013. The soldier beam wall was the preferred wall alternative by Geotechnical Design in the PFR for the following reasons:

- Soil nail walls are traditionally constructed at locations that require excavation of the existing material before installation of the nails. This location requires fill to be placed due to the 4 ft widening of the existing shoulder.

- Underground utilities along Shoreline Highway (Route 1) require significant potholing to determine the utility locations. Potholing is required to avoid damage to the existing utilities, including gas and water, during the soil nail installation.

- Soil nail wall requires a lean concrete backfill to accommodate the widening of the shoulder, which increase the weight of the wall. The soldier beam wall would use light weight fill, which would reduce the weight of the wall.

- The construction of the soldier beam wall requires less specialized equipment, and expertise compared to the soil nail wall.

- The impact of the additional load on the concrete channel by the construction of the soldier beam is less than the soil nail wall, but both are insignificant.

The following recommendations and construction procedures were developed to minimize the disadvantages of a soil nail wall for this site as described above, and to facilitate this non-standard soil nail wall design and construction.

CONSTRUCTION CONSIDERATIONS AND REQUIREMENTS

The following construction considerations and requirements should be included in the design and construction specifications for the proposed wall.

Considering the conditions of the roadway and the existing retaining wall, a wall with an approximate length of 70-ft. would be required. The wall would be offset approximately 4-ft from the existing shoulder to accommodate the required widening of the shoulder. The wall shall be designed for a height of 8 ft. We recommend the removal of the loose soil and debris (including the existing wall material) prior to the construction of the new wall.

We recommend that two soil nail verification tests be performed in accordance with the soil nail wall specifications. The verification test locations are located based on the wall station and offset from top of wall. The approximate location of verification and proof test nails are shown on the structure wall plans.

We recommend that 15% (or a minimum of four) production nails be proof tested. The proof test location will be evenly distributed along the wall, and shown on the wall elevation plan. Supplemental soil nail tests shall be conducted from all proof test nails. The locations can be adjusted in the field by the Engineer.

In order to evaluate the proposed excavation impact on the slope, one stability test will be required as noted in the specifications, at approximately station 10+36.0 on the "ALN1" LOL.

The approximate top and bottom elevation of the excavation for stability test are 26.0 ft and 21.0 ft respectively.

Drainage Recommendations

Flexible or double sided geocomposite drains strips will be placed in between the soil nails as shown on the structure plan sheets. The geocomposite will be placed against the slope, after the excavation of loose material and debris. Water collected by the geocomposite drains will be collected by 3" diameter pipes, and discharged through the weep holes in the face of the wall. The geocomposite will collect surface run off through the roadway.

Design Parameters

We recommend using the following soil parameters for the soil nail wall design:

- Internal friction angle, $\phi = 32°$, cohesion, c = 0 psf, and a soil total unit weight, $\Upsilon = 125$ lbs/ft^3.
- Maximum 2 ft offset of top row of nail below the original ground (OG).
- Minimum 2 ft embedment of the wall below the FG elevation in front of wall.
- Maximum offset of 1 ft of bottom nail from the FG elevation in front of the wall
- Soil nail Design pull out of 1.8 kips/ft. The maximum pull out test load for the supplemental tests is 2.7 kips/ft.
- Soil nails inclination of 15 degrees below the horizontal plane.
- The first row of soil nails will have a length of 20 ft; the second row of soil nails will have a length of 15 ft from the face of the wall. Soil nails are to be spaced not wider than 5 ft in both vertical and horizontal direction.
- Wall face punching load of 35 kips.
- Add traffic load of 250 psf.
- Use a seismic load of 34H at the base of a triangular pressure distribution with depth.
- Use a No. 8 reinforcement bar for the soil nails.

CONSTRUCTION SEQUENCE

1. Soil nail installation equipment shall not be operated on the bench adjacent to the concrete channel. Soil nail installation equipment shall be operated from the roadway. No additional fill shall be placed between the face of the wall and the concrete channel.

2. All underground utilities in the roadway must be identified, and pot holed to determine the exact location and depth. The soil nail installation must not conflict or limit the access to the existing utilities. The existing water line running through the wall must be protected, and be accessible to the utility owner without damaging the wall.

3. All surficial loose soil and debris shall be removed prior to installation of soil nails. This includes removal of existing wall and vegetation.

4. Prepare bench as shown on the Index of Plans sheet on the Structure Plans.

5. Install (drill and grout) upper row of soil nails (LE 1) and support nails (5'-0"-#5) to hold the reinforcement cage. Nails to be installed through undisturbed original ground. The exact offset of the first row of nails on the prepared OG shall be determined in the field to avoid the interception with the utilities presence at the site. The soil nails are required to keep 2 ft minimum distance from any existing utility.

6. Cut the approximate OG as needed (benched), and install the second row of soil nails (LE 2), and grout the soil nails.

7. Install the reinforcement cage on the first row as described in item 4.

8. Use lean concrete to fill void and reinforcement cage behind wall using temporary form work.

9. Continue placing shotcrete on soil nail wall face.

10. Construct CIP portion of wall.

11. Fill in front of the wall must be compacted in accordance with chapter 19 of the Caltrans 2010 Standard Specifications. The contractor must use hand operated equipment to compact the fill in front of the wall.

CONSTRUCTION CONSIDERATIONS AND REQUIREMENTS

- The existing slope at the end of the wall (station 10+70) where the soil nail wall is terminated shall be cut in benches parallel to the wall alignments. The benches are to provide interlocking of the fill required to be placed at this end to develop a slope of 2H (min): 1 V parallel to the wall alignment. The height of each bench shall not exceed 4 ft. Theses benches could be cut to conform with the benches cut perpendicular to the slope for placing the reinforcing cage within the wall backfill. Please refer to Section 19 "Earthwork" in the Caltrans 2010 Specifications for earthwork requirements.

- All loose soil and debris shall be removed prior to installation of the soil nails. This includes removal of existing wall and vegetation.

- No temporary cut slope shall be steeper than 1H: 1V. Any required steeper cut needs a suitable temporary shoring design. All cuts and shoring need to conform to Cal-OSHA requirements.

- Nails to be installed through undisturbed original ground.

- Use lean concrete for the wall backfill, since granular soil cannot be used because the difficulties of field compaction due to the presents of the soil nails.

- The contractor will encounter hard rock as indicated on the LOTB's. The contractor's equipment shall be able to drill through the hard rock.

Any questions regarding the above recommendations should be directed to the attention of Mahmood Momenzadeh at (510) 286-5732 or David Nesbitt at (510) 622-0104 of the Office of Geotechnical Design-West.

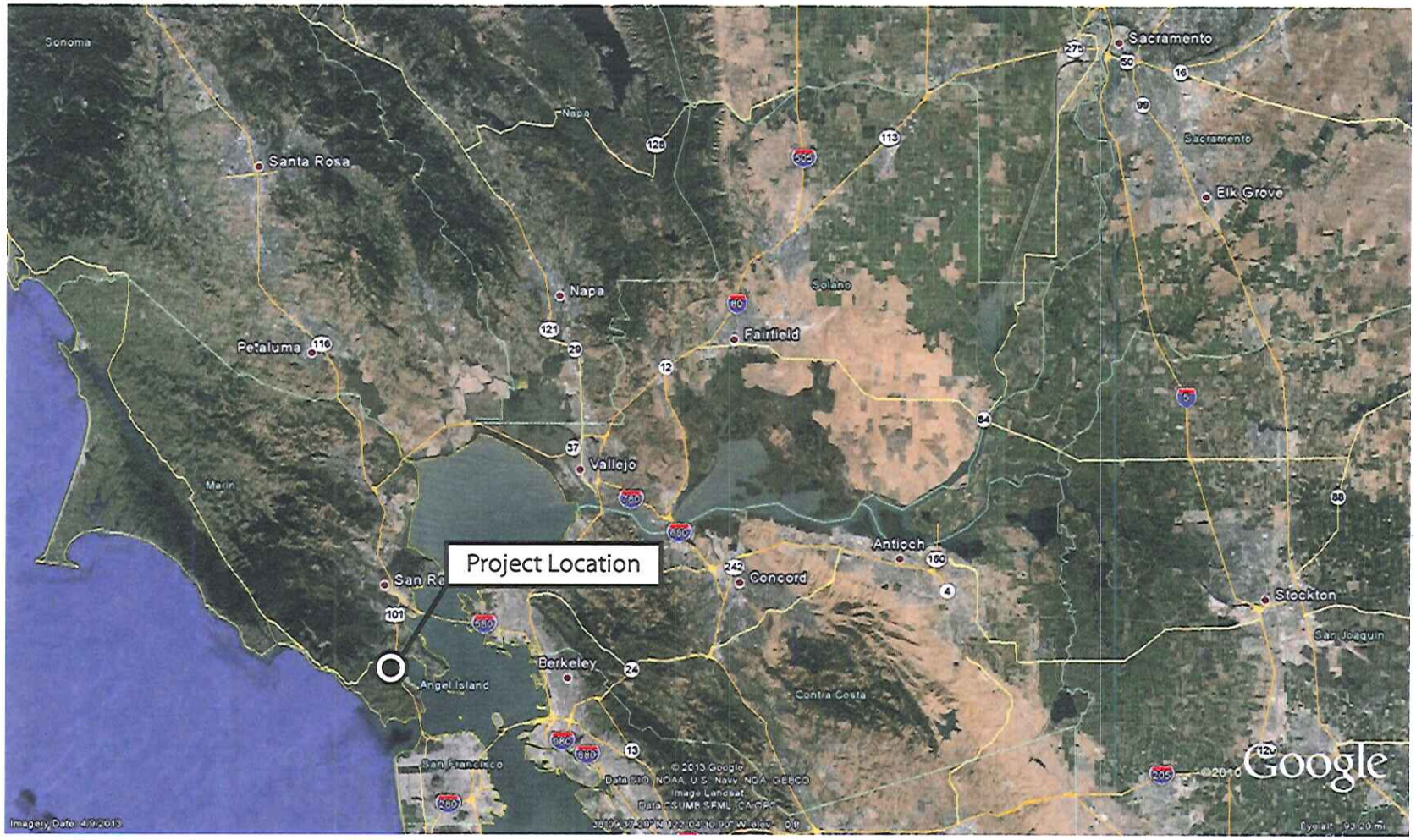
REGISTERED PROFESSIONAL ENGINEER
MAHMOOD MOMENZADEH
No. GE 2685
Exp. 12/31/2015
GEOTECHNICAL
STATE OF CALIFORNIA

* * * * *

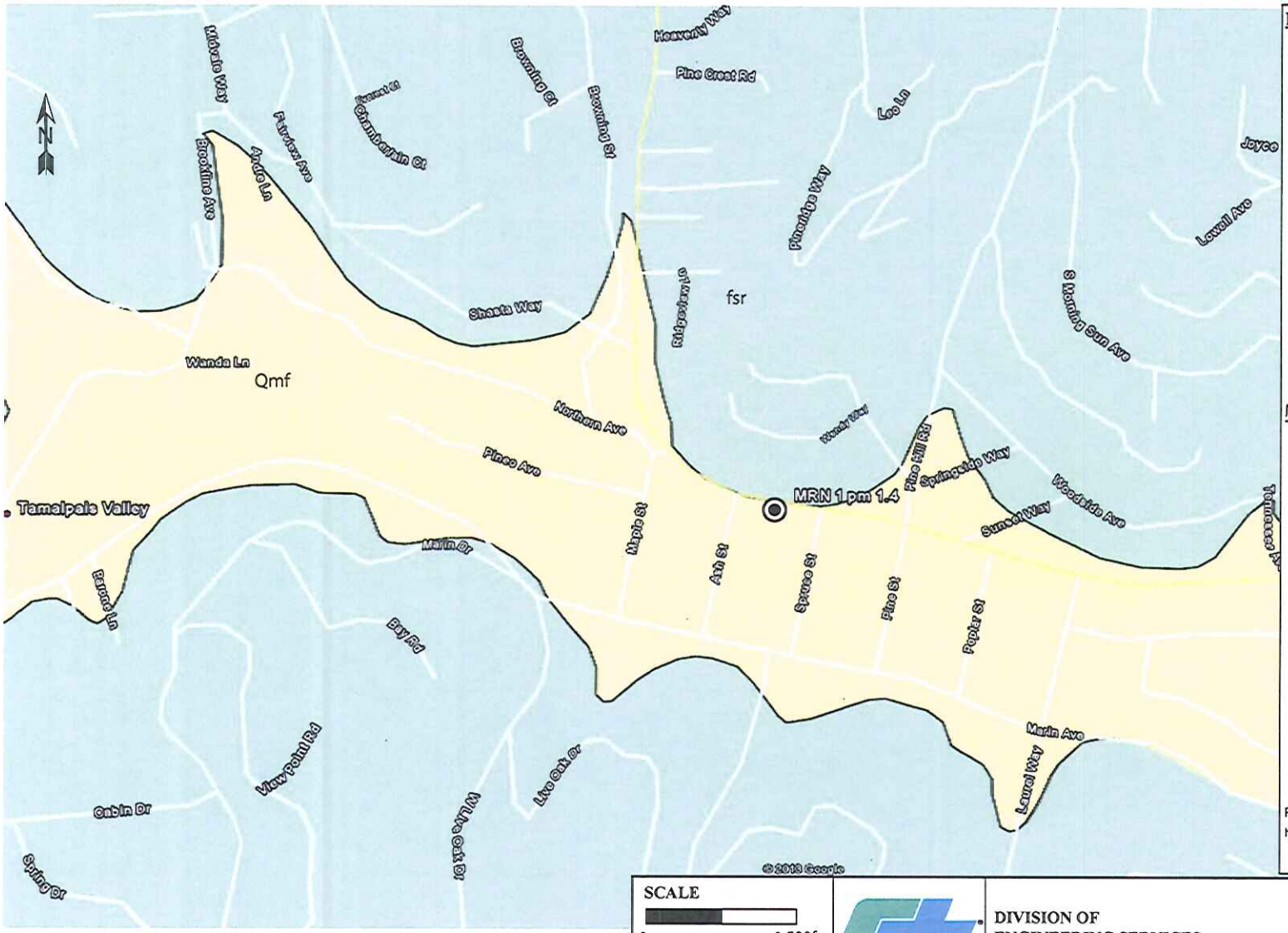
Attachments:

c: TPokrywka, MMomenzadeh, DNesbitt, CRisden, SKotalawala, Route File, Daily File, RE Pending, Archive

DNesbitt/dn



SCALE			LOCATION MAP	
0 15miles	Caltrans	DIVISION OF ENGINEERING SERVICES GEOTECHNICAL SERVICES GEOTECHNICAL DESIGN - WEST – BRANCH B	04-MRN-001	0400021257
			PM. 1.4	FEBRUARY 2014
			FIGURE 1	



Explanation

Qmf: Artificial fill over marine and marsh deposits (Quaternary)

fsr: Franciscan Complex melange rocks (Eocene, Paleocene and/or Late Cretaceous)

Map Symbols

Project Location

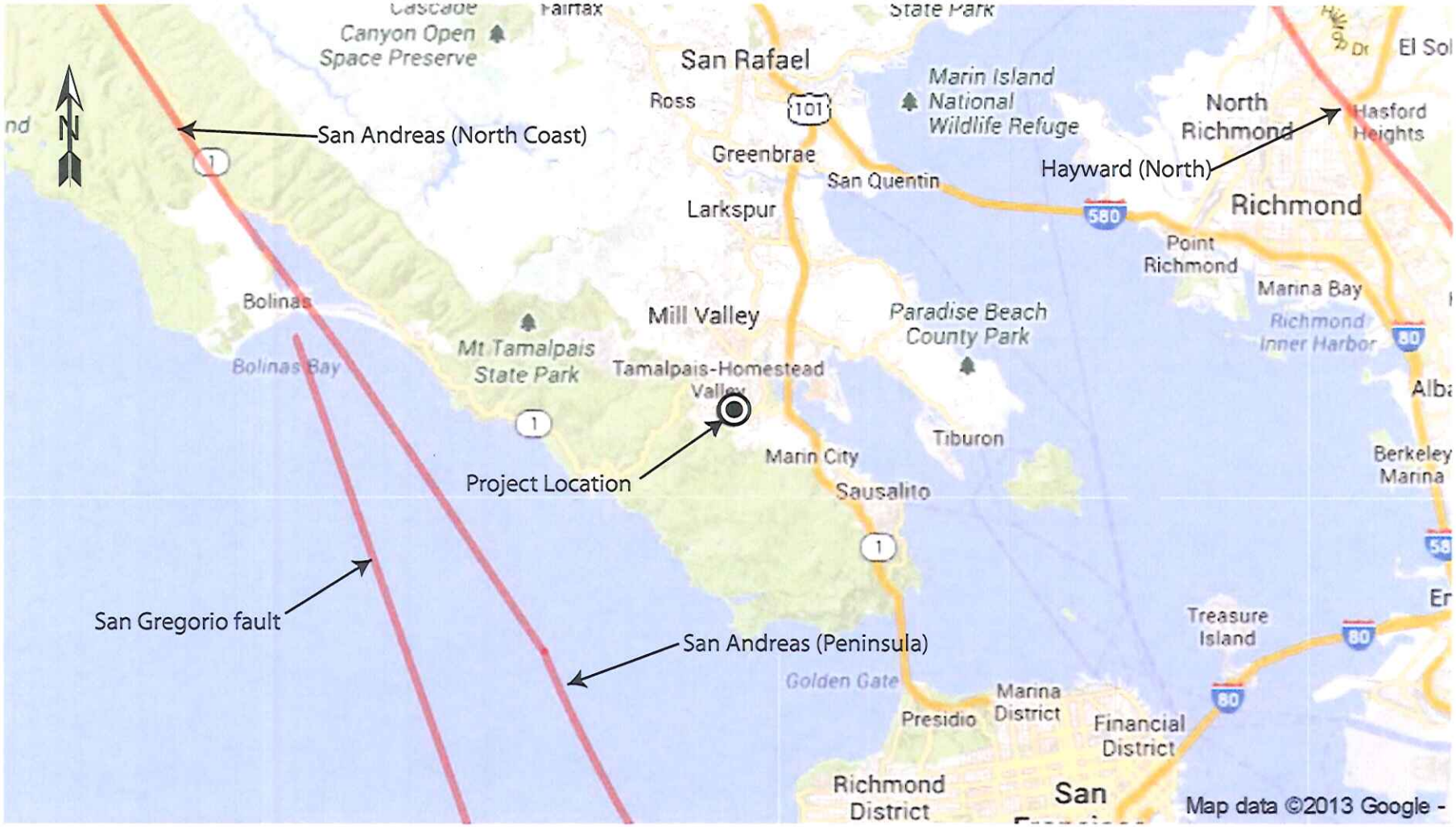
Reference:
http://earthquake.usgs.gov/regional/nca/bayarea/

SCALE
0 1,500ft

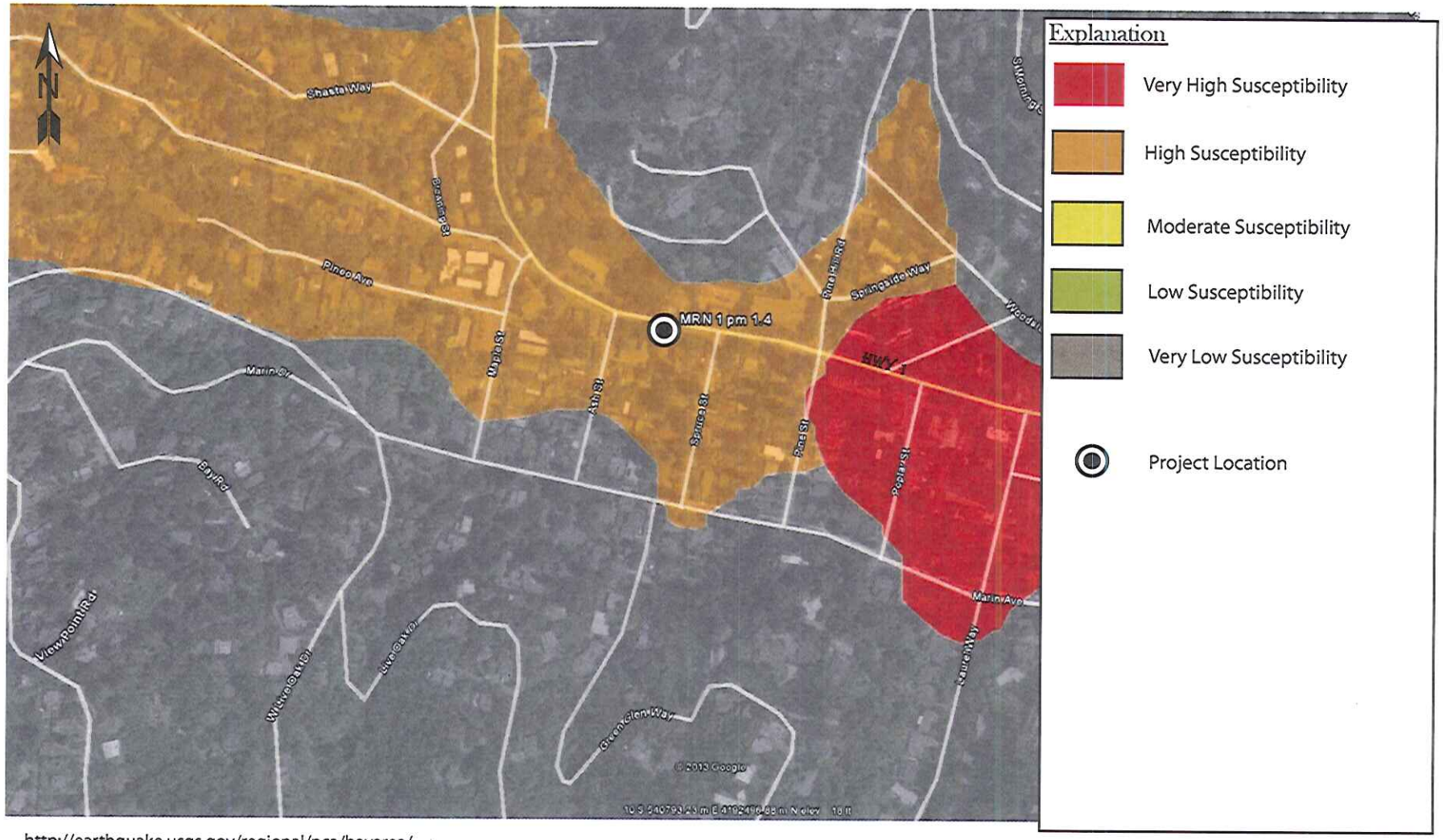
Caltrans

DIVISION OF
ENGINEERING SERVICES
GEOTECHNICAL SERVICES
GEOTECHNICAL DESIGN - WEST – BRANCH B

GEOLOGY MAP	
04-MRN-001	0400021257
PM. 1.4	FEBRUARY 2014
FIGURE 2	

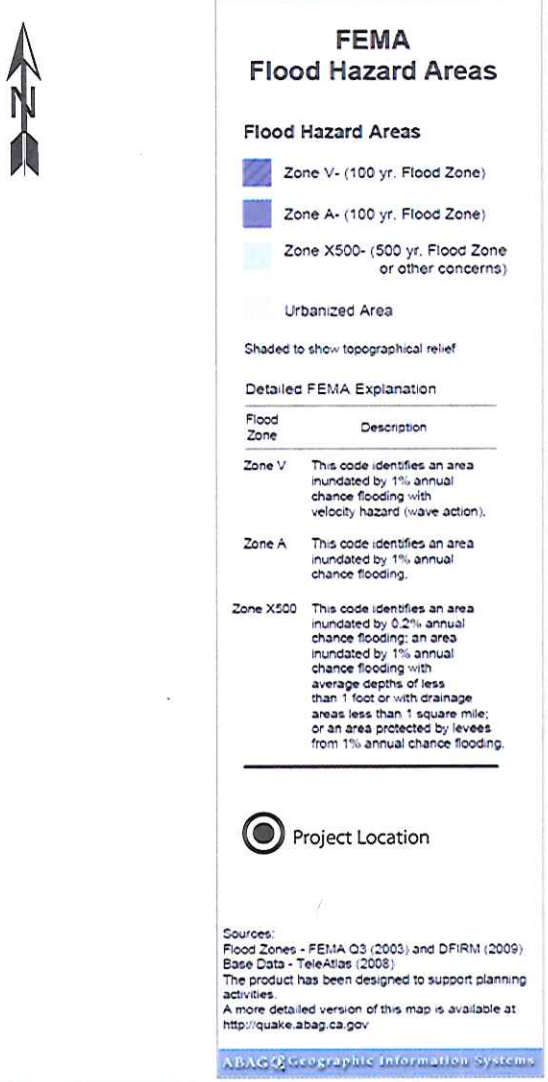


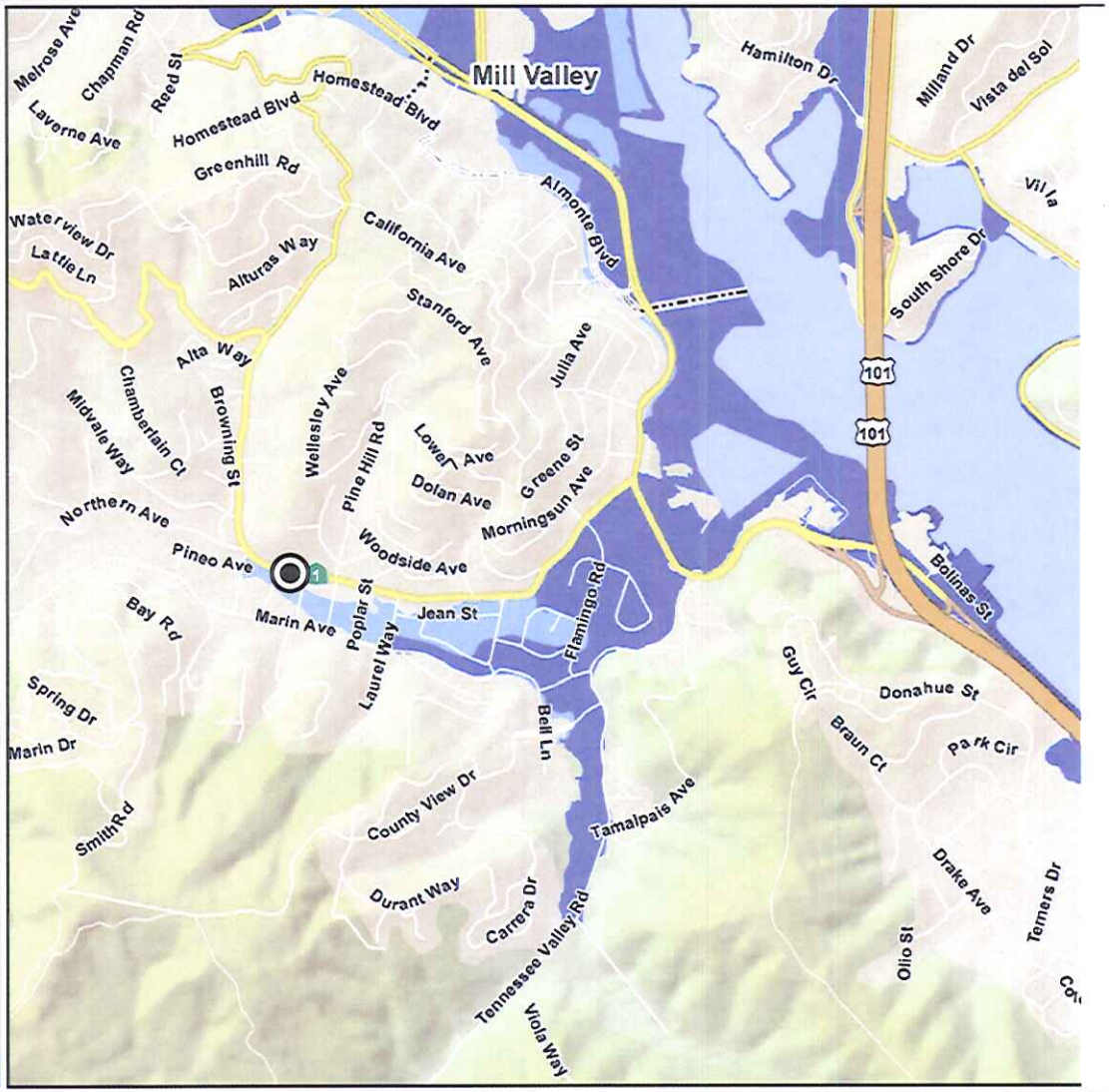
SCALE		REGIONAL FAULT MAP	
0 — 4 miles	DIVISION OF ENGINEERING SERVICES GEOTECHNICAL SERVICES GEOTECHNICAL DESIGN - WEST – BRANCH B	04-MRN-001	0400021257
		PM. 1.4	FEBRUARY 2014
		FIGURE 3	



http://earthquake.usgs.gov/regional/nca/bayarea/

SCALE 0 500ft	Caltrans	DIVISION OF ENGINEERING SERVICES GEOTECHNICAL SERVICES GEOTECHNICAL DESIGN - WEST – BRANCH B	LIQUEFACTION SUSCEPTIBILTY MAP 04-MRN-001 0400021257 PM. 1.4 FEBRUARY 2014 FIGURE 4





SCALE

0 — 2 mile

Caltrans

DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES
GEOTECHNICAL DESIGN - WEST – BRANCH B

FLOOD SUSCEPTIBILTY MAP

04-MRN-001	0400021257
PM. 1.4	FEBRUARY 2014

FIGURE 5

APPENDIX A

Division of Engineering Services
Geotechnical Laboratory

Point Load Strength Index

Dist-EA: 04-2G8701
Dist-Co-Rte-PM: MRN-1-1.4/

GI Tracking No.: 13-086
Report Date: January 8, 2014

Sample ID	Test Type	Length , L (mm)	Width, W (mm)	Initial Distance Between Contact Points, D(mm)	Final Distance Between Contact Points, D'(mm)	Equivalent Diameter, De (mm)	Failure Load, P (lbs)	Uncorrected Point Load Strength Index Is (psi)	Point Load Strength Index Is (50) (psi)	Remarks
RW-13-001_3	I-L	18.42	50.8	30.5	26.5	41.4	1877.92	706.85	649	

RW-13-001_3

No Image Available

No Image Available

No Image Available

Test Type Abbreviations: D- Diametral, A - Axial, B - Block, I - Irregular Lump

Orientation of Load Direction (if anisotropic): P - Perpendicular to plane of weakness, L - Parallel to plane of weakness

Results sent to: DAVID NESBITT

Division of Engineering Services
Materials Engineering and Testing Services
Corrosion and Structural Concrete Field Investigation Branch

Report Date: 1/6/2014
Reported by Michael Mifkovic

CORROSION TEST SUMMARY REPORT - SOIL

EA

EFIS: **0400021257**

Dist/Co/Rte/PM **04 / MRN /001/ / 1.4 PM**

CORROSION LAB #	TL101 #	BORE #	DEPTH (FT) START	DEPTH (FT) END	MINIMUM RESISTIVITY[1] (ohm-cm)	pH[1]	CHLORIDE CONTENT[2] (ppm)	SULFATE CONTENT[3] (ppm)	IS SAMPLE CORROSIVE?
SOIL SAMPLE FROM:									
CR20130433	C634981	RW-13-001	5	10	2651	6.15			NO

This site is not corrosive to foundation elements (see note below).

Note: For Structural Elements, the Department considers a site corrosive if one or more of the following conditions exist: pH is 5.5 or less, chloride concentration is 500 ppm or greater, sulfate concentration is 2000 ppm or greater. Resistivity is not considered for Structural Elements. MSE backfill shall conform to the requirements of section 47-2.02C Structure Backfill in the 2010 Standard Specifications.

[1]CT 643, [2]CT 422, [3]CT 417

PRELIMINARY SITE INVESTIGATION REPORT

SR-1 CULVERT REPLACEMENT PROJECT
PM 0.96/1.05
MARIN COUNTY, CALIFORNIA

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

PREPARED BY:
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LIVERMORE, CA 94550

GEOCON PROJECT NO. E8560-06-38
CALTRANS EA 04-4S7701
CALTRANS PROJECT # 04-0002-0144-1

JUNE 2012

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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.

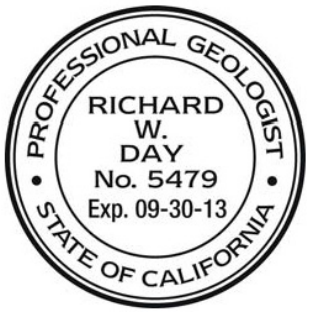
This report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts 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
Sr. Staff Scientist

Richard Day, CEG, CHG
Project Manager



CALIFORNIA DEPARTMENT OF TRANSPORTATION – DISTRICT 4
OFFICE OF ENVIRONMENTAL ENGINEERING

Reviewed By:	Recommended By:	Approved By:
Max Raafati, PE Task Order Manager	Ray Boyer, PE District Branch Chief	Allen Baradar, PE, REA District Office Chief

PROJECT TEAM

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SOIL AND GROUNDWATER SAMPLING REPORT

1.0 INTRODUCTION

This *Soil and Groundwater Sampling Report* for the State Route 1 (SR-1) culvert replacement project was prepared by Geocon Consultants, Inc. under California Department of Transportation (Caltrans) Contract No. 04A3578, Task Order No. 38 (TO-38), and Expenditure Authorization 04-4S7701.

1.1 Project Location and Proposed Improvements

The project location is an approximately 425-foot-long section of SR-1 in Marin County between Post Mile (PM) 0.96 and 1.05 near Marin City, California (Figure 1). Caltrans proposes to replace four drain culverts along the north and south sides of the highway.

1.2 General Objectives

The purpose of the soil and groundwater sampling was to evaluate concentrations of California Assessment Manual (CAM) 17 metals, total petroleum hydrocarbons as gasoline (TPHg) and as diesel (TPHd), volatile organic compounds (VOCs), and naturally occurring asbestos (NOA) within the proposed excavation area.

The information obtained from this investigation will be used by Caltrans to evaluate soil and groundwater disposal options and identify health and safety concerns.

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 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* (May 2008), 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 cleanup 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, 2008).

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 most conservative ESL table was used for comparative purposes: 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 Tables 3, 4, 6 and 7 for comparative purposes.

2.3 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 requested by Caltrans included the following:

3.1 Pre-field Activities

- Prepared a site-specific *Health and Safety Plan* to provide guidelines on the use of personal protective equipment and the health and safety procedures implemented during the field activities.
- Conducted pre-construction meeting on May 7, 2012, with Caltrans Task Order manager.
- Provided a minimum of 48-hour notice to the subsurface utilities via Underground Service Alert prior to job site mobilization.
- Retained the services of Advanced Technology Laboratories (ATL), a Caltrans-approved and California-certified analytical laboratory, to perform the chemical analyses of soil and groundwater samples.

- Retained the services of EMSL, Inc., a Caltrans-approved and California-certified analytical laboratory, to perform the asbestos analysis of soil samples.

3.2 Field Activities

The soil and groundwater sampling was conducted on May 10, 2012. The following field activities were performed during the sampling effort:

- Advanced seven soil borings (B1 to B7) along the northbound shoulder and one boring (B8) along the southbound shoulder of SR-1 where the new drain culverts are planned for construction (Figure 2).
- Collected 29 soil samples for selected analysis of CAM 17 metals, total lead, pH, TPHg, TPHd, WET lead, NOA and VOCs.
- Collected groundwater samples from three boring locations (B6 to B8). The groundwater samples were submitted for TPHg, VOCs, and CAM 17 metals analysis.
- Transported samples to California-certified environmental laboratories for analysis under standard chain-of-custody (COC) documentation.

4.0 INVESTIGATIVE METHODS

4.1 Sampling Procedures

Soil samples were collected from eight boring locations identified by the Caltrans TO Manager. Geocon recorded the boring and surface sample locations using Differential Global Positioning System (DGPS) equipment. Boring coordinates are presented in Table 1, and boring locations are shown on the Site Plan, Figure 2.

The eight borings were advanced to depths ranging from 1.5 to 7 feet using a stainless steel hand auger. Soil samples were collected for laboratory analysis at depths of 0 to 0.5 foot, 1.0 to 1.5 feet, 2.5 to 3.0 feet, and 6.5 to 7.0 feet in borings B3, B6, B7, and B8. Adverse drilling conditions were encountered in borings B1, B2, B4, and B5. As a result, soil samples were collected for laboratory analysis at depths of 0 to 0.5 foot and 1.0 to 1.5 feet in boring B1, 0 to 0.5 foot, 1.0 to 1.5 feet, and 2. 5 to 3.0 feet in boring B2, 0 to 0.5 feet, 1.0 to 1.5 feet, 2.5 to 3.0 feet, and 3.5 to 4 feet in B4, and 0 to 0.5 foot, 1.0 to 1.5 feet, 2.5 to 3.0 feet, and 4.5 to 5.0 feet in boring B5.

Soil samples were collected from all depths, except the 1.0 to 1.5 foot sample interval, by manually advancing an approximately four-inch-diameter hand auger bucket to the desired sample depths, and then emptying the contents of the bucket into a stainless steel tube capped on both ends with Teflon

tape and plastic end caps, or a plastic Ziploc bag. The 1.0 to 1.5-foot sample interval from each boring location was collected using a 25-pound slide hammer sampler lined with stainless steel tubes since soil samples from this interval were scheduled for TPHg analysis.

Groundwater samples were collected from borings B6, B7, and B8 by using a disposable polyethylene bailer. Groundwater from each borehole was retrieved using a bailer and then transferred directly into glass vials preserved with hydrochloric acid for VOC and gasoline analyses and plastic jars preserved with nitric acid for metals analysis. After the samples were collected each container was labeled with the sample location, depth (for soil samples), date, and time.

After soil and groundwater samples were collected at each boring location, the boreholes were backfilled to ground surface with the soil cuttings derived at each sample location. Soil and groundwater samples were transported to Caltrans-approved and California-certified environmental laboratories using standard COC documentation.

Groundwater samples collected for analysis of CAM 17 metals were left undisturbed overnight, allowing suspended soil particles to settle to the bottom of the sample container. Samples collected from borings B6 and B8 attained suitable clarity for analysis, however, the sample collected from boring B7 was not analyzed due to high sediment load.

The field quality assurance/quality control (QA/QC) program consisted of decontaminating reusable sampling equipment between each sample location and analyzing trip blanks and equipment blanks. The stainless steel hand augers and 25-pound slide hammer sample sleeve were decontaminated between each sample location using a non-phosphate detergent solution followed by a double rinse with deionized water. 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.

One trip blank accompanied the ice chest used to store and transport the soil and groundwater samples to the analytical laboratory. The trip blank was analyzed for TPHg and used to confirm that groundwater samples were not impacted by external contaminants during storage and transport to the analytical laboratory. TPHg was not detected at or above the reporting limit of 0.05 mg/l in the trip blank sample.

One equipment blank was collected during the field sampling. The equipment blank was collected by pouring deionized water through the hand auger bucket after it had been decontaminated between sample locations, and capturing the water in a 500-milliliter polyethylene container preserved with nitric acid. The equipment blank was analyzed for total lead, and the results were used to confirm that sample results from each borehole were not compromised by potential cross contamination from a

previous boring location due to improper equipment decontamination. Lead was not detected in the equipment rinse blank sample at or above the reporting limit of 0.05 mg/l.

4.2 Laboratory Analyses

Laboratory analyses were performed by ATL and EMSL under 48-hour turn-around-time.

Soil samples were analyzed as follows:

- 8 samples for CAM 17 metals using Environmental Protection Agency (EPA) Methods 6010 ICAP and 7471A.
- 29 samples for total lead using EPA Method 6010 ICAP.
- 10 samples with a total lead concentrations greater than 50milligrams per kilogram (mg/kg) (i.e., equal to ten times the STLC value of 5.0 milligrams per liter [mg/l] for lead) were further analyzed for WET lead.
- 4 samples with WET lead concentrations exceeding the STLC of 5.0 mg/l and total lead concentration equal to or greater than 100 mg/kg were further analyzed for TCLP lead.
- 8 samples for TPHg and TPHd using EPA Method 8015B.
- 1 soil sample for VOCs using EPA Method 8260B.
- 14 samples for NOA using CARB Test Method 435.
- 7 samples for pH using EPA Method 9045.

Groundwater samples were analyzed as follows:

- 2 samples for CAM 17 metals using EPA Methods 6010 ICAP and 7471A. The groundwater sample collected from boring B7 could not be analyzed for CAM 17 due to excess turbidity.
- 3 samples for TPHg using EPA Method 8015B.
- 3 samples for VOCs using EPA Test Method 8260B.

QA/QC water samples were analyzed as follows:

- One trip blank sample for TPHg using EPA Method 8015B.
- One equipment blank sample for total lead using EPA Method 6010B.

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. 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.

Three matrix spike samples were flagged by the laboratory as being outside the acceptance limit; however, the analytical batches were validated by the laboratory control sample.

5.0 INVESTIGATIVE RESULTS

5.1 Subsurface Conditions

Sediments encountered during the advancement of borings B1 to B8 consisted of clayey silt and silty sand with some interbedded gravel between ground surface and the total depth of each borehole. Sandstone refusal was encountered in borings B1 at 1.5 feet and B2 at 3 feet. Refusal was also encountered in borings B4 and B5 at depths of 4 and 5 feet, respectively; however, the source of the refusal was not identified.

Groundwater was encountered in boring B6 at a depth of 3 feet, in B7 at 4.5 feet, and B8 at 5.5 feet. Groundwater was not encountered in the other five borings.

5.2 Laboratory Analytical Results

The analytical results are tabulated in Tables 2 through 7. Copies of the analytical laboratory reports and chain-of-custody documentation are provided in Appendix A.

5.2.1 Soil Results

- Antimony, beryllium, cadmium, selenium, silver, and thallium were not detected above their respective laboratory reporting limits.
- Total lead was reported at concentrations ranging from 5.7 mg/kg to 190 mg/kg. Ten samples exceeded 50 mg/kg and were further analyzed for WET lead.
- WET lead was reported at concentrations ranging from 2.6 mg/l to 15 mg/l. Four samples exceeding the lead STLC of 5.0 mg/l were further analyzed for TCLP lead.
- TCLP lead was not detected at or above the reporting limit of 0.50 mg/l.
- Remaining CAM 17 metals were reported at concentrations below ten times their respective STLCs.
- TPHg was reported in sample B8 1.5 at a concentration of 1.7 mg/kg.
- TPHd was reported at concentrations ranging from <1.0 mg/kg to 870 mg/kg.
- TPHg or VOCs were not detected above laboratory reporting limits in the one soil sample (B7 4.5) collected immediately above groundwater.
- NOA was not detected at or above the target analytical sensitivity of 0.25%.
- pH values ranged from 6.4 to 7.6.

5.2.2 Groundwater Results

- Antimony, arsenic, beryllium, cadmium, mercury, molybdenum, selenium, silver, and thallium were not detected above their laboratory reporting limits. Barium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc were reported at concentrations ranging from 0.003 mg/l to 0.19 mg/l.
- TPHg was reported at 0.10 mg/l in the groundwater sample collected from boring B8.
- Toluene was reported in the groundwater sample collected from boring B7 at a concentration of 0.65 ug/l and 4-isopropyltoluene was reported in the groundwater sample collected from boring B8 at a concentration of 7.4 ug/l.

5.2.3 Field QA/QC Sample Results

- TPHg was not detected above the laboratory reporting limit of 0.05 mg/l in the trip blank sample.

- Lead was not detected above the laboratory reporting limit of 0.005 mg/l in the equipment blank samples.

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. The data showed acceptable recoveries and relative percent differences (RPDs) for the samples and for the laboratory QA/QC analyses. Based on this limited data review, no additional qualifications of the soil data are 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 WET lead concentrations exists that would allow the prediction of WET lead concentrations based on calculated UCLs. The lead data for the site were treated as a single sample population for statistical analysis.

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 B. The following table presents the UCLs and statistics for the data set.

Borings B1 to B8

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	95.8	102	72.3	6.2	190
1.0 to 1.5	94.2	101	69.1	15	160
2.5 to 3.0	32.2	34.3	22.1	6.3	75
6.5 to 7.0	9.56	9.87	8.46	5.7	11

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 calculated UCL total lead concentrations.

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 ten (x, y) data points (i.e., soil samples analyzed for both total lead [x] and WET lead [y]) from the site. To achieve an acceptable correlation, the data point (*160, 6.1*) with the highest squared residual WET lead value was omitted from regression analysis. The resulting *coefficient of determination* (r^2) equaled 0.7308, which yields a corresponding *correlation coefficient* (r) of 0.855.

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 $y = 0.0642(x)$, 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 B. The predicted WET lead concentrations are summarized in Table 8.

6.0 CONCLUSIONS

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 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 the Site. Weighted averages are calculated by using the total lead concentration for each depth interval as the value for the underlying soil (unless a sample was collected from an underlying depth interval). The total and WET lead calculations are summarized below and in Table 8.

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 1.0 ft	95.8	**6.2**	102	**Hazardous**
Underlying soil (1.0 to 7.0 ft)	*46*	*2.9*	*49*	*Non-hazardous*
0 to 2.5 ft	95	**6.1**	101	**Hazardous**
Underlying soil (2.5 to 7.0 ft)	*29.7*	*1.9*	*31.6*	*Non-hazardous*
0 to 6.5 ft	56	3.6	60	Non-hazardous
Underlying soil (6.5 to 7.0 ft)	*9.6*	*0.6*	*9.9*	*Non-hazardous*
0 to 7.0 ft	*53*	*3.4*	*57*	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, excavated soil would be classified as hazardous to a depth of 1.0 foot based on lead content since the 90% UCL-predicted WET lead concentrations are greater than the lead STLC of 5.0 mg/l. Underlying soil (i.e., 1.0 to 7.0 feet) would be considered non-hazardous based on lead content.

6.2 CAM 17 Metals in Soil

The CAM 17 metals concentrations in site soil were compared to ESLs (SFRWQCB, May 2008, Tables A and K-3) and published background levels typically present 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).

Arsenic and vanadium were reported with concentrations equal to or greater than their respective residential land use ESL values. ESLs and published background concentrations for these elements are summarized in the table below:

Metal	Maximum	95% UCL	Mean	Shallow Soil Residential ESL	Shallow Soil Commercial /Industrial ESL	Worker Direct Exposure ESL	PUBLISHED BACKGROUND MEAN[1]	PUBLISHED BACKGROUND RANGE[1]
As	3.8	3.20	2.49	0.39	1.6	15	3.5	0.6 to 11
Vn	36	27.33	23.63	16	200	770	112	39 to 288

Concentrations reported in milligrams per kilogram (mg/kg)

[1] Kearney Foundation of Soil Science, March 1996

The calculated 95% UCL for arsenic of 3.20 mg/kg is above the residential land use and commercial/industrial land use ESLs, but below the construction worker exposure ESL and within the published background range. The SFRWQCB *Update to Environmental Screening Levels (ESLs) Technical Document* (*November 2007, Revised May 2008)* 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 calculated 95% UCL for vanadium of 27.33 mg/kg exceeds the shallow soil residential land use ESL, however, it is below the commercial/industrial and construction worker exposure ESLs and the published background range.

Based on the reported arsenic or vanadium concentrations, offsite reuse or disposal of excavated soil may be restricted.

CAM 17 metals results are summarized in Tables 2 and 3. Statistical evaluations for arsenic and vanadium concentrations reported during this investigation are presented in Appendix B.

6.3 Organics in Soil

TPHg concentrations were below the residential and commercial/industrial land use ESLs of 83 mg/kg. TPHd concentrations ranged from <1.0 mg/kg to 870 mg/kg (sample B8 3.0). The calculated 95% UCL for TPHd is 283 mg/kg. The maximum and calculated 95% UCL concentrations exceed the ESLs for residential and commercial industrial land use of 83 mg/kg; however, they are below the construction worker exposure ESL of 4,200 mg/kg. With the exception of sample B8 3.0, remaining TPHd concentrations in soil were below the residential and commercial land use ESLs. VOCs were not detected in the soil sample collected from boring B7. A summary of organics results for soil is presented in Table 4.

Based on the reported TPHd concentration (870 mg/kg) in boring B8, reuse or disposal of excavated soil may be restricted.

6.4 Naturally-Occurring Asbestos

NOA was not detected in soil samples at or above the laboratory target sensitivity of 0.25%. A summary of NOA results is included in Table 5.

6.5 CAM 17 Metals in Groundwater

Unfiltered grab-groundwater samples were collected from borings B6 and B8 and analyzed for CAM 17 metals. CAM 17 Metals results for the grab-groundwater sample and corresponding ESL values are summarized in Table 6.

- Eleven metals (antimony, arsenic, barium, beryllium, cadmium, chromium, mercury, molybdenum, selenium, silver and thallium) were not detected at or above the laboratory reporting limits.

- Six metals (cobalt, copper, lead, nickel, vanadium, and zinc) were reported at concentrations equaling or exceeding one or more ESLs.

The metals concentrations that exceeded one or more ESLs may be due to suspended sediment in the unfiltered grab-groundwater samples. Based on the reported CAM 17 metals concentrations, groundwater encountered during the construction project may require treatment to reduce turbidity (i.e., sediment load) and metal content prior to discharge or disposal.

6.6 Organics in Groundwater

TPHg was reported in the groundwater sample collected from boring B6 at a concentration of 0.10 mg/l. This concentration equals the ESL for groundwater as a potential source of drinking water and the surface water ESL for discharge to a freshwater environment. TPHg was not detected in the groundwater samples collected from borings B7 or B8 at or above the reporting limit of 0.05 mg/l.

Toluene was detected in the groundwater sample collected from boring B7 at a concentration of 0.65 micrograms per liter (ug/l), which is below the ESLs. 4-isopropyltoluene was detected at a concentration of 7.4 ug/l in the groundwater sample collected from boring B8; however, there are no established ESLs for this compound. Other VOCs were not detected in the groundwater samples collected from borings B6 to B8.

Groundwater encountered during the construction project may require special handling and/or treatment prior to disposal or discharge based on the reported TPHg concentration in boring B6.

6.7 Worker Protection

The contractor(s) should prepare a project-specific health and safety plan to prevent or minimize worker exposure to metals and petroleum hydrocarbons in soil and groundwater. 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 and groundwater.

N

0 1 2

Scale in Miles

GEOCON CONSULTANTS, INC.
6671 BRISA STREET – LIVERMORE, CA 94550
PHONE 925.371.5900 – FAX 925.371.5915

Route 1 at Post Mile 0.96/1.05

Marin County, California

GEOCON Proj. No. E8560-06-38

VICINITY MAP

Task Order No. 38, EA 04-4S7701 | June 2012 | Figure 1

GEOCON CONSULTANTS, INC.

6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915

Route 1 at Post Mile 0.96/1.05

Marin County, California	**SITE PLAN**	
GEOCON Proj. No. E8560-06-38		
Task Order No.38; EA 04-4S7701	June 2012	Figure 2

SITE0512.DWG

TABLE 1
Boring Coordinates
Culvert Repair Project near Marin City
Marin County, California

Sample Location	Northing	Easting	Latitude	Longitude
B1	2,148,913.447	5,976,084.101	37.879107249	-122.529089616
B2	2,148,907.833	5,976,043.101	37.879089394	-122.529231217
B3	2,148,911.839	5,975,944.134	37.879094500	-122.529574339
B4	2,148,915.705	5,975,854.645	37.879099786	-122.529884620
B5	2,148,911.410	5,975,770.232	37.879082963	-122.530176703
B6	2,148,918.297	5,975,728.772	37.879099403	-122.530320837
B7	2,148,918.477	5,975,686.560	37.879097384	-122.530467074
B8	2,148,878.935	5,975,687.786	37.878988889	-122.530459853

Northing and easting coordinates are shown in feet, NAD 83 (Zone 3)

TABLE 2
Summary of Lead and pH Results - Soil
Culvert Repair Project near Marin City
Marin County, California

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	TCLP Lead (mg/l)	pH
B1 0.5	0 to 0.5	91	4.0	---	---
B1 1.5	1 to 1.5	17	---	---	---
B2 0.5	0 to 0.5	64	3.3	---	---
B2 1.5	1 to 1.5	73	3.8	---	---
B2 3.0	2.5 to 3	11	---	---	6.7
B3 0.5	0 to 0.5	74	2.6	---	---
B3 1.5	1 to 1.5	32	---	---	---
B3 3.0	2.5 to 3	9.5	---	---	6.4
B3 7.0	6.5 to 7	9.6	---	---	---
B4 0.5	0 to 0.5	28	---	---	---
B4 1.5	1 to 1.5	16	---	---	---
B4 3.0	2.5 to 3	21	---	---	7.1
B4 4.0	3.5 to 4	13	---	---	---
B5 0.5	0 to 0.5	86	8.9	---	---
B5 1.5	1 to 1.5	110	5.7	<0.50	---
B5 3.0	2.5 to 3	6.3	---	---	6.8
B5 5.0	4.5 to 5	9.1	---	---	---
B6 0.5	0 to 0.5	39	---	---	---
B6 1.5	1 to 1.5	15	---	---	---
B6 3.0	2.5 to 3	7.9	---	---	6.9
B6 7.0	6.5 to 7	6.9	---	---	---
B7 0.5	0 to 0.5	6.2	---	---	---
B7 1.5	1 to 1.5	130	7.8	<0.50	---
B7 3.0	2.5 to 3	33	---	---	7.6
B7 7.0	6.5 to 7	11	---	---	---
B8 0.5	0 to 0.5	190	15	<0.50	---
B8 1.5	1 to 1.5	160	6.1	<0.50	---
B8 3.0	2.5 to 3	75	2.7	---	6.5
B8 7.0	6.5 to 7	5.7	---	---	---
Equipment Blank	---	< 0.005 mg/l	---	---	---

Notes:
mg/kg = milligrams per kilogram
mg/l = milligrams per liter
WET = waste extraction test
TCLP = toxicity characteristic leaching procedure
< = not detected above stated laboratory reporting limit
--- = not analyzed

TABLE 3
Summary of CAM 17 Metals Results - Soil
Culvert Repair Project near Marin City
Marin County, California

Sample ID	Sample Depth (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
B1 0.5	0 to 0.5	<2.0	2.8	100	<1.0	<1.0	26	6.4	44	91	0.23	1.2	25	<1.0	<1.0	<1.0	22	210
B2 0.5	0 to 0.5	<2.0	3.6	110	<1.0	<1.0	24	6.8	33	64	0.36	<1.0	27	<1.0	<1.0	<1.0	22	200
B3 0.5	0 to 0.5	<2.0	3.8	100	<1.0	<1.0	20	7.2	21	74	0.18	<1.0	25	<1.0	<1.0	<1.0	21	75
B4 0.5	0 to 0.5	<2.0	<1.0	36	<1.0	<1.0	9.3	7.1	21	28	0.18	<1.0	12	<1.0	<1.0	<1.0	36	61
B5 0.5	0 to 0.5	<2.0	3.7	87	<1.0	<1.0	20	5.9	42	86	0.31	<1.0	23	<1.0	<1.0	<1.0	21	140
B6 0.5	0 to 0.5	<2.0	2.4	100	<1.0	<1.0	15	5.0	19	39	0.14	<1.0	20	<1.0	<1.0	<1.0	16	92
B7 0.5	0 to 0.5	<2.0	<1.0	32	<1.0	<1.0	16	6.5	22	6.2	0.15	<1.0	16	<1.0	<1.0	<1.0	33	61
B8 0.5	0 to 0.5	<2.0	2.6	72	<1.0	<1.0	19	5.9	33	190	0.30	<1.0	25	<1.0	<1.0	<1.0	18	110
ESLs																		
Residential Land Use		6.3	0.39	750	4.0	1.7	750	40	230	200	1.3	40	150	10	20	1.3	16	600
Comm/Ind Land Use		40	1.6	1500	8.0	7.4	750	80	230	750	10	40	150	10	40	16	200	600
Construction Exposure		310	15	2,600	98	39	1,200,000	94	310,000	750	58	3,900	260	3,900	3,900	62	770	230,000
Hazardous Waste Criteria																		
TTLC		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		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		---	5.0	100	---	1.0	5.0	---	---	5.0	0.2	---	---	1.0	5.0	---	---	---

Notes:
Total metal results are shown in milligrams per kilogram (mg/kg)
TTLC = total threshold limit concentration
STLC = soluble threshold limit concentration
TCLP = toxicity characteristic leaching procedure

< = analyte was not detected above the stated reporting limit
* = for total chromium and Chromium III compounds
** = for Chromium VI compounds
ESLs = Environmental Screening Levels, Tables A and K-3, SFRWQCB, Revised May 2008
ESLs for chromium are for Chromium III, as there is no standard for total chromium

TABLE 4
Summary of Organics Results - Soil
Culvert Repair Project near Marin City
Marin County, California

Sample ID	Sample Depth (ft)	TPHg (mg/kg)	TPHd (mg/kg)	VOCs (mg/kg)
B1 1.5	1 to 1.5	<1.0	13	---
B2 1.5	1 to 1.5	<1.0	---	---
B2 3.0	2.5 to 3.0	---	1.9	---
B3 1.5	1 to 1.5	<1.0	---	---
B3 3.0	2.5 to 3.0	---	1.3	---
B4 1.5	1 to 1.5	<1.0	---	---
B4 3.0	2.5 to 3.0	---	51	---
B5 1.5	1 to 1.5	<1.0	---	---
B5 3.0	2.5 to 3.0	---	3.1	---
B6 1.5	1 to 1.5	<1.0	---	---
B6 3.0	2.5 to 3.0	---	<1.0	---
B7 1.5	1 to 1.5	<1.0	---	---
B7 3.0	2.5 to 3.0	---	24	---
B7 4.5	4 to 4.5	<1.0	---	ND
B8 1.5	1 to 1.5	1.7	---	---
B8 3.0	2.5 to 3.0	---	870	---
	ESLs			
	Residential	83	83	---
	Commercial/Industrial	83	83	---
	Construction Exposure	4,200	4,200	---

Notes:
TPHg = total petroleum hydrocarbons as gasoline
TPHd = total petroleum hydrocarbons as diesel
TPHmo = total petroleum hydrocarbons as motor oil
mg/kg = milligrams per kilogram
--- = not analyzed or not applicable
< = not detected above the stated laboratory reporting limit
ND = not detected
ESLs = Environmental Screening Levels, Tables A and K-3, SFRWQCB, May 2008

TABLE 5
Summary of NOA Results - Soil
Culvert Repair Project near Marin City
Marin County, California

Sample ID	Sample Depth (feet)	Asbestos Content (% dry weight)
B1 1.5	1 to 1.5	ND
B2 1.5	1 to 1.5	ND
B3 1.5	1 to 1.5	ND
B3 7.0	6.5 to 7	ND
B4 1.5	1 to 1.5	ND
B4 4.0	3.5 to 4	ND
B5 1.5	1 to 1.5	ND
B5 5.0	4.5 to 5	ND
B6 1.5	1 to 1.5	ND
B6 7.0	6.5 to 7	ND
B7 1.5	1 to 1.5	ND
B7 7.0	6.5 to 7	ND
B8 1.5	1 to 1.5	ND
B8 7.0	6.5 to 7	ND

ND = None detected at 0.25% target analytical sensitivity.

TABLE 6
Summary of CAM 17 Metals Results - Groundwater
Culvert Repair Project near Marin City
Marin County, California

Boring	Depth to Water (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
B6	3	<0.005	<0.01	0.19	<0.003	<0.003	0.02	0.003	0.01	<0.005	<0.0002	<0.005	0.02	<0.01	<0.003	<0.02	0.02	0.11
B8	5.5	<0.005	<0.01	0.19	<0.003	<0.003	0.03	0.009	0.02	0.07	<0.0002	<0.005	0.03	<0.01	<0.003	<0.02	0.03	0.10
Groundwater ESLs																		
Current/Potential Source		0.006	0.036	1.0	0.00053	0.00025	0.05	0.003	0.0031	0.0025	0.000025	0.035	0.0082	0.005	0.00019	0.002	0.015	0.081
Not Current/Potential Source		0.03	0.036	1.0	0.00053	0.00025	0.18	0.003	0.0031	0.0025	0.000025	0.24	0.0082	0.005	0.00019	0.004	0.019	0.081
Surface Water ESLs																		
Freshwater		0.006	0.00014	1.0	0.00270	0.00025	0.05	0.003	0.0090	0.0025	0.000025	0.035	0.052	0.005	0.00034	0.002	0.015	0.12
Marine		0.5	0.00014	1.0	0.00053	0.00930	0.18	0.003	0.0031	0.0056	0.000025	0.24	0.0082	0.071	0.00019	0.004	0.019	0.081
Estuarine		0.03	0.00014	1.0	0.00053	0.00025	0.18	0.003	0.0031	0.0025	0.000025	0.24	0.0082	0.005	0.00019	0.004	0.019	0.081

Notes:
Results presented in milligrams per liter (mg/l)
< = not detected above the stated laboratory reporting limit
ESLs = Environmental Screening Levels, Tables F-1a, F-1b, F-2a, F-2b, and F-2c, SFRWQCB, Revised May 2008
Values listed for chromium are for Chromium III, as there is no standard for total chromium.

TABLE 7
Summary of Organic Results - Groundwater
Culvert Repair Project near Marin City
Marin County, California

Sample ID	Depth to Groundwater	TPHg (mg/l)	VOCs (ug/l)
B6	3	<0.05	ND
B7	4.5	<0.05	toluene = 0.65
B8	5.5	0.10	4-isopropyltoluene = 7.4
Trip Blank		<0.05	---
Groundwater ESLs			
Drinking Water - Current/Potential Source		0.10	toluene = 40
Drinking Water - Not Current/Potential Source		0.21	toluene = 130
Surface Water ESLs			
Freshwater		0.10	toluene = 40
Marine		0.21	toluene = 40
Estuarine		0.21	toluene = 40

Notes:
TPHg = total petroleum hydrocarbons as gasoline
VOCs = volatile organic compounds
mg/l = milligrams per liter
ug/l = micrograms per liter
ND = not detected above laboratory reporting limits
--- = not applicable
< = analyte was not detected above stated reporting limit
ESLs = Environmental Screening Levels, Tables F-1a, F-1b, F-2a, F-2b, and F-2c, SFRWQCB, Revised May 2008

TABLE 8
Summary of Lead Statistical Analysis
MRN-1
Marin County, California

Borings B1 to B8

TOTAL LEAD

	90% UCL	95% UCL
0 ft	95.8	102
1.0 ft	94.2	101
2.5 ft	32.2	34.3
6.5 ft	9.56	9.87

EXCAVATION SCENARIOS

	Weighted Averages		
Excavation Depth	**90% UCL Total Lead (mg/kg)**	**WET Lead* (mg/l)**	**95% UCL Total Lead (mg/kg)**
0 to 1.0 ft	95.8	6.2	102
Underlying Soil (1.0 to 7.0 ft)	*46*	*2.9*	*49*
0 to 2.5 ft	95	6.1	101
Underlying Soil (2.5 to 7.0 ft)	*29.7*	*1.9*	*31.6*
0 to 6.5 ft	56	3.6	60
Underlying Soil (6.5 to 7.0 ft)	*9.6*	*0.6*	*9.9*
0 to 7.0 ft	53	3.4	57

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 L $y = 0.0642 \; x$

APPENDIX A

ADVANCED TECHNOLOGY LABORATORIES

May 16, 2012

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

John Love
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
Tel: (925) 525-4142
Fax:(925) 371-5915

Re: ATL Work Order Number : 1201774

Client Reference : Caltrans MRN-1 Mill Valley, E8560-06-38

Enclosed are the results for sample(s) received on May 12, 2012 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. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B7 0.5	1201774-01	Soil	5/10/12 8:45	5/12/12 8:16
B7 1.5	1201774-02	Soil	5/10/12 8:50	5/12/12 8:16
B7 3.0	1201774-03	Soil	5/10/12 9:00	5/12/12 8:16
B7 4.5	1201774-04	Soil	5/10/12 9:05	5/12/12 8:16
B7 7.0	1201774-05	Soil	5/10/12 9:10	5/12/12 8:16
B7	1201774-06	Groundwater	5/10/12 10:20	5/12/12 8:16
Equipment Blank	1201774-07	Water	5/10/12 9:20	5/12/12 8:16
B8 0.5	1201774-08	Soil	5/10/12 8:34	5/12/12 8:16
B8 1.5	1201774-09	Soil	5/10/12 8:41	5/12/12 8:16
B8 3.0	1201774-10	Soil	5/10/12 8:51	5/12/12 8:16
B8 7.0	1201774-11	Soil	5/10/12 9:24	5/12/12 8:16
B8	1201774-12	Groundwater	5/10/12 10:55	5/12/12 8:16
B1 0.5	1201774-13	Soil	5/10/12 9:00	5/12/12 8:16
B1 1.5	1201774-14	Soil	5/10/12 9:05	5/12/12 8:16
B2 0.5	1201774-15	Soil	5/10/12 9:35	5/12/12 8:16
B2 1.5	1201774-16	Soil	5/10/12 9:40	5/12/12 8:16
B2 3.0	1201774-17	Soil	5/10/12 9:50	5/12/12 8:16
B5 0.5	1201774-18	Soil	5/10/12 9:37	5/12/12 8:16
B5 1.5	1201774-19	Soil	5/10/12 9:47	5/12/12 8:16
B5 3.0	1201774-20	Soil	5/10/12 10:01	5/12/12 8:16
B5 5.0	1201774-21	Soil	5/10/12 10:21	5/12/12 8:16
B6 0.5	1201774-22	Soil	5/10/12 9:35	5/12/12 8:16
B6 1.5	1201774-23	Soil	5/10/12 9:40	5/12/12 8:16
B6 3.0	1201774-24	Soil	5/10/12 9:45	5/12/12 8:16
B6 7.0	1201774-25	Soil	5/10/12 10:10	5/12/12 8:16
B6	1201774-26	Groundwater	5/10/12 10:40	5/12/12 8:16
B3 0.5	1201774-27	Soil	5/10/12 10:15	5/12/12 8:16
B3 1.5	1201774-28	Soil	5/10/12 10:20	5/12/12 8:16
B3 3.0	1201774-29	Soil	5/10/12 10:25	5/12/12 8:16
B3 7.0	1201774-30	Soil	5/10/12 10:40	5/12/12 8:16
B4 0.5	1201774-31	Soil	5/10/12 10:29	5/12/12 8:16
B4 1.5	1201774-32	Soil	5/10/12 10:31	5/12/12 8:16
B4 3.0	1201774-33	Soil	5/10/12 10:41	5/12/12 8:16
B4 4.0	1201774-34	Soil	5/10/12 11:00	5/12/12 8:16
Trip Blank	1201774-35	Water	5/10/12 0:00	5/12/12 8:16

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B7 0.5
Lab ID: 1201774-01

Title 22 Metals by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	NA	1	B2E0404	05/14/2012	05/15/12 09:59	
Arsenic	ND	1.0	NA	1	B2E0404	05/14/2012	05/15/12 09:59	
Barium	**32**	1.0	NA	1	B2E0404	05/14/2012	05/15/12 09:59	
Beryllium	ND	1.0	NA	1	B2E0404	05/14/2012	05/15/12 09:59	
Cadmium	ND	1.0	NA	1	B2E0404	05/14/2012	05/15/12 09:59	
Chromium	**16**	1.0	NA	1	B2E0404	05/14/2012	05/15/12 09:59	
Cobalt	**6.5**	1.0	NA	1	B2E0404	05/14/2012	05/15/12 09:59	
Copper	**22**	2.0	NA	1	B2E0404	05/14/2012	05/15/12 09:59	
Lead	**6.2**	1.0	NA	1	B2E0404	05/14/2012	05/15/12 09:59	
Molybdenum	ND	1.0	NA	1	B2E0404	05/14/2012	05/15/12 09:59	
Nickel	**16**	1.0	NA	1	B2E0404	05/14/2012	05/15/12 09:59	
Selenium	ND	1.0	NA	1	B2E0404	05/14/2012	05/15/12 09:59	
Silver	ND	1.0	NA	1	B2E0404	05/14/2012	05/15/12 09:59	
Thallium	ND	1.0	NA	1	B2E0404	05/14/2012	05/15/12 09:59	
Vanadium	**33**	1.0	NA	1	B2E0404	05/14/2012	05/15/12 09:59	
Zinc	**61**	1.0	NA	1	B2E0404	05/14/2012	05/15/12 09:59	

Mercury by AA (Cold Vapor) EPA 7471

Analyst: VV

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.15**	0.10	NA	1	B2E0407	05/14/2012	05/15/12 10:41	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B7 1.5
Lab ID: 1201774-02

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**130**	1.0	NA	1	B2E0397	05/14/2012	05/16/12 12:37	

Gasoline Range Organics by EPA 8015B

Analyst: TP

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	NA	1	B2E0380	05/14/2012	05/14/12 12:30	
Surrogate: 4-Bromofluorobenzene	*103 %*		*69 - 158*		B2E0380	05/14/2012	*05/14/12 12:30*	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B7 3.0
Lab ID: 1201774-03

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**33**	1.0	NA	1	B2E0397	05/14/2012	05/16/12 12:38	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**24**	2.0	NA	1	B2E0408	05/14/2012	05/15/12 00:44	
Surrogate: p-Terphenyl	*114 %*	*39 - 123*			B2E0408	05/14/2012	*05/15/12 00:44*	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**7.6**	0.10	NA	1	B2E0437	05/15/2012	05/15/12 14:07	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B7 4.5
Lab ID: 1201774-04

Gasoline Range Organics by EPA 8015B

Analyst: TP

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	NA	1	B2E0380	05/14/2012	05/14/12 11:59	
Surrogate: 4-Bromofluorobenzene	*104 %*		*69 - 158*		B2E0380	05/14/2012	*05/14/12 11:59*	

Volatile Organic Compounds by EPA 8260

Analyst: RP

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,1,1-Trichloroethane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,1,2,2-Tetrachloroethane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,1,2-Trichloroethane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,1-Dichloroethane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,1-Dichloroethene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,1-Dichloropropene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,2,3-Trichloropropane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,2,3-Trichlorobenzene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,2,4-Trichlorobenzene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,2,4-Trimethylbenzene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,2-Dibromo-3-chloropropane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,2-Dibromoethane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,2-Dichlorobenzene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,2-Dichloroethane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,2-Dichloropropane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,3,5-Trimethylbenzene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,3-Dichlorobenzene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,3-Dichloropropane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
1,4-Dichlorobenzene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
2,2-Dichloropropane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
2-Chlorotoluene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
4-Chlorotoluene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
4-Isopropyltoluene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Benzene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Bromobenzene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Bromochloromethane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B7 4.5
Lab ID: 1201774-04

Volatile Organic Compounds by EPA 8260 **Analyst: RP**

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromodichloromethane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Bromoform	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Bromomethane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Carbon disulfide	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Carbon tetrachloride	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Chlorobenzene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Chloroethane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Chloroform	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Chloromethane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
cis-1,2-Dichloroethene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
cis-1,3-Dichloropropene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Di-isopropyl ether	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Dibromochloromethane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Dibromomethane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Dichlorodifluoromethane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Ethyl Acetate	ND	50	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Ethyl Ether	ND	50	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Ethyl tert-butyl ether	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Ethylbenzene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Freon-113	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Hexachlorobutadiene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Isopropylbenzene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
m,p-Xylene	ND	10	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Methylene chloride	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
MTBE	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
n-Butylbenzene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
n-Propylbenzene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Naphthalene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
o-Xylene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
sec-Butylbenzene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Styrene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
tert-Amyl methyl ether	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
tert-Butanol	ND	100	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
tert-Butylbenzene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B7 4.5

Lab ID: 1201774-04

Volatile Organic Compounds by EPA 8260 **Analyst: RP**

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Tetrachloroethene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Toluene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
trans-1,2-Dichloroethene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
trans-1,3-Dichloropropene	ND	50	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Trichloroethene	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Trichlorofluoromethane	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Vinyl acetate	ND	50	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Vinyl chloride	ND	5.0	NA	1	B2E0378	05/14/2012	05/14/12 12:53	
Surrogate: 1,2-Dichloroethane-d4	*86.3 %*	*70 - 130*			B2E0378	05/14/2012	*05/14/12 12:53*	
Surrogate: 4-Bromofluorobenzene	*98.6 %*	*70 - 130*			B2E0378	05/14/2012	*05/14/12 12:53*	
Surrogate: Dibromofluoromethane	*95.3 %*	*70 - 130*			B2E0378	05/14/2012	*05/14/12 12:53*	
Surrogate: Toluene-d8	*107 %*	*70 - 130*			B2E0378	05/14/2012	*05/14/12 12:53*	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B7 7.0

Lab ID: 1201774-05

Lead by ICP-AES EPA 6010B **Analyst: SB**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**11**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 12:48	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B7
Lab ID: 1201774-06

Gasoline Range Organics by EPA 8015B

Analyst: BB

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	0.05	NA	1	B2E0339	05/14/2012	05/14/12 14:42	
Surrogate: 4-Bromofluorobenzene	*94.8 %*	*70 - 130*			B2E0339	05/14/2012	*05/14/12 14:42*	

Volatile Organic Compounds by EPA 8260

Analyst: DC

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,1,1-Trichloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,1,2-Trichloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,1-Dichloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,1-Dichloroethene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,1-Dichloropropene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,2,3-Trichloropropane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,2-Dibromoethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,2-Dichlorobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,2-Dichloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,2-Dichloropropane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,3-Dichlorobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,3-Dichloropropane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
1,4-Dichlorobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
2,2-Dichloropropane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
2-Chloroethyl vinyl ether	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
2-Chlorotoluene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
4-Chlorotoluene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
4-Isopropyltoluene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Benzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Bromobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B7

Lab ID: 1201774-06

Volatile Organic Compounds by EPA 8260 **Analyst: DC**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromochloromethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Bromodichloromethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Bromoform	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Bromomethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Carbon disulfide	ND	2.0	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Carbon tetrachloride	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Chlorobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Chloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Chloroform	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Chloromethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
cis-1,2-Dichloroethene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Di-isopropyl ether	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Dibromochloromethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Dibromomethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Dichlorodifluoromethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Ethyl Acetate	ND	10	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Ethyl Ether	ND	10	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Ethyl tert-butyl ether	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Ethylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Freon-113	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Hexachlorobutadiene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Isopropylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
m,p-Xylene	ND	1.0	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Methylene chloride	ND	1.0	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
MTBE	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
n-Butylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
n-Propylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Naphthalene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
o-Xylene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
sec-Butylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Styrene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
tert-Amyl methyl ether	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
tert-Butanol	ND	10	NA	1	B2E0419	05/15/2012	05/15/12 14:41	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B7
Lab ID: 1201774-06

Volatile Organic Compounds by EPA 8260 **Analyst: DC**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
tert-Butylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Tetrachloroethene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Toluene	**0.65**	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
trans-1,3-Dichloropropene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Trichloroethene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Trichlorofluoromethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Vinyl acetate	ND	10	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Vinyl chloride	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:41	
Surrogate: 1,2-Dichloroethane-d4	*111 %*	*70 - 130*			B2E0419	05/15/2012	*05/15/12 14:41*	
Surrogate: 4-Bromofluorobenzene	*120 %*	*70 - 130*			B2E0419	05/15/2012	*05/15/12 14:41*	
Surrogate: Dibromofluoromethane	*116 %*	*70 - 130*			B2E0419	05/15/2012	*05/15/12 14:41*	
Surrogate: Toluene-d8	*121 %*	*70 - 130*			B2E0419	05/15/2012	*05/15/12 14:41*	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID Equipment Blank

Lab ID: 1201774-07

Lead by ICP-AES EPA 6010B **Analyst: KK**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.005	NA	1	B2E0469	05/16/2012	05/16/12 13:34	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B8 0.5
Lab ID: 1201774-08

Title 22 Metals by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	NA	1	B2E0403	05/14/2012	05/15/12 13:29	
Arsenic	**2.6**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:29	
Barium	**72**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:29	
Beryllium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:29	
Cadmium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:29	
Chromium	**19**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:29	
Cobalt	**5.9**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:29	
Copper	**33**	2.0	NA	1	B2E0403	05/14/2012	05/15/12 13:29	
Lead	**190**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:29	
Molybdenum	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:29	
Nickel	**25**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:29	
Selenium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:29	
Silver	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:29	
Thallium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:29	
Vanadium	**18**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:29	
Zinc	**110**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:29	

Mercury by AA (Cold Vapor) EPA 7471

Analyst: VV

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.30**	0.10	NA	1	B2E0407	05/14/2012	05/15/12 10:43	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B8 1.5
Lab ID: 1201774-09

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**160**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 12:49	

Gasoline Range Organics by EPA 8015B

Analyst: TP

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	**1.7**	1.0	NA	1	B2E0380	05/14/2012	05/14/12 12:46	
Surrogate: 4-Bromofluorobenzene	*96.4 %*	*69 - 158*			B2E0380	05/14/2012	*05/14/12 12:46*	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B8 3.0
Lab ID: 1201774-10

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**75**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 12:50	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**870**	30	NA	5	B2E0408	05/14/2012	05/15/12 01:05	
Surrogate: p-Terphenyl	*74.6 %*	*39 - 123*			B2E0408	05/14/2012	*05/15/12 01:05*	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**6.5**	0.10	NA	1	B2E0437	05/15/2012	05/15/12 14:07	

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6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B8 7.0

Lab ID: 1201774-11

Lead by ICP-AES EPA 6010B **Analyst: SB**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**5.7**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 12:51	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B8
Lab ID: 1201774-12

Title 22 Metals by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	0.005	NA	1	B2E0469	05/16/2012	05/16/12 13:36	
Arsenic	ND	0.01	NA	1	B2E0469	05/16/2012	05/16/12 13:36	
Barium	**0.19**	0.003	NA	1	B2E0469	05/16/2012	05/16/12 13:36	
Beryllium	ND	0.003	NA	1	B2E0469	05/16/2012	05/16/12 13:36	
Cadmium	ND	0.003	NA	1	B2E0469	05/16/2012	05/16/12 13:36	
Chromium	**0.03**	0.003	NA	1	B2E0469	05/16/2012	05/16/12 13:36	
Cobalt	**0.009**	0.003	NA	1	B2E0469	05/16/2012	05/16/12 13:36	
Copper	**0.02**	0.005	NA	1	B2E0469	05/16/2012	05/16/12 13:36	
Lead	**0.07**	0.005	NA	1	B2E0469	05/16/2012	05/16/12 13:36	
Molybdenum	ND	0.005	NA	1	B2E0469	05/16/2012	05/16/12 13:36	
Nickel	**0.03**	0.005	NA	1	B2E0469	05/16/2012	05/16/12 13:36	
Selenium	ND	0.01	NA	1	B2E0469	05/16/2012	05/16/12 13:36	
Silver	ND	0.003	NA	1	B2E0469	05/16/2012	05/16/12 13:36	
Thallium	ND	0.02	NA	1	B2E0469	05/16/2012	05/16/12 13:36	
Vanadium	**0.03**	0.003	NA	1	B2E0469	05/16/2012	05/16/12 13:36	
Zinc	**0.10**	0.01	NA	1	B2E0469	05/16/2012	05/16/12 13:36	

Mercury by AA (Cold Vapor) EPA 7470

Analyst: VV

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.20	NA	1	B2E0453	05/15/2012	05/16/12 12:43	

Gasoline Range Organics by EPA 8015B

Analyst: BB

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	**0.10**	0.05	NA	1	B2E0339	05/14/2012	05/14/12 13:15	
Surrogate: 4-Bromofluorobenzene	*93.2 %*	*70 - 130*			B2E0339	05/14/2012	*05/14/12 13:15*	

Volatile Organic Compounds by EPA 8260

Analyst: DC

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
1,1,1-Trichloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	

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6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B8
Lab ID: 1201774-12

Volatile Organic Compounds by EPA 8260 **Analyst: DC**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
1,1,2-Trichloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
1,1-Dichloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
1,1-Dichloroethene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
1,1-Dichloropropene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
1,2,3-Trichloropropane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
1,2-Dibromoethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
1,2-Dichlorobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
1,2-Dichloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
1,2-Dichloropropane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
1,3-Dichlorobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
1,3-Dichloropropane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
1,4-Dichlorobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
2,2-Dichloropropane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
2-Chloroethyl vinyl ether	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
2-Chlorotoluene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
4-Chlorotoluene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
4-Isopropyltoluene	**7.4**	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Benzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Bromobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Bromochloromethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Bromodichloromethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Bromoform	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Bromomethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Carbon disulfide	ND	2.0	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Carbon tetrachloride	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Chlorobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Chloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Chloroform	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B8

Lab ID: 1201774-12

Volatile Organic Compounds by EPA 8260 **Analyst: DC**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloromethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
cis-1,2-Dichloroethene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Di-isopropyl ether	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Dibromochloromethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Dibromomethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Dichlorodifluoromethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Ethyl Acetate	ND	10	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Ethyl Ether	ND	10	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Ethyl tert-butyl ether	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Ethylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Freon-113	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Hexachlorobutadiene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Isopropylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
m,p-Xylene	ND	1.0	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Methylene chloride	ND	1.0	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
MTBE	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
n-Butylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
n-Propylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Naphthalene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
o-Xylene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
sec-Butylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Styrene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
tert-Amyl methyl ether	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
tert-Butanol	ND	10	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
tert-Butylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Tetrachloroethene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Toluene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
trans-1,3-Dichloropropene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Trichloroethene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Trichlorofluoromethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Vinyl acetate	ND	10	NA	1	B2E0419	05/15/2012	05/15/12 14:20	
Vinyl chloride	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 14:20	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B8

Lab ID: 1201774-12

Volatile Organic Compounds by EPA 8260 **Analyst: DC**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: 1,2-Dichloroethane-d4	*111 %*		*70 - 130*		B2E0419	05/15/2012	*05/15/12 14:20*	
Surrogate: 4-Bromofluorobenzene	*127 %*		*70 - 130*		B2E0419	05/15/2012	*05/15/12 14:20*	
Surrogate: Dibromofluoromethane	*118 %*		*70 - 130*		B2E0419	05/15/2012	*05/15/12 14:20*	
Surrogate: Toluene-d8	*120 %*		*70 - 130*		B2E0419	05/15/2012	*05/15/12 14:20*	

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6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B1 0.5
Lab ID: 1201774-13

Title 22 Metals by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	NA	1	B2E0403	05/14/2012	05/15/12 13:31	
Arsenic	**2.8**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:31	
Barium	**100**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:31	
Beryllium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:31	
Cadmium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:31	
Chromium	**26**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:31	
Cobalt	**6.4**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:31	
Copper	**44**	2.0	NA	1	B2E0403	05/14/2012	05/15/12 13:31	
Lead	**91**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:31	
Molybdenum	**1.2**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:31	
Nickel	**25**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:31	
Selenium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:31	
Silver	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:31	
Thallium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:31	
Vanadium	**22**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:31	
Zinc	**210**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:31	

Mercury by AA (Cold Vapor) EPA 7471

Analyst: VV

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.23**	0.10	NA	1	B2E0407	05/14/2012	05/15/12 10:48	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B1 1.5
Lab ID: 1201774-14

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**17**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 12:52	

Gasoline Range Organics by EPA 8015B

Analyst: TP

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	NA	1	B2E0380	05/14/2012	05/14/12 13:02	
Surrogate: 4-Bromofluorobenzene	*104 %*		*69 - 158*		B2E0380	05/14/2012	*05/14/12 13:02*	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**13**	2.0	NA	1	B2E0408	05/14/2012	05/15/12 00:34	
Surrogate: p-Terphenyl	*115 %*		*39 - 123*		B2E0408	05/14/2012	*05/15/12 00:34*	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B2 0.5
Lab ID: 1201774-15

Title 22 Metals by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	NA	1	B2E0403	05/14/2012	05/15/12 13:33	
Arsenic	**3.6**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:33	
Barium	**110**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:33	
Beryllium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:33	
Cadmium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:33	
Chromium	**24**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:33	
Cobalt	**6.8**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:33	
Copper	**33**	2.0	NA	1	B2E0403	05/14/2012	05/15/12 13:33	
Lead	**64**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:33	
Molybdenum	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:33	
Nickel	**27**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:33	
Selenium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:33	
Silver	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:33	
Thallium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:33	
Vanadium	**22**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:33	
Zinc	**200**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:33	

Mercury by AA (Cold Vapor) EPA 7471

Analyst: VV

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.36**	0.10	NA	1	B2E0407	05/14/2012	05/15/12 10:50	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B2 1.5
Lab ID: 1201774-16

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**73**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 12:53	

Gasoline Range Organics by EPA 8015B

Analyst: TP

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	NA	1	B2E0380	05/14/2012	05/14/12 13:17	
Surrogate: 4-Bromofluorobenzene	*109 %*		*69 - 158*		B2E0380	05/14/2012	*05/14/12 13:17*	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B2 3.0
Lab ID: 1201774-17

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**11**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 12:54	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**1.9**	1.0	NA	1	B2E0408	05/14/2012	05/14/12 23:41	
Surrogate: p-Terphenyl	*63.8 %*	*39 - 123*			B2E0408	05/14/2012	*05/14/12 23:41*	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**6.7**	0.10	NA	1	B2E0437	05/15/2012	05/15/12 14:07	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B5 0.5
Lab ID: 1201774-18

Title 22 Metals by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	NA	1	B2E0403	05/14/2012	05/15/12 13:34	
Arsenic	**3.7**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:34	
Barium	**87**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:34	
Beryllium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:34	
Cadmium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:34	
Chromium	**20**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:34	
Cobalt	**5.9**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:34	
Copper	**42**	2.0	NA	1	B2E0403	05/14/2012	05/15/12 13:34	
Lead	**86**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:34	
Molybdenum	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:34	
Nickel	**23**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:34	
Selenium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:34	
Silver	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:34	
Thallium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:34	
Vanadium	**21**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:34	
Zinc	**140**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:34	

Mercury by AA (Cold Vapor) EPA 7471

Analyst: VV

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.31**	0.10	NA	1	B2E0407	05/14/2012	05/15/12 10:52	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B5 1.5
Lab ID: 1201774-19

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**110**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 12:55	

Gasoline Range Organics by EPA 8015B

Analyst: TP

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	NA	1	B2E0380	05/14/2012	05/14/12 13:33	
Surrogate: 4-Bromofluorobenzene	*106 %*		*69 - 158*		B2E0380	05/14/2012	*05/14/12 13:33*	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B5 3.0
Lab ID: 1201774-20

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**6.3**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 12:56	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**3.1**	2.0	NA	1	B2E0408	05/14/2012	05/15/12 00:23	
Surrogate: p-Terphenyl	*67.2 %*		*39 - 123*		B2E0408	05/14/2012	*05/15/12 00:23*	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**6.8**	0.10	NA	1	B2E0437	05/15/2012	05/15/12 14:07	

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6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B5 5.0

Lab ID: 1201774-21

Lead by ICP-AES EPA 6010B **Analyst: SB**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**9.1**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 12:59	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B6 0.5
Lab ID: 1201774-22

Title 22 Metals by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	NA	1	B2E0403	05/14/2012	05/15/12 13:36	
Arsenic	**2.4**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:36	
Barium	**100**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:36	
Beryllium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:36	
Cadmium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:36	
Chromium	**15**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:36	
Cobalt	**5.0**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:36	
Copper	**19**	2.0	NA	1	B2E0403	05/14/2012	05/15/12 13:36	
Lead	**39**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:36	
Molybdenum	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:36	
Nickel	**20**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:36	
Selenium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:36	
Silver	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:36	
Thallium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:36	
Vanadium	**16**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:36	
Zinc	**92**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:36	

Mercury by AA (Cold Vapor) EPA 7471

Analyst: VV

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.14**	0.10	NA	1	B2E0407	05/14/2012	05/15/12 10:54	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B6 1.5
Lab ID: 1201774-23

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**15**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 13:00	

Gasoline Range Organics by EPA 8015B

Analyst: TP

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	NA	1	B2E0380	05/14/2012	05/14/12 13:48	
Surrogate: 4-Bromofluorobenzene	*101 %*		*69 - 158*		B2E0380	05/14/2012	*05/14/12 13:48*	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B6 3.0
Lab ID: 1201774-24

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**7.9**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 13:00	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	ND	1.0	NA	1	B2E0408	05/14/2012	05/14/12 23:20	
Surrogate: p-Terphenyl	*113 %*	*39 - 123*			B2E0408	05/14/2012	*05/14/12 23:20*	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**6.9**	0.10	NA	1	B2E0437	05/15/2012	05/15/12 14:07	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B6 7.0

Lab ID: 1201774-25

Lead by ICP-AES EPA 6010B **Analyst: SB**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**6.9**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 13:01	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B6
Lab ID: 1201774-26

Title 22 Metals by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	0.005	NA	1	B2E0469	05/16/2012	05/16/12 13:38	
Arsenic	ND	0.01	NA	1	B2E0469	05/16/2012	05/16/12 13:38	
Barium	**0.19**	0.003	NA	1	B2E0469	05/16/2012	05/16/12 13:38	
Beryllium	ND	0.003	NA	1	B2E0469	05/16/2012	05/16/12 13:38	
Cadmium	ND	0.003	NA	1	B2E0469	05/16/2012	05/16/12 13:38	
Chromium	**0.02**	0.003	NA	1	B2E0469	05/16/2012	05/16/12 13:38	
Cobalt	**0.003**	0.003	NA	1	B2E0469	05/16/2012	05/16/12 13:38	
Copper	**0.01**	0.005	NA	1	B2E0469	05/16/2012	05/16/12 13:38	
Lead	ND	0.005	NA	1	B2E0469	05/16/2012	05/16/12 13:38	
Molybdenum	ND	0.005	NA	1	B2E0469	05/16/2012	05/16/12 13:38	
Nickel	**0.02**	0.005	NA	1	B2E0469	05/16/2012	05/16/12 13:38	
Selenium	ND	0.01	NA	1	B2E0469	05/16/2012	05/16/12 13:38	
Silver	ND	0.003	NA	1	B2E0469	05/16/2012	05/16/12 13:38	
Thallium	ND	0.02	NA	1	B2E0469	05/16/2012	05/16/12 13:38	
Vanadium	**0.02**	0.003	NA	1	B2E0469	05/16/2012	05/16/12 13:38	
Zinc	**0.11**	0.01	NA	1	B2E0469	05/16/2012	05/16/12 13:38	

Mercury by AA (Cold Vapor) EPA 7470

Analyst: VV

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.20	NA	1	B2E0453	05/15/2012	05/16/12 12:48	

Gasoline Range Organics by EPA 8015B

Analyst: BB

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	0.05	NA	1	B2E0339	05/14/2012	05/14/12 13:37	
Surrogate: 4-Bromofluorobenzene	*95.3 %*	*70 - 130*			B2E0339	05/14/2012	*05/14/12 13:37*	

Volatile Organic Compounds by EPA 8260

Analyst: DC

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
1,1,1-Trichloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	

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Client Sample ID B6

Lab ID: 1201774-26

Volatile Organic Compounds by EPA 8260 **Analyst: DC**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,2,2-Tetrachloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
1,1,2-Trichloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
1,1-Dichloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
1,1-Dichloroethene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
1,1-Dichloropropene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
1,2,3-Trichloropropane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
1,2,3-Trichlorobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
1,2,4-Trichlorobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
1,2,4-Trimethylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
1,2-Dibromo-3-chloropropane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
1,2-Dibromoethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
1,2-Dichlorobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
1,2-Dichloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
1,2-Dichloropropane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
1,3,5-Trimethylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
1,3-Dichlorobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
1,3-Dichloropropane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
1,4-Dichlorobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
2,2-Dichloropropane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
2-Chloroethyl vinyl ether	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
2-Chlorotoluene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
4-Chlorotoluene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
4-Isopropyltoluene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Benzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Bromobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Bromochloromethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Bromodichloromethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Bromoform	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Bromomethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Carbon disulfide	ND	2.0	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Carbon tetrachloride	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Chlorobenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Chloroethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Chloroform	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
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Client Sample ID B6

Lab ID: 1201774-26

Volatile Organic Compounds by EPA 8260 **Analyst: DC**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chloromethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
cis-1,2-Dichloroethene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
cis-1,3-Dichloropropene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Di-isopropyl ether	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Dibromochloromethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Dibromomethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Dichlorodifluoromethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Ethyl Acetate	ND	10	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Ethyl Ether	ND	10	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Ethyl tert-butyl ether	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Ethylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Freon-113	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Hexachlorobutadiene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Isopropylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
m,p-Xylene	ND	1.0	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Methylene chloride	ND	1.0	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
MTBE	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
n-Butylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
n-Propylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Naphthalene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
o-Xylene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
sec-Butylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Styrene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
tert-Amyl methyl ether	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
tert-Butanol	ND	10	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
tert-Butylbenzene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Tetrachloroethene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Toluene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
trans-1,2-Dichloroethene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
trans-1,3-Dichloropropene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Trichloroethene	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Trichlorofluoromethane	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Vinyl acetate	ND	10	NA	1	B2E0419	05/15/2012	05/15/12 13:40	
Vinyl chloride	ND	0.50	NA	1	B2E0419	05/15/2012	05/15/12 13:40	

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6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B6

Lab ID: 1201774-26

Volatile Organic Compounds by EPA 8260 **Analyst: DC**

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: 1,2-Dichloroethane-d4	*90.8 %*		*70 - 130*		B2E0419	05/15/2012	*05/15/12 13:40*	
Surrogate: 4-Bromofluorobenzene	*103 %*		*70 - 130*		B2E0419	05/15/2012	*05/15/12 13:40*	
Surrogate: Dibromofluoromethane	*97.5 %*		*70 - 130*		B2E0419	05/15/2012	*05/15/12 13:40*	
Surrogate: Toluene-d8	*101 %*		*70 - 130*		B2E0419	05/15/2012	*05/15/12 13:40*	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B3 0.5
Lab ID: 1201774-27

Title 22 Metals by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	NA	1	B2E0403	05/14/2012	05/15/12 13:37	
Arsenic	**3.8**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:37	
Barium	**100**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:37	
Beryllium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:37	
Cadmium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:37	
Chromium	**20**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:37	
Cobalt	**7.2**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:37	
Copper	**21**	2.0	NA	1	B2E0403	05/14/2012	05/15/12 13:37	
Lead	**74**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:37	
Molybdenum	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:37	
Nickel	**25**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:37	
Selenium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:37	
Silver	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:37	
Thallium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:37	
Vanadium	**21**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:37	
Zinc	**75**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:37	

Mercury by AA (Cold Vapor) EPA 7471

Analyst: VV

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.18**	0.10	NA	1	B2E0407	05/14/2012	05/15/12 10:56	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B3 1.5
Lab ID: 1201774-28

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**32**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 13:02	

Gasoline Range Organics by EPA 8015B

Analyst: TP

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	NA	1	B2E0380	05/14/2012	05/14/12 14:04	
Surrogate: 4-Bromofluorobenzene	*104 %*		*69 - 158*		B2E0380	05/14/2012	*05/14/12 14:04*	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B3 3.0
Lab ID: 1201774-29

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**9.5**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 13:03	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**1.3**	1.0	NA	1	B2E0408	05/14/2012	05/14/12 23:31	
Surrogate: p-Terphenyl	*73.4 %*	*39 - 123*			B2E0408	05/14/2012	*05/14/12 23:31*	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**6.4**	0.10	NA	1	B2E0437	05/15/2012	05/15/12 14:07	

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6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B3 7.0

Lab ID: 1201774-30

Lead by ICP-AES EPA 6010B **Analyst: SB**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**9.6**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 13:04	

Geocon Consultants, Inc.	Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street	Report To :	John Love
Livermore , CA 94550	Reported :	05/16/2012

Client Sample ID B4 0.5
Lab ID: 1201774-31

Title 22 Metals by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	NA	1	B2E0403	05/14/2012	05/15/12 13:43	
Arsenic	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:43	
Barium	**36**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:43	
Beryllium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:43	
Cadmium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:43	
Chromium	**9.3**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:43	
Cobalt	**7.1**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:43	
Copper	**21**	2.0	NA	1	B2E0403	05/14/2012	05/15/12 13:43	
Lead	**28**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:43	
Molybdenum	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:43	
Nickel	**12**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:43	
Selenium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:43	
Silver	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:43	
Thallium	ND	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:43	
Vanadium	**36**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:43	
Zinc	**61**	1.0	NA	1	B2E0403	05/14/2012	05/15/12 13:43	

Mercury by AA (Cold Vapor) EPA 7471

Analyst: VV

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.18**	0.10	NA	1	B2E0407	05/14/2012	05/15/12 10:35	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B4 1.5
Lab ID: 1201774-32

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**16**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 13:05	

Gasoline Range Organics by EPA 8015B

Analyst: TP

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	NA	1	B2E0380	05/14/2012	05/14/12 14:20	
Surrogate: 4-Bromofluorobenzene	*105 %*		*69 - 158*		B2E0380	05/14/2012	*05/14/12 14:20*	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B4 3.0
Lab ID: 1201774-33

Lead by ICP-AES EPA 6010B

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**21**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 13:06	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**51**	2.0	NA	1	B2E0408	05/14/2012	05/15/12 00:55	
Surrogate: p-Terphenyl	*114 %*		*39 - 123*		B2E0408	05/14/2012	*05/15/12 00:55*	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**7.1**	0.10	NA	1	B2E0437	05/15/2012	05/15/12 14:07	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID B4 4.0

Lab ID: 1201774-34

Lead by ICP-AES EPA 6010B **Analyst: SB**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**13**	1.0	NA	1	B2E0398	05/14/2012	05/16/12 13:07	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Client Sample ID Trip Blank

Lab ID: 1201774-35

Gasoline Range Organics by EPA 8015B **Analyst: BB**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	0.05	NA	1	B2E0339	05/14/2012	05/14/12 14:20	
Surrogate: 4-Bromofluorobenzene	*93.7 %*	*70 - 130*			B2E0339	05/14/2012	*05/14/12 14:20*	

Geocon Consultants, Inc.	Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street	Report To :	John Love
Livermore , CA 94550	Reported :	05/16/2012

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 B2E0403 - EPA 3050B									
Blank (B2E0403-BLK1)				Prepared: 5/14/2012 Analyzed: 5/15/2012					
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 (B2E0403-BS1)				Prepared: 5/14/2012 Analyzed: 5/15/2012					
Antimony	45	2.0	50.0		90.7	80 - 120			
Arsenic	43	1.0	50.0		86.9	80 - 120			
Barium	47	1.0	50.0		94.5	80 - 120			
Beryllium	47	1.0	50.0		93.8	80 - 120			
Cadmium	45	1.0	50.0		90.5	80 - 120			
Chromium	47	1.0	50.0		93.7	80 - 120			
Cobalt	46	1.0	50.0		91.2	80 - 120			
Copper	49	2.0	50.0		97.2	80 - 120			
Lead	45	1.0	50.0		90.7	80 - 120			
Molybdenum	48	1.0	50.0		96.3	80 - 120			
Nickel	46	1.0	50.0		92.0	80 - 120			
Selenium	42	1.0	50.0		83.4	80 - 120			
Silver	42	1.0	50.0		84.1	80 - 120			
Thallium	46	1.0	50.0		91.4	80 - 120			
Vanadium	48	1.0	50.0		97.0	80 - 120			
Zinc	45	1.0	50.0		89.1	80 - 120			
Duplicate (B2E0403-DUP1)		**Source: 1201774-31**		Prepared: 5/14/2012 Analyzed: 5/15/2012					
Antimony	ND	2.0		ND	NR			20	
Arsenic	0.29	1.0		0.38	NR		26.8	20	R
Barium	43	1.0		36	NR		16.8	20	
Beryllium	0.34	1.0		0.25	NR		28.4	20	R

Geocon Consultants, Inc.	Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street	Report To :	John Love
Livermore , CA 94550	Reported :	05/16/2012

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 B2E0403 - EPA 3050B (continued)									
Duplicate (B2E0403-DUP1) - Continued		**Source: 1201774-31**		Prepared: 5/14/2012 Analyzed: 5/15/2012					
Cadmium	ND	1.0		ND	NR			20	
Chromium	14	1.0		9.3	NR		43.4	20	R
Cobalt	8.9	1.0		7.1	NR		22.8	20	R
Copper	27	2.0		21	NR		24.0	20	R
Lead	36	1.0		28	NR		23.1	20	R
Molybdenum	ND	1.0		ND	NR			20	
Nickel	15	1.0		12	NR		21.5	20	R
Selenium	ND	1.0		ND	NR			20	
Silver	0.10	1.0		0.07	NR		33.0	20	R
Thallium	ND	1.0		ND	NR			20	
Vanadium	48	1.0		36	NR		29.1	20	R
Zinc	75	1.0		61	NR		20.6	20	R
Matrix Spike (B2E0403-MS1)		**Source: 1201774-31**		Prepared: 5/14/2012 Analyzed: 5/15/2012					
Antimony	89	2.0	125	ND	71.6	44 - 105			
Arsenic	97	1.0	125	0.38	77.0	57 - 103			
Barium	150	1.0	125	36	87.9	36 - 134			
Beryllium	100	1.0	125	0.25	79.9	64 - 106			
Cadmium	92	1.0	125	ND	73.8	58 - 102			
Chromium	110	1.0	125	9.3	84.5	55 - 105			
Cobalt	100	1.0	125	7.1	75.9	59 - 105			
Copper	130	2.0	125	21	90.4	64 - 117			
Lead	140	1.0	125	28	85.5	46 - 116			
Molybdenum	99	1.0	125	ND	79.6	59 - 108			
Nickel	110	1.0	125	12	81.2	52 - 109			
Selenium	91	1.0	125	ND	72.8	56 - 100			
Silver	100	1.0	125	0.07	81.3	65 - 107			
Thallium	91	1.0	125	ND	73.1	47 - 100			
Vanadium	130	1.0	125	36	76.9	64 - 110			
Zinc	170	1.0	125	61	89.4	37 - 123			
Batch B2E0404 - EPA 3050B									
Blank (B2E0404-BLK1)				Prepared: 5/14/2012 Analyzed: 5/15/2012					
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				

Geocon Consultants, Inc.	Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street	Report To :	John Love
Livermore , CA 94550	Reported :	05/16/2012

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 B2E0404 - EPA 3050B (continued)									
Blank (B2E0404-BLK1) - Continued				Prepared: 5/14/2012 Analyzed: 5/15/2012					
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 (B2E0404-BS1)				Prepared: 5/14/2012 Analyzed: 5/15/2012					
Antimony	44	2.0	50.0		87.9	80 - 120			
Arsenic	42	1.0	50.0		83.7	80 - 120			
Barium	45	1.0	50.0		89.2	80 - 120			
Beryllium	45	1.0	50.0		90.5	80 - 120			
Cadmium	43	1.0	50.0		85.9	80 - 120			
Chromium	44	1.0	50.0		88.9	80 - 120			
Cobalt	44	1.0	50.0		87.8	80 - 120			
Copper	46	2.0	50.0		92.8	80 - 120			
Lead	44	1.0	50.0		88.3	80 - 120			
Molybdenum	47	1.0	50.0		93.3	80 - 120			
Nickel	44	1.0	50.0		87.6	80 - 120			
Selenium	40	1.0	50.0		80.8	80 - 120			
Silver	40	1.0	50.0		80.1	80 - 120			
Thallium	45	1.0	50.0		89.4	80 - 120			
Vanadium	46	1.0	50.0		92.5	80 - 120			
Zinc	43	1.0	50.0		85.1	80 - 120			
Duplicate (B2E0404-DUP1)		**Source: 1201774-01**		Prepared: 5/14/2012 Analyzed: 5/15/2012					
Antimony	ND	2.0		ND	NR			20	
Arsenic	0.43	1.0		0.17	NR		87.3	20	R
Barium	39	1.0		32	NR		18.7	20	
Beryllium	0.27	1.0		0.27	NR		1.31	20	
Cadmium	ND	1.0		ND	NR			20	
Chromium	18	1.0		16	NR		15.4	20	
Cobalt	7.3	1.0		6.5	NR		10.8	20	
Copper	33	2.0		22	NR		38.5	20	R
Lead	6.1	1.0		6.2	NR		2.68	20	
Molybdenum	0.25	1.0		0.24	NR		4.69	20	
Nickel	18	1.0		16	NR		10.7	20	
Selenium	ND	1.0		ND	NR			20	
Silver	0.04	1.0		0.05	NR		30.6	20	R

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Livermore , CA 94550	Reported :	05/16/2012	

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 B2E0404 - EPA 3050B (continued)									
Duplicate (B2E0404-DUP1) - Continued		**Source: 1201774-01**		Prepared: 5/14/2012 Analyzed: 5/15/2012					
Thallium	ND	1.0		ND	NR			20	
Vanadium	32	1.0		33	NR		2.98	20	
Zinc	93	1.0		61	NR		41.3	20	R
Matrix Spike (B2E0404-MS1)		**Source: 1201774-01**		Prepared: 5/14/2012 Analyzed: 5/15/2012					
Antimony	92	2.0	125	ND	73.9	44 - 105			
Arsenic	100	1.0	125	0.17	79.7	57 - 103			
Barium	140	1.0	125	32	89.0	36 - 134			
Beryllium	100	1.0	125	0.27	82.2	64 - 106			
Cadmium	95	1.0	125	ND	75.8	58 - 102			
Chromium	120	1.0	125	16	84.0	55 - 105			
Cobalt	110	1.0	125	6.5	79.3	59 - 105			
Copper	140	2.0	125	22	95.4	64 - 117			
Lead	110	1.0	125	6.2	79.6	46 - 116			
Molybdenum	100	1.0	125	0.24	83.1	59 - 108			
Nickel	120	1.0	125	16	80.3	52 - 109			
Selenium	96	1.0	125	ND	76.5	56 - 100			
Silver	110	1.0	125	0.05	84.6	65 - 107			
Thallium	95	1.0	125	ND	75.6	47 - 100			
Vanadium	140	1.0	125	33	84.8	64 - 110			
Zinc	170	1.0	125	61	85.4	37 - 123			
Matrix Spike Dup (B2E0404-MSD1)		**Source: 1201774-01**		Prepared: 5/14/2012 Analyzed: 5/15/2012					
Antimony	93	2.0	125	ND	74.4	44 - 105	0.742	20	
Arsenic	100	1.0	125	0.17	81.6	57 - 103	2.34	20	
Barium	140	1.0	125	32	89.9	36 - 134	0.743	20	
Beryllium	110	1.0	125	0.27	84.1	64 - 106	2.23	20	
Cadmium	96	1.0	125	ND	77.1	58 - 102	1.71	20	
Chromium	120	1.0	125	16	82.7	55 - 105	1.36	20	
Cobalt	110	1.0	125	6.5	80.3	59 - 105	1.22	20	
Copper	150	2.0	125	22	101	64 - 117	4.63	20	
Lead	100	1.0	125	6.2	78.5	46 - 116	1.26	20	
Molybdenum	110	1.0	125	0.24	83.9	59 - 108	0.985	20	
Nickel	120	1.0	125	16	81.0	52 - 109	0.789	20	
Selenium	98	1.0	125	ND	78.6	56 - 100	2.74	20	
Silver	110	1.0	125	0.05	85.4	65 - 107	1.00	20	
Thallium	96	1.0	125	ND	77.0	47 - 100	1.85	20	
Vanadium	140	1.0	125	33	82.8	64 - 110	1.83	20	
Zinc	250	1.0	125	61	150	37 - 123	38.6	20	M1, R
Batch B2E0469 - EPA 3010A									

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Title 22 Metals 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 B2E0469 - EPA 3010A (continued)									
Blank (B2E0469-BLK1)				Prepared: 5/16/2012 Analyzed: 5/16/2012					
Antimony	ND	0.005			NR				
Arsenic	ND	0.01			NR				
Barium	ND	0.003			NR				
Beryllium	ND	0.003			NR				
Cadmium	ND	0.003			NR				
Chromium	ND	0.003			NR				
Cobalt	ND	0.003			NR				
Copper	ND	0.005			NR				
Lead	ND	0.005			NR				
Molybdenum	ND	0.005			NR				
Nickel	ND	0.005			NR				
Selenium	ND	0.01			NR				
Silver	ND	0.003			NR				
Thallium	ND	0.02			NR				
Vanadium	ND	0.003			NR				
Zinc	ND	0.01			NR				
LCS (B2E0469-BS1)				Prepared: 5/16/2012 Analyzed: 5/16/2012					
Antimony	0.93	0.005	1.00		92.5	80 - 120			
Arsenic	0.89	0.01	1.00		89.4	80 - 120			
Barium	0.91	0.003	1.00		91.0	80 - 120			
Beryllium	0.94	0.003	1.00		94.5	80 - 120			
Cadmium	0.89	0.003	1.00		89.3	80 - 120			
Chromium	0.90	0.003	1.00		90.0	80 - 120			
Cobalt	0.90	0.003	1.00		90.0	80 - 120			
Copper	0.94	0.005	1.00		94.4	80 - 120			
Lead	0.91	0.005	1.00		91.4	80 - 120			
Molybdenum	0.93	0.005	1.00		92.9	80 - 120			
Nickel	0.91	0.005	1.00		90.5	80 - 120			
Selenium	0.87	0.01	1.00		86.8	80 - 120			
Silver	0.92	0.003	1.00		92.3	80 - 120			
Thallium	0.93	0.02	1.00		92.9	80 - 120			
Vanadium	0.93	0.003	1.00		92.5	80 - 120			
Zinc	0.88	0.01	1.00		88.5	80 - 120			
Duplicate (B2E0469-DUP1)		**Source: 1201774-26**		Prepared: 5/16/2012 Analyzed: 5/16/2012					
Antimony	ND	0.005		ND	NR			20	
Arsenic	ND	0.01		ND	NR			20	
Barium	0.20	0.003		0.19	NR		5.84	20	
Beryllium	0.0005	0.003		0.0004	NR		8.44	20	
Cadmium	ND	0.003		ND	NR			20	
Chromium	0.02	0.003		0.02	NR		10.9	20	

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Title 22 Metals 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 B2E0469 - EPA 3010A (continued)									
Duplicate (B2E0469-DUP1) - Continued		**Source: 1201774-26**		Prepared: 5/16/2012 Analyzed: 5/16/2012					
Cobalt	0.004	0.003		0.003	NR		7.53	20	
Copper	0.01	0.005		0.01	NR		7.46	20	
Lead	0.003	0.005		0.004	NR		21.9	20	R
Molybdenum	0.0005	0.005		0.0004	NR		12.6	20	
Nickel	0.02	0.005		0.02	NR		9.14	20	
Selenium	ND	0.01		ND	NR			20	
Silver	ND	0.003		ND	NR			20	
Thallium	ND	0.02		ND	NR			20	
Vanadium	0.02	0.003		0.02	NR		11.4	20	
Zinc	0.08	0.01		0.11	NR		31.4	20	R
Matrix Spike (B2E0469-MS1)		**Source: 1201774-26**		Prepared: 5/16/2012 Analyzed: 5/16/2012					
Antimony	2.1	0.005	2.50	ND	84.6	77 - 123			
Arsenic	2.1	0.01	2.50	ND	85.5	80 - 118			
Barium	2.4	0.003	2.50	0.19	87.5	78 - 120			
Beryllium	2.3	0.003	2.50	0.0004	90.6	81 - 120			
Cadmium	2.1	0.003	2.50	ND	83.7	76 - 117			
Chromium	2.2	0.003	2.50	0.02	85.4	75 - 110			
Cobalt	2.1	0.003	2.50	0.003	85.2	76 - 118			
Copper	2.2	0.005	2.50	0.01	89.1	78 - 123			
Lead	2.1	0.005	2.50	0.004	82.4	78 - 117			
Molybdenum	2.1	0.005	2.50	0.0004	83.0	81 - 115			
Nickel	2.2	0.005	2.50	0.02	85.4	75 - 118			
Selenium	2.1	0.01	2.50	ND	85.6	78 - 116			
Silver	2.2	0.003	2.50	ND	89.0	80 - 122			
Thallium	2.0	0.02	2.50	ND	79.7	69 - 122			
Vanadium	2.2	0.003	2.50	0.02	87.3	77 - 120			
Zinc	2.1	0.01	2.50	0.11	79.6	73 - 119			
Matrix Spike Dup (B2E0469-MSD1)		**Source: 1201774-26**		Prepared: 5/16/2012 Analyzed: 5/16/2012					
Antimony	2.3	0.005	2.50	ND	90.5	77 - 123	6.73	20	
Arsenic	2.3	0.01	2.50	ND	90.4	80 - 118	5.59	20	
Barium	2.5	0.003	2.50	0.19	92.5	78 - 120	5.10	20	
Beryllium	2.4	0.003	2.50	0.0004	96.3	81 - 120	6.04	20	
Cadmium	2.2	0.003	2.50	ND	87.7	76 - 117	4.74	20	
Chromium	2.3	0.003	2.50	0.02	91.0	75 - 110	6.24	20	
Cobalt	2.3	0.003	2.50	0.003	89.9	76 - 118	5.40	20	
Copper	2.4	0.005	2.50	0.01	94.7	78 - 123	6.05	20	
Lead	2.2	0.005	2.50	0.004	87.1	78 - 117	5.51	20	
Molybdenum	2.2	0.005	2.50	0.0004	87.9	81 - 115	5.76	20	
Nickel	2.3	0.005	2.50	0.02	90.8	75 - 118	6.04	20	
Selenium	2.3	0.01	2.50	ND	90.3	78 - 116	5.25	20	

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Title 22 Metals 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 B2E0469 - EPA 3010A (continued)									
Matrix Spike Dup (B2E0469-MSD1) - Continued		**Source: 1201774-26**		Prepared: 5/16/2012 Analyzed: 5/16/2012					
Silver	2.4	0.003	2.50	ND	94.7	80 - 122	6.24	20	
Thallium	2.1	0.02	2.50	ND	84.8	69 - 122	6.11	20	
Vanadium	2.3	0.003	2.50	0.02	92.8	77 - 120	5.98	20	
Zinc	2.2	0.01	2.50	0.11	84.0	73 - 119	5.09	20	

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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 B2E0397 - EPA 3050 Modified									
Blank (B2E0397-BLK1)				Prepared: 5/14/2012 Analyzed: 5/16/2012					
Lead	ND	1.0			NR				
Blank (B2E0397-BLK2)				Prepared: 5/14/2012 Analyzed: 5/16/2012					
Lead	ND	1.0			NR				
LCS (B2E0397-BS1)				Prepared: 5/14/2012 Analyzed: 5/16/2012					
Lead	56	1.0	50.0		112	80 - 120			
Duplicate (B2E0397-DUP1)		**Source: 1201774-03**		Prepared: 5/14/2012 Analyzed: 5/16/2012					
Lead	39	1.0		33	NR		15.3	20	R
Duplicate (B2E0397-DUP2)		**Source: 1201769-27**		Prepared: 5/14/2012 Analyzed: 5/16/2012					
Lead	62	1.0		54	NR		13.6	20	
Matrix Spike (B2E0397-MS1)		**Source: 1201774-03**		Prepared: 5/14/2012 Analyzed: 5/16/2012					
Lead	270	1.0	250	33	96.1	46 - 116			
Matrix Spike (B2E0397-MS2)		**Source: 1201769-27**		Prepared: 5/14/2012 Analyzed: 5/16/2012					
Lead	300	1.0	250	54	98.6	46 - 116			
Matrix Spike Dup (B2E0397-MSD1)		**Source: 1201774-03**		Prepared: 5/14/2012 Analyzed: 5/16/2012					
Lead	280	1.0	250	33	98.5	46 - 116	2.21	20	
Batch B2E0398 - EPA 3050 Modified									
Blank (B2E0398-BLK1)				Prepared: 5/14/2012 Analyzed: 5/16/2012					
Lead	ND	1.0			NR				
Blank (B2E0398-BLK2)				Prepared: 5/14/2012 Analyzed: 5/16/2012					
Lead	ND	1.0			NR				
LCS (B2E0398-BS1)				Prepared: 5/14/2012 Analyzed: 5/16/2012					
Lead	53	1.0	50.0		106	80 - 120			
Duplicate (B2E0398-DUP1)		**Source: 1201774-34**		Prepared: 5/14/2012 Analyzed: 5/16/2012					
Lead	21	1.0		13	NR		46.6	20	R
Duplicate (B2E0398-DUP2)		**Source: 1201774-21**		Prepared: 5/14/2012 Analyzed: 5/16/2012					
Lead	19	1.0		9.1	NR		72.5	20	R

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Lead 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 B2E0398 - EPA 3050 Modified (continued)									
Matrix Spike (B2E0398-MS1)		**Source: 1201774-34**		Prepared: 5/14/2012 Analyzed: 5/16/2012					
Lead	240	1.0	250	13	89.0	46 - 116			

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Lead 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 B2E0398 - EPA 3050 Modified (continued)									
Matrix Spike (B2E0398-MS2)		**Source: 1201774-21**		Prepared: 5/14/2012 Analyzed: 5/16/2012					
Lead	240	1.0	250	9.1	92.8	46 - 116			

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Lead 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 B2E0398 - EPA 3050 Modified (continued)									
Matrix Spike Dup (B2E0398-MSD1)		**Source: 1201774-34**		Prepared: 5/14/2012 Analyzed: 5/16/2012					
Lead	250	1.0	250	13	95.4	46 - 116	6.61	20	

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Lead 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 B2E0469 - EPA 3010A									
Blank (B2E0469-BLK1)				Prepared: 5/16/2012 Analyzed: 5/16/2012					
Lead	ND	0.005			NR				

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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 B2E0469 - EPA 3010A (continued)									
LCS (B2E0469-BS1)				Prepared: 5/16/2012 Analyzed: 5/16/2012					
Lead	0.91	0.005	1.00		91.4	80 - 120			

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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 B2E0469 - EPA 3010A (continued)									
Duplicate (B2E0469-DUP1)		**Source: 1201774-26**		Prepared: 5/16/2012 Analyzed: 5/16/2012					
Lead	0.003	0.005		0.004	NR		21.9	20	R

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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 B2E0469 - EPA 3010A (continued)									
Matrix Spike (B2E0469-MS1)		**Source: 1201774-26**		Prepared: 5/16/2012 Analyzed: 5/16/2012					
Lead	2.1	0.005	2.50	0.004	82.4	78 - 117			

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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 B2E0469 - EPA 3010A (continued)									
Matrix Spike Dup (B2E0469-MSD1)		**Source: 1201774-26**		Prepared: 5/16/2012 Analyzed: 5/16/2012					
Lead	2.2	0.005	2.50	0.004	87.1	78 - 117	5.51	20	

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Mercury by AA (Cold Vapor) EPA 7470 - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0453 - EPA 245.1/7470									
Blank (B2E0453-BLK1)				Prepared: 5/15/2012 Analyzed: 5/16/2012					
Mercury	ND	0.20			NR				

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Mercury by AA (Cold Vapor) EPA 7470 - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0453 - EPA 245.1/7470 (continued)									
LCS (B2E0453-BS1)				Prepared: 5/15/2012 Analyzed: 5/16/2012					
Mercury	10	0.20	10.0		102	85 - 115			

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Mercury by AA (Cold Vapor) EPA 7470 - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0453 - EPA 245.1/7470 (continued)									
Duplicate (B2E0453-DUP1)		**Source: 1201774-12**		Prepared: 5/15/2012 Analyzed: 5/16/2012					
Mercury	0.09	0.20		0.10	NR		9.02	20	

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Mercury by AA (Cold Vapor) EPA 7470 - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0453 - EPA 245.1/7470 (continued)									
Matrix Spike (B2E0453-MS1)		**Source: 1201774-12**		Prepared: 5/15/2012 Analyzed: 5/16/2012					
Mercury	10	0.20	10.0	0.10	100	70 - 130			

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Mercury by AA (Cold Vapor) EPA 7470 - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0453 - EPA 245.1/7470 (continued)									
Matrix Spike (B2E0453-MS2)		**Source: 1201774-26**		Prepared: 5/15/2012 Analyzed: 5/16/2012					
Mercury	5.1	0.20	5.00	0.04	100	70 - 130			

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Mercury by AA (Cold Vapor) EPA 7470 - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0453 - EPA 245.1/7470 (continued)									
Matrix Spike Dup (B2E0453-MSD1)		**Source: 1201774-12**		Prepared: 5/15/2012 Analyzed: 5/16/2012					
Mercury	10	0.20	10.0	0.10	102	70 - 130	1.32	20	

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

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0407 - EPA 7471									
Blank (B2E0407-BLK1)				Prepared: 5/14/2012 Analyzed: 5/15/2012					
Mercury	ND	0.10			NR				

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

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0407 - EPA 7471 (continued)									
LCS (B2E0407-BS1)				Prepared: 5/14/2012 Analyzed: 5/15/2012					
Mercury	0.84	0.10	0.833		101	80 - 120			

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

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0407 - EPA 7471 (continued)									
Duplicate (B2E0407-DUP1)		**Source: 1201774-31**		Prepared: 5/14/2012 Analyzed: 5/15/2012					
Mercury	0.17	0.10		0.18	NR		4.56	20	

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

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0407 - EPA 7471 (continued)									
Matrix Spike (B2E0407-MS1)		**Source: 1201774-31**		Prepared: 5/14/2012 Analyzed: 5/15/2012					
Mercury	0.97	0.10	0.833	0.18	95.1	70 - 130			

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

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0407 - EPA 7471 (continued)									
Matrix Spike (B2E0407-MS2)		**Source: 1201774-27**		Prepared: 5/14/2012 Analyzed: 5/15/2012					
Mercury	0.009		0.00500	0.002	142	70 - 130			M1

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

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0407 - EPA 7471 (continued)									
Matrix Spike Dup (B2E0407-MSD1)		**Source: 1201774-31**		Prepared: 5/14/2012 Analyzed: 5/15/2012					
Mercury	0.98	0.10	0.833	0.18	95.7	70 - 130	0.470	20	

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Gasoline Range Organics by EPA 8015B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0339 - GCVOAW									
Blank (B2E0339-BLK1)				Prepared: 5/14/2012 Analyzed: 5/14/2012					
Gasoline Range Organics	ND	0.05			NR				
Surrogate: 4-Bromofluorobenzene	*0.097*		*0.100*		*97.4*	*70 - 130*			

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

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0339 - GCVOAW (continued)									
LCS (B2E0339-BS1)				Prepared: 5/14/2012 Analyzed: 5/14/2012					
Gasoline Range Organics	1.1	0.05	1.00		106	70 - 130			
Surrogate: 4-Bromofluorobenzene	*0.11*		*0.100*		*110*	*70 - 130*			

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6671 Brisa Street	Report To :	John Love
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Gasoline Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0339 - GCVOAW (continued)									
LCS Dup (B2E0339-BSD1)				Prepared: 5/14/2012 Analyzed: 5/14/2012					
Gasoline Range Organics	1.0	0.05	1.00		100	70 - 130	5.44	20	
Surrogate: 4-Bromofluorobenzene	*0.11*		*0.100*		*109*	*70 - 130*			

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

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0339 - GCVOAW (continued)									
Duplicate (B2E0339-DUP1)		**Source: 1201774-26**		Prepared: 5/14/2012 Analyzed: 5/14/2012					
Gasoline Range Organics	0.05	0.05		ND	NR			20	
Surrogate: 4-Bromofluorobenzene	*0.083*		*0.100*		*83.4*	*70 - 130*			

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6671 Brisa Street	Report To :	John Love
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Gasoline Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0380 - GCVOAS									
Blank (B2E0380-BLK1)				Prepared: 5/14/2012 Analyzed: 5/14/2012					
Gasoline Range Organics	ND	1.0			NR				
Surrogate: 4-Bromofluorobenzene	*0.11*		*0.100*		*105*	*69 - 158*			

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6671 Brisa Street	Report To :	John Love
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Gasoline 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 B2E0380 - GCVOAS (continued)									
LCS (B2E0380-BS1)				Prepared: 5/14/2012 Analyzed: 5/14/2012					
Gasoline Range Organics	4.8	1.0	5.00		95.4	70 - 130			
Surrogate: 4-Bromofluorobenzene	*0.11*		*0.100*		*113*	*69 - 158*			

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Gasoline 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 B2E0380 - GCVOAS (continued)									
LCS Dup (B2E0380-BSD1)				Prepared: 5/14/2012 Analyzed: 5/14/2012					
Gasoline Range Organics	4.6	1.0	5.00		91.8	70 - 130	3.83	20	
Surrogate: 4-Bromofluorobenzene	*0.10*		*0.100*		*104*	*69 - 158*			

Geocon Consultants, Inc.	Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
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Gasoline 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 B2E0380 - GCVOAS (continued)									
Duplicate (B2E0380-DUP1)		**Source: 1201774-04**		Prepared: 5/14/2012 Analyzed: 5/14/2012					
Gasoline Range Organics	ND	1.0		ND	NR			20	
Surrogate: 4-Bromofluorobenzene	*0.11*		*0.100*		*107*	*69 - 158*			

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Gasoline 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 B2E0380 - GCVOAS (continued)									
Matrix Spike (B2E0380-MS1)		**Source: 1201774-04**		Prepared: 5/14/2012 Analyzed: 5/14/2012					
Gasoline Range Organics	4.2	1.0	5.00	ND	83.4	46 - 135			
Surrogate: 4-Bromofluorobenzene	*0.11*		*0.100*		*111*	*69 - 158*			

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Gasoline 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 B2E0380 - GCVOAS (continued)									
Matrix Spike Dup (B2E0380-MSD1)		**Source: 1201774-04**		Prepared: 5/14/2012 Analyzed: 5/14/2012					
Gasoline Range Organics	3.8	1.0	5.00	ND	76.2	46 - 135	8.97	20	
Surrogate: 4-Bromofluorobenzene	*0.11*		*0.100*		*113*	*69 - 158*			

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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 B2E0408 - GCSEMI_DRO_SOIL_LL									
Blank (B2E0408-BLK1)				Prepared: 5/14/2012 Analyzed: 5/14/2012					
DRO	ND	1.0			NR				
Surrogate: p-Terphenyl	*3.2*		*2.67*		*120*	*39 - 123*			

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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 B2E0408 - GCSEMI_DRO_SOIL_LL (continued)									
LCS (B2E0408-BS1)				Prepared: 5/14/2012 Analyzed: 5/14/2012					
DRO	41	1.0	66.7		61.4	37 - 109			
Surrogate: p-Terphenyl	*2.7*		*2.67*		*103*	*39 - 123*			

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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 B2E0408 - GCSEMI_DRO_SOIL_LL (continued)									
Duplicate (B2E0408-DUP1)		**Source: 1201774-17**		Prepared: 5/14/2012 Analyzed: 5/15/2012					
DRO	2.3	1.0		1.9	NR		21.0	20	R
Surrogate: p-Terphenyl	*3.5*		*5.33*		*66.1*	*39 - 123*			

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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 B2E0408 - GCSEMI_DRO_SOIL_LL (continued)									
Matrix Spike (B2E0408-MS1)		**Source: 1201774-17**		Prepared: 5/14/2012 Analyzed: 5/14/2012					
DRO	36	1.0	33.3	1.9	103	29 - 107			
Surrogate: p-Terphenyl	*3.1*		*5.33*		*57.5*	*39 - 123*			

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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 B2E0408 - GCSEMI_DRO_SOIL_LL (continued)									
Matrix Spike Dup (B2E0408-MSD1)		**Source: 1201774-17**		Prepared: 5/14/2012 Analyzed: 5/15/2012					
DRO	39	1.0	33.3	1.9	112	29 - 107	7.38	20	M1
Surrogate: p-Terphenyl	*3.5*		*5.33*		*65.3*	*39 - 123*			

Geocon Consultants, Inc.	Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
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Volatile Organic Compounds by EPA 8260 - Quality Control

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0378 - MSVOAS									
Blank (B2E0378-BLK1)				Prepared: 5/14/2012 Analyzed: 5/14/2012					
1,1,1,2-Tetrachloroethane	ND	5.0			NR				
1,1,1-Trichloroethane	ND	5.0			NR				
1,1,2,2-Tetrachloroethane	ND	5.0			NR				
1,1,2-Trichloroethane	ND	5.0			NR				
1,1-Dichloroethane	ND	5.0			NR				
1,1-Dichloroethene	ND	5.0			NR				
1,1-Dichloropropene	ND	5.0			NR				
1,2,3-Trichloropropane	ND	5.0			NR				
1,2,3-Trichlorobenzene	ND	5.0			NR				
1,2,4-Trichlorobenzene	ND	5.0			NR				
1,2,4-Trimethylbenzene	ND	5.0			NR				
1,2-Dibromo-3-chloropropane	ND	5.0			NR				
1,2-Dibromoethane	ND	5.0			NR				
1,2-Dichlorobenzene	ND	5.0			NR				
1,2-Dichloroethane	ND	5.0			NR				
1,2-Dichloropropane	ND	5.0			NR				
1,3,5-Trimethylbenzene	ND	5.0			NR				
1,3-Dichlorobenzene	ND	5.0			NR				
1,3-Dichloropropane	ND	5.0			NR				
1,4-Dichlorobenzene	ND	5.0			NR				
2,2-Dichloropropane	ND	5.0			NR				
2-Chlorotoluene	ND	5.0			NR				
4-Chlorotoluene	ND	5.0			NR				
4-Isopropyltoluene	ND	5.0			NR				
Benzene	ND	5.0			NR				
Bromobenzene	ND	5.0			NR				
Bromochloromethane	ND	5.0			NR				
Bromodichloromethane	ND	5.0			NR				
Bromoform	ND	5.0			NR				
Bromomethane	ND	5.0			NR				
Carbon disulfide	ND	5.0			NR				
Carbon tetrachloride	ND	5.0			NR				
Chlorobenzene	ND	5.0			NR				
Chloroethane	ND	5.0			NR				
Chloroform	ND	5.0			NR				
Chloromethane	ND	5.0			NR				
cis-1,2-Dichloroethene	ND	5.0			NR				
cis-1,3-Dichloropropene	ND	5.0			NR				
Di-isopropyl ether	ND	5.0			NR				
Dibromochloromethane	ND	5.0			NR				
Dibromomethane	ND	5.0			NR				

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

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0378 - MSVOAS (continued)									
Blank (B2E0378-BLK1) - Continued				Prepared: 5/14/2012 Analyzed: 5/14/2012					
Dichlorodifluoromethane	ND	5.0			NR				
Ethyl Acetate	ND	50			NR				
Ethyl Ether	ND	50			NR				
Ethyl tert-butyl ether	ND	5.0			NR				
Ethylbenzene	ND	5.0			NR				
Freon-113	ND	5.0			NR				
Hexachlorobutadiene	ND	5.0			NR				
Isopropylbenzene	ND	5.0			NR				
m,p-Xylene	ND	10			NR				
Methylene chloride	ND	5.0			NR				
MTBE	ND	5.0			NR				
n-Butylbenzene	ND	5.0			NR				
n-Propylbenzene	ND	5.0			NR				
Naphthalene	ND	5.0			NR				
o-Xylene	ND	5.0			NR				
sec-Butylbenzene	ND	5.0			NR				
Styrene	ND	5.0			NR				
tert-Amyl methyl ether	ND	5.0			NR				
tert-Butanol	ND	100			NR				
tert-Butylbenzene	ND	5.0			NR				
Tetrachloroethene	ND	5.0			NR				
Toluene	ND	5.0			NR				
trans-1,2-Dichloroethene	ND	5.0			NR				
trans-1,3-Dichloropropene	ND	50			NR				
Trichloroethene	ND	5.0			NR				
Trichlorofluoromethane	ND	5.0			NR				
Vinyl acetate	ND	50			NR				
Vinyl chloride	ND	5.0			NR				
Surrogate: 1,2-Dichloroethane-d4	*44*		*50.0*		*87.6*	*70 - 130*			
Surrogate: 4-Bromofluorobenzene	*51*		*50.0*		*102*	*70 - 130*			
Surrogate: Dibromofluoromethane	*47*		*50.0*		*94.4*	*70 - 130*			
Surrogate: Toluene-d8	*54*		*50.0*		*107*	*70 - 130*			

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

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0378 - MSVOAS (continued)									
LCS (B2E0378-BS1)				Prepared: 5/14/2012 Analyzed: 5/14/2012					
1,1-Dichloroethene	41	5.0	50.0		81.9	70 - 130			
Benzene	82	5.0	100		82.1	70 - 130			
Chlorobenzene	41	5.0	50.0		82.0	70 - 130			
MTBE	41	5.0	50.0		82.0	70 - 130			
Toluene	80	5.0	100		80.2	70 - 130			
Trichloroethene	42	5.0	50.0		83.8	70 - 130			
Surrogate: 1,2-Dichloroethane-d4	*43*		*50.0*		*87.0*	*70 - 130*			
Surrogate: 4-Bromofluorobenzene	*52*		*50.0*		*103*	*70 - 130*			
Surrogate: Dibromofluoromethane	*48*		*50.0*		*96.7*	*70 - 130*			
Surrogate: Toluene-d8	*52*		*50.0*		*105*	*70 - 130*			

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

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0378 - MSVOAS (continued)									
LCS Dup (B2E0378-BSD1)				Prepared: 5/14/2012 Analyzed: 5/14/2012					
1,1-Dichloroethene	40	5.0	50.0		79.6	70 - 130	2.82	20	
Benzene	88	5.0	100		87.7	70 - 130	6.50	20	
Chlorobenzene	44	5.0	50.0		88.4	70 - 130	7.44	20	
MTBE	46	5.0	50.0		92.2	70 - 130	11.6	20	
Toluene	87	5.0	100		87.3	70 - 130	8.50	20	
Trichloroethene	43	5.0	50.0		86.1	70 - 130	2.71	20	
Surrogate: 1,2-Dichloroethane-d4	*43*		*50.0*		*85.4*	*70 - 130*			
Surrogate: 4-Bromofluorobenzene	*49*		*50.0*		*97.2*	*70 - 130*			
Surrogate: Dibromofluoromethane	*47*		*50.0*		*93.6*	*70 - 130*			
Surrogate: Toluene-d8	*52*		*50.0*		*105*	*70 - 130*			

Geocon Consultants, Inc.	Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
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Volatile Organic Compounds by EPA 8260 - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0378 - MSVOAS (continued)									
Duplicate (B2E0378-DUP1)		**Source: 1201774-04**		Prepared: 5/14/2012 Analyzed: 5/14/2012					
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	
Surrogate: 1,2-Dichloroethane-d4	*43*		*50.0*		*86.8*	*70 - 130*			
Surrogate: 4-Bromofluorobenzene	*52*		*50.0*		*104*	*70 - 130*			
Surrogate: Dibromofluoromethane	*45*		*50.0*		*90.0*	*70 - 130*			
Surrogate: Toluene-d8	*53*		*50.0*		*107*	*70 - 130*			

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

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0378 - MSVOAS (continued)									
Matrix Spike (B2E0378-MS1)		**Source: 1201774-04**		Prepared: 5/14/2012 Analyzed: 5/14/2012					
1,1-Dichloroethene	50	5.0	50.0	ND	99.1	70 - 130			
Benzene	97	5.0	100	ND	96.7	70 - 130			
Chlorobenzene	47	5.0	50.0	ND	94.0	70 - 130			
MTBE	46	5.0	50.0	ND	92.1	70 - 130			
Toluene	96	5.0	100	ND	95.9	70 - 130			
Trichloroethene	49	5.0	50.0	ND	98.4	70 - 130			
Surrogate: 1,2-Dichloroethane-d4	*44*		*50.0*		*87.2*	*70 - 130*			
Surrogate: 4-Bromofluorobenzene	*50*		*50.0*		*101*	*70 - 130*			
Surrogate: Dibromofluoromethane	*47*		*50.0*		*93.4*	*70 - 130*			
Surrogate: Toluene-d8	*53*		*50.0*		*105*	*70 - 130*			

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

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0378 - MSVOAS (continued)									
Matrix Spike Dup (B2E0378-MSD1)		**Source: 1201774-04**		Prepared: 5/14/2012 Analyzed: 5/14/2012					
1,1-Dichloroethene	44	5.0	50.0	ND	88.0	70 - 130	11.9	20	
Benzene	96	5.0	100	ND	95.5	70 - 130	1.26	20	
Chlorobenzene	45	5.0	50.0	ND	90.8	70 - 130	3.55	20	
MTBE	45	5.0	50.0	ND	89.8	70 - 130	2.51	20	
Toluene	93	5.0	100	ND	92.8	70 - 130	3.25	20	
Trichloroethene	47	5.0	50.0	ND	93.8	70 - 130	4.79	20	
Surrogate: 1,2-Dichloroethane-d4	*43*		*50.0*		*85.5*	*70 - 130*			
Surrogate: 4-Bromofluorobenzene	*49*		*50.0*		*98.4*	*70 - 130*			
Surrogate: Dibromofluoromethane	*47*		*50.0*		*93.8*	*70 - 130*			
Surrogate: Toluene-d8	*53*		*50.0*		*106*	*70 - 130*			

Geocon Consultants, Inc.	Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street	Report To :	John Love
Livermore , CA 94550	Reported :	05/16/2012

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

Analyte	Result (ug/kg)	PQL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0419 - MSVOAW_LL									
Blank (B2E0419-BLK1)				Prepared: 5/15/2012 Analyzed: 5/15/2012					
1,1,1,2-Tetrachloroethane	ND	0.50			NR				
1,1,1-Trichloroethane	ND	0.50			NR				
1,1,2,2-Tetrachloroethane	ND	0.50			NR				
1,1,2-Trichloroethane	ND	0.50			NR				
1,1-Dichloroethane	ND	0.50			NR				
1,1-Dichloroethene	ND	0.50			NR				
1,1-Dichloropropene	ND	0.50			NR				
1,2,3-Trichloropropane	ND	0.50			NR				
1,2,3-Trichlorobenzene	ND	0.50			NR				
1,2,4-Trichlorobenzene	ND	0.50			NR				
1,2,4-Trimethylbenzene	ND	0.50			NR				
1,2-Dibromo-3-chloropropane	ND	0.50			NR				
1,2-Dibromoethane	ND	0.50			NR				
1,2-Dichlorobenzene	ND	0.50			NR				
1,2-Dichloroethane	ND	0.50			NR				
1,2-Dichloropropane	ND	0.50			NR				
1,3,5-Trimethylbenzene	ND	0.50			NR				
1,3-Dichlorobenzene	ND	0.50			NR				
1,3-Dichloropropane	ND	0.50			NR				
1,4-Dichlorobenzene	ND	0.50			NR				
2,2-Dichloropropane	ND	0.50			NR				
2-Chloroethyl vinyl ether	ND	0.50			NR				
2-Chlorotoluene	ND	0.50			NR				
4-Chlorotoluene	ND	0.50			NR				
4-Isopropyltoluene	ND	0.50			NR				
Benzene	ND	0.50			NR				
Bromobenzene	ND	0.50			NR				
Bromochloromethane	ND	0.50			NR				
Bromodichloromethane	ND	0.50			NR				
Bromoform	ND	0.50			NR				
Bromomethane	ND	0.50			NR				
Carbon disulfide	ND	2.0			NR				
Carbon tetrachloride	ND	0.50			NR				
Chlorobenzene	ND	0.50			NR				
Chloroethane	ND	0.50			NR				
Chloroform	ND	0.50			NR				
Chloromethane	ND	0.50			NR				
cis-1,2-Dichloroethene	ND	0.50			NR				
cis-1,3-Dichloropropene	ND	0.50			NR				
Di-isopropyl ether	ND	0.50			NR				
Dibromochloromethane	ND	0.50			NR				

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0419 - MSVOAW_LL (continued)									
Blank (B2E0419-BLK1) - Continued				Prepared: 5/15/2012 Analyzed: 5/15/2012					
Dibromomethane	ND	0.50			NR				
Dichlorodifluoromethane	ND	0.50			NR				
Ethyl Acetate	ND	10			NR				
Ethyl Ether	ND	10			NR				
Ethyl tert-butyl ether	ND	0.50			NR				
Ethylbenzene	ND	0.50			NR				
Freon-113	ND	0.50			NR				
Hexachlorobutadiene	ND	0.50			NR				
Isopropylbenzene	ND	0.50			NR				
m,p-Xylene	ND	1.0			NR				
Methylene chloride	ND	1.0			NR				
MTBE	ND	0.50			NR				
n-Butylbenzene	ND	0.50			NR				
n-Propylbenzene	ND	0.50			NR				
Naphthalene	ND	0.50			NR				
o-Xylene	ND	0.50			NR				
sec-Butylbenzene	ND	0.50			NR				
Styrene	ND	0.50			NR				
tert-Amyl methyl ether	ND	0.50			NR				
tert-Butanol	ND	10			NR				
tert-Butylbenzene	ND	0.50			NR				
Tetrachloroethene	ND	0.50			NR				
Toluene	ND	0.50			NR				
trans-1,2-Dichloroethene	ND	0.50			NR				
trans-1,3-Dichloropropene	ND	0.50			NR				
Trichloroethene	ND	0.50			NR				
Trichlorofluoromethane	ND	0.50			NR				
Vinyl acetate	ND	10			NR				
Vinyl chloride	ND	0.50			NR				
Surrogate: 1,2-Dichloroethane-d4	*26*		*25.0*		*103*	*70 - 130*			
Surrogate: 4-Bromofluorobenzene	*30*		*25.0*		*120*	*70 - 130*			
Surrogate: Dibromofluoromethane	*28*		*25.0*		*114*	*70 - 130*			
Surrogate: Toluene-d8	*30*		*25.0*		*119*	*70 - 130*			

Geocon Consultants, Inc.	Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-3
6671 Brisa Street	Report To :	John Love
Livermore , CA 94550	Reported :	05/16/2012

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0419 - MSVOAW_LL (continued)									
LCS (B2E0419-BS1)				Prepared: 5/15/2012 Analyzed: 5/15/2012					
1,1-Dichloroethene	20	0.50	20.0		102	70 - 130			
Benzene	43	0.50	40.0		107	70 - 130			
Chlorobenzene	22	0.50	20.0		110	70 - 130			
MTBE	21	0.50	20.0		103	70 - 130			
Toluene	44	0.50	40.0		109	70 - 130			
Trichloroethene	21	0.50	20.0		107	70 - 130			
Surrogate: 1,2-Dichloroethane-d4	*23*		*25.0*		*92.8*	*70 - 130*			
Surrogate: 4-Bromofluorobenzene	*26*		*25.0*		*103*	*70 - 130*			
Surrogate: Dibromofluoromethane	*25*		*25.0*		*98.4*	*70 - 130*			
Surrogate: Toluene-d8	*25*		*25.0*		*101*	*70 - 130*			

Geocon Consultants, Inc.	Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street	Report To :	John Love
Livermore , CA 94550	Reported :	05/16/2012

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0419 - MSVOAW_LL (continued)									
LCS Dup (B2E0419-BSD1)				Prepared: 5/15/2012 Analyzed: 5/15/2012					
1,1-Dichloroethene	19	0.50	20.0		96.8	70 - 130	5.23	20	
Benzene	43	0.50	40.0		108	70 - 130	0.419	20	
Chlorobenzene	22	0.50	20.0		111	70 - 130	1.04	20	
MTBE	22	0.50	20.0		109	70 - 130	5.85	20	
Toluene	44	0.50	40.0		110	70 - 130	0.932	20	
Trichloroethene	22	0.50	20.0		108	70 - 130	0.233	20	
Surrogate: 1,2-Dichloroethane-d4	*23*		*25.0*		*93.2*	*70 - 130*			
Surrogate: 4-Bromofluorobenzene	*26*		*25.0*		*102*	*70 - 130*			
Surrogate: Dibromofluoromethane	*25*		*25.0*		*98.3*	*70 - 130*			
Surrogate: Toluene-d8	*25*		*25.0*		*102*	*70 - 130*			

Geocon Consultants, Inc.	Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street	Report To :	John Love
Livermore , CA 94550	Reported :	05/16/2012

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

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0419 - MSVOAW_LL (continued)									
Duplicate (B2E0419-DUP1)		**Source: 1201774-26**		Prepared: 5/15/2012 Analyzed: 5/15/2012					
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	
Surrogate: 1,2-Dichloroethane-d4	*21*		*25.0*		*82.4*	*70 - 130*			
Surrogate: 4-Bromofluorobenzene	*23*		*25.0*		*90.6*	*70 - 130*			
Surrogate: Dibromofluoromethane	*22*		*25.0*		*86.4*	*70 - 130*			
Surrogate: Toluene-d8	*22*		*25.0*		*89.2*	*70 - 130*			

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

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 B2E0437 - Prep_WC_1_S									
Duplicate (B2E0437-DUP1)		**Source: 1201726-01**		Prepared: 5/15/2012 Analyzed: 5/15/2012					
pH	8.3	0.10		8.4	NR		1	20	

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/16/2012

Notes and Definitions

R	RPD value outside acceptance criteria. Calculation is based on raw values.
M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
ND	Analyte not detected at or above reporting limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA1	CA-NELAP (CDPH)
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

CHAIN OF CUSTODY RECORD

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: _____

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

Sample Condition Upon Receipt: 1. CHILLED 3.6 Y☑ N☐ 2. HEADSPACE (VOA) Y☐ N☐ 3. CONTAINER INTACT Y☐ N☐ 4. SEALED Y☐ N☐ 5. # OF SPLS MATCH COC Y☐ N☐ 6. PRESERVED Y☐ N☐

Client: GEOCON CONSULTANTS, INC.
Attn: John Love
Address: 6671 Brisa Street
City: Livermore State: CA Zip Code: 94550
TEL: (925) 371-5900
FAX: (925) 371-5915

Project Name: Caltrans MRN-1 Mill Valley Project #: E8560-06-38 Sampler: (Printed Name) J. Love (Signature)

Relinquished by: (Signature and Printed Name) J. Love Date: 5-11-12 Time: 16:30 Received by: (Signature and Printed Name) Mary Date: 5/11/12 Time: 816

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

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: J. Love 5/10/12 (Print Name, Date)
Signature

Send Report To: Attn: _____ Co: SAME AS ABOVE Address _____ City _____ State _____ Zip _____

Bill To: Attn: _____ Co: SAME AS ABOVE Address _____ City _____ State _____ Zip _____

Special Instructions/Comments:

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

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)	8015B (GRO)	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	Lead only	pH	SOIL	WATER	GROUND WATER	WASTEWATER	TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
	1201774-01	B7 0.5	5/10/12	8:45									X			X				C	1	T m		
	2	B7 1.5		8:50					X					X		X					1			
	3	B7 3.0		9:00						X				X	X	X					1			
	4	B7 4.5		9:05			X		X							X					1			
	5	B7 7.0		9:10										X		X					1			
	6	B7		10:20			X		X									X			3	V G	H	
	7	Equipment Blank		9:20										X			X			C	1	P P	N	

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

• 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

CHAIN OF COUSTODY RECORD

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: ______

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

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

Client: GEOCON CONSULTANTS, INC. Address: 6671 Brisa Street TEL: (925) 371-5900
Attn: John Love City: Livemore State: CA Zip Code: 94550 FAX: (925) 371-5915

Project Name: Caltrans MRN-1 Mill Valley Project #: E8560-06-38 Sampler: (Printed Name) J. Love (Signature) [signature]

Relinquished by: (Signature and Printed Name) [signature] J. Love Date: 5-11-12 Time: 16:30 Received by: (Signature and Printed Name) [signature] Date: 5/11/12 Time: 8/6
Relinquished by: (Signature and Printed Name) Date: Time: Received by: (Signature and Printed Name) Date: Time:
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: J. Love (Print Name) 5/10/12 (Date) [signature] (Signature)

Send Report To: Attn: ______ Co: SAME AS ABOVE Address: ______ City ______ State ______ Zip ______

Bill To: Attn: ______ Co: SAME AS ABOVE Address: ______ City ______ State ______ Zip ______

Special Instructions/Comments:

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

ITEM	LAB USE ONLY: Batch #: Lab No.	Sample I.D. / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal)	8015B (GRO) ~~/BTEX~~	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	Lead Only	pH	SOIL	WATER	GROUND WATER	WASTEWATER	TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
	120774- 8	B8 0.5	5/10/12	8:34									X			X				C	1	T m		
	9	B8 1.5	↓	8:41						X				X		X				↓	1	↓		
	10	B8 3.0		8:51							X			X	X	X					1	↓		
	11	B8 7.0		9:24										X		X					1	ziploc		
	12	B8		10:55			X			X							X				3	V G	H	
		B8	↓	↓									X	~~X~~ [initials]			X			↓	1	P P	N	

QA/QC: RTNE ☐ CT ☐ SWRCB Logcode ☐ ______ OTHER ______

• 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

CHAIN OF CUSTODY RECORD

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: _____

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

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

Client: GEOCON CONSULTANTS, INC.
Attn: John Love
Address: 6671 Brisa Street
City: Livermore State: CA Zip Code: 94550
TEL: (925) 371-5900
FAX: (925) 371-5915

Project Name: Caltrans MRN-1 Mill Valley Project #: E8560-06-38 Sampler: (Printed Name) J. Love (Signature)

Relinquished by: (Signature and Printed Name) J. Love Date: 5-11-12 Time: 16:30 Received by: (Signature and Printed Name) Date: 5/11/12 Time: 816

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

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: J. Love 5/10/12
Print Name Date
Signature

Send Report To:
Attn: _____
Co: SAME AS ABOVE
Address _____
City _____ State _____ Zip _____

Bill To:
Attn: _____
Co: SAME AS ABOVE
Address _____
City _____ State _____ Zip _____

Special Instructions/Comments:

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):
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- Records : $1.00 / ATL workorder / mo (after 1 year)

Circle or Add Analysis(es) Requested

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)	8015B (GRO) ~~+BTEX~~	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	Lead only	pH	SOIL	WATER	GROUND WATER	WASTEWATER	TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
	1201772- 13	B1 0.5	5/10/12	9:0									X			X				C	1	T m		
	14	B1 1.5		9:05					X	X				X		X					1			
	15	B2 0.5		9:35									X			X					1			
	16	B2 1.5		9:40					X					X		X					1			
	17	B2 3.0		9:50						X				X	X	X					1			
	18	B5 0.5		9:37									X			X					1			
	19	B5 1.5		9:47					X					X		X					1			
	21	B5 3.0		10:01						X				X	X	X					1			
	21	B5 5.0		10:21										X		X					1	ziploc		

• 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

CHAIN OF CUSTODY RECORD

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: _____

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

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

Client: GEOCON CONSULTANTS, INC.
Attn: John Love
Address: 6671 Brisa Street
City: Livermore State: CA Zip Code: 94550
TEL: (925) 371-5900
FAX: (925) 371-5915

Project Name: Caltrans MRN-1 Mill Valley
Project #: E8560-06-38
Sampler: (Printed Name) J. Love (Signature)

Relinquished by: (Signature and Printed Name) J. Love Date: 5-11-12 Time: 16:30 Received by: (Signature and Printed Name) Marge Date: 5/11/12 Time: 8/6
Relinquished by: (Signature and Printed Name) Date: Time: Received by: (Signature and Printed Name) Date: Time:
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: J. Love 5/10/12 (Print Name, Date)
Signature

Send Report To: Attn: _____ Co: SAME AS ABOVE Address _____ City _____ State _____ Zip _____

Bill To: Attn: _____ Co: SAME AS ABOVE Address _____ City _____ State _____ Zip _____

Special Instructions/Comments:

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

QA/QC: 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)	8015B (GRO) ~~BTEX~~	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	Lead only	pH	SOIL	WATER	GROUND WATER	WASTEWATER	TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
	1201774-27	B3 0.5	5/10/12	10:15								X				X				C	1	T m		
	28	B3 1.5		10:20					X				X			X					1			
	29	B3 3.0		10:25						X			X	X		X					1			
	30	B3 7.0		10:40									X			X					1	ziploc		
	31	B4 0.5		10:29								X				X					1	T m		
	32	B4 1.5		10:31					X				X			X					1			
	33	B4 3.0		10:41						X			X	X		X					1			
	34	B4 4.0		11:00									X			X					1	ziploc		
	35	Trip Blank	5/10/12						X								X			C	2	V G	H	

• 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

ADVANCED TECHNOLOGY LABORATORIES

May 21, 2012

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

John Love
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
Tel: (925) 525-4142
Fax:(925) 371-5915

Re: ATL Work Order Number : 1201774

Client Reference : Caltrans MRN-1 Mill Valley, E8560-06-38

Enclosed are the results for sample(s) received on May 12, 2012 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. 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

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/21/2012

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B7 1.5	1201774-02	Soil	5/10/12 8:50	5/12/12 8:16
B8 0.5	1201774-08	Soil	5/10/12 8:34	5/12/12 8:16
B8 1.5	1201774-09	Soil	5/10/12 8:41	5/12/12 8:16
B8 3.0	1201774-10	Soil	5/10/12 8:51	5/12/12 8:16
B1 0.5	1201774-13	Soil	5/10/12 9:00	5/12/12 8:16
B2 0.5	1201774-15	Soil	5/10/12 9:35	5/12/12 8:16
B2 1.5	1201774-16	Soil	5/10/12 9:40	5/12/12 8:16
B5 0.5	1201774-18	Soil	5/10/12 9:37	5/12/12 8:16
B5 1.5	1201774-19	Soil	5/10/12 9:47	5/12/12 8:16
B3 0.5	1201774-27	Soil	5/10/12 10:15	5/12/12 8:16

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/21/2012

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyte: Lead **Analyst: VV**

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1201774-02	B7 1.5	**7.8**	mg/L	0.50	NA	1	B2E0626	05/21/2012	05/21/12 13:10	
1201774-08	B8 0.5	**15**	mg/L	1.0	NA	2	B2E0626	05/21/2012	05/21/12 13:11	
1201774-09	B8 1.5	**6.1**	mg/L	0.50	NA	1	B2E0626	05/21/2012	05/21/12 13:12	
1201774-10	B8 3.0	**2.7**	mg/L	0.50	NA	1	B2E0626	05/21/2012	05/21/12 13:13	
1201774-13	B1 0.5	**4.0**	mg/L	0.50	NA	1	B2E0626	05/21/2012	05/21/12 13:13	
1201774-15	B2 0.5	**3.3**	mg/L	0.50	NA	1	B2E0626	05/21/2012	05/21/12 13:13	
1201774-16	B2 1.5	**3.8**	mg/L	0.50	NA	1	B2E0626	05/21/2012	05/21/12 13:14	
1201774-18	B5 0.5	**8.9**	mg/L	0.50	NA	1	B2E0626	05/21/2012	05/21/12 13:15	
1201774-19	B5 1.5	**5.7**	mg/L	0.50	NA	1	B2E0626	05/21/2012	05/21/12 13:15	
1201774-27	B3 0.5	**2.6**	mg/L	0.50	NA	1	B2E0626	05/21/2012	05/21/12 13:15	

Geocon Consultants, Inc.	Project Number : Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street	Report To : John Love
Livermore , CA 94550	Reported : 05/21/2012

QUALITY CONTROL SECTION

STLC Lead by AA (Direct Aspiration) by EPA 7420 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0626 - STLC Extraction									
Blank (B2E0626-BLK1)					Prepared: 5/21/2012 Analyzed: 5/21/2012				
Lead	ND	0.50			NR				
Blank (B2E0626-BLK2)					Prepared: 5/21/2012 Analyzed: 5/21/2012				
Lead	ND	0.50			NR				
LCS (B2E0626-BS1)					Prepared: 5/21/2012 Analyzed: 5/21/2012				
Lead	5.2	0.05	5.00		105	80 - 120			
Duplicate (B2E0626-DUP1)		**Source: 1201774-15**			Prepared: 5/21/2012 Analyzed: 5/21/2012				
Lead	3.2	0.50		3.3	NR		1.99	20	
Duplicate (B2E0626-DUP2)		**Source: 1201774-27**			Prepared: 5/21/2012 Analyzed: 5/21/2012				
Lead	2.7	0.50		2.6	NR		4.52	20	
Matrix Spike (B2E0626-MS1)		**Source: 1201774-15**			Prepared: 5/21/2012 Analyzed: 5/21/2012				
Lead	8.2	0.05	5.00	3.3	98.2	80 - 120			
Matrix Spike (B2E0626-MS2)		**Source: 1201774-27**			Prepared: 5/21/2012 Analyzed: 5/21/2012				
Lead	7.5	0.05	5.00	2.6	96.8	80 - 120			
Matrix Spike Dup (B2E0626-MSD1)		**Source: 1201774-15**			Prepared: 5/21/2012 Analyzed: 5/21/2012				
Lead	8.4	0.05	5.00	3.3	102	80 - 120	2.31	20	
Batch S2E0303 - B2E0626									
Instrument Blank (S2E0303-IBL1)					Prepared: 5/21/2012 Analyzed: 5/21/2012				
Lead	ND	0.50			NR				

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/21/2012

Notes and Definitions

ND	Analyte not detected at or above reporting limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference

Diane Galvan

From: John Love [love@geoconinc.com]
Sent: Wednesday, May 16, 2012 4:50 PM
To: 'Diane Galvan'
Subject: RE: Results/EDD/Invoice - Caltrans MRN-1 Mill Valley (1201774)

Hi Diane:

We need the following samples run for WET lead on 48 hour TAT.

B1 0.5'

B2 0.5'
B2 1.5'

B3 0.5'

B5 0.5'
B5 1.5'

B7 1.5'

B8 0.5'
B8 1.5'
B8 3.0'

Thanks.

John Love, PG | *Sr. Project Geologist*
Geocon Consultants, Inc.
6671 Brisa Street, Livermore, California 94550
Tel 925.371.5900 Fax 925.371.5915 Cell 925.525.4142
www.geoconinc.com

ADVANCED TECHNOLOGY LABORATORIES

May 29, 2012

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

John Love
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
Tel: (925) 525-4142
Fax:(925) 371-5915

Re: ATL Work Order Number : 1201774

Client Reference : Caltrans MRN-1 Mill Valley, E8560-06-38

Enclosed are the results for sample(s) received on May 12, 2012 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. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.

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www.atlglobal.com

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/29/2012

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B7 1.5	1201774-02	Soil	5/10/12 8:50	5/12/12 8:16
B8 0.5	1201774-08	Soil	5/10/12 8:34	5/12/12 8:16
B8 1.5	1201774-09	Soil	5/10/12 8:41	5/12/12 8:16
B5 1.5	1201774-19	Soil	5/10/12 9:47	5/12/12 8:16

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/29/2012

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyte: Lead **Analyst: VV**

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1201774-02	B7 1.5	**ND**	mg/L	0.50	NA	1	B2E0792	05/25/2012	05/29/12 12:42	
1201774-08	B8 0.5	**ND**	mg/L	0.50	NA	1	B2E0792	05/25/2012	05/29/12 12:42	
1201774-09	B8 1.5	**ND**	mg/L	0.50	NA	1	B2E0792	05/25/2012	05/29/12 12:43	
1201774-19	B5 1.5	**ND**	mg/L	0.50	NA	1	B2E0792	05/25/2012	05/29/12 12:43	

Geocon Consultants, Inc.	Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street	Report To :	John Love
Livermore , CA 94550	Reported :	05/29/2012

QUALITY CONTROL SECTION

TCLP Lead by AA (Direct Aspiration) EPA 7420 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2E0792 - EPA 3010A									
Blank (B2E0792-BLK1)					Prepared: 5/25/2012 Analyzed: 5/29/2012				
Lead	ND	0.50			NR				
Blank (B2E0792-BLK2)					Prepared: 5/25/2012 Analyzed: 5/29/2012				
Lead	ND	0.50			NR				
LCS (B2E0792-BS1)					Prepared: 5/25/2012 Analyzed: 5/29/2012				
Lead	1.1	0.50	1.00		111	80 - 120			
Duplicate (B2E0792-DUP1)		**Source: 1201774-19**			Prepared: 5/25/2012 Analyzed: 5/29/2012				
Lead	0.27	0.50		0.09	NR		102	20	R
Matrix Spike (B2E0792-MS1)		**Source: 1201774-19**			Prepared: 5/25/2012 Analyzed: 5/29/2012				
Lead	2.6	0.50	2.50	0.09	102	80 - 120			
Matrix Spike Dup (B2E0792-MSD1)		**Source: 1201774-19**			Prepared: 5/25/2012 Analyzed: 5/29/2012				
Lead	2.7	0.50	2.50	0.09	105	80 - 120	3.08	20	
Batch S2E0416 - B2E0831									
Instrument Blank (S2E0416-IBL1)					Prepared: 5/29/2012 Analyzed: 5/29/2012				
Lead	ND	0.50			NR				

Geocon Consultants, Inc.		Project Number :	Caltrans MRN-1 Mill Valley, E8560-06-38
6671 Brisa Street		Report To :	John Love
Livermore , CA 94550		Reported :	05/29/2012

Notes and Definitions

R	RPD value outside acceptance criteria. Calculation is based on raw values.
ND	Analyte not detected at or above reporting limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference

Diane Galvan

From: John Love [love@geoconinc.com]
Sent: Thursday, May 24, 2012 9:53 AM
To: 'Diane Galvan'
Subject: RE: Additional Results/EDD/Invoice - Caltrans MRN-1 Mill Valley (1201774)

Hi Diane:

In the above work order I need ATL to run the following samples for TCLP Lead on the quickest turnaround possible:

B5 1.5

B7 1.5

B8 0.5
B8 1.5

Thanks Diane.

JL

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:	091205928
CustomerID:	GECN21
CustomerPO:	E8560-06-38
ProjectID:	E8560-06-**

Attn: **John Love**
Geocon Consultants, Inc.
6671 Brisa Street

Livermore, CA 94550

Project: **E8560-06-38**

Phone:	(925) 371-5900
Fax:	(925) 371-5915
Received:	05/14/12 10:00 AM
Analysis Date:	5/16/2012
Collected:	5/10/2012

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

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
B1 1.5 *091205928-0001*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B2 1.5 *091205928-0002*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B3 1.5 *091205928-0003*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B3 7.0 *091205928-0004*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B4 1.5 *091205928-0005*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B4 4.0 *091205928-0006*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B5 1.5 *091205928-0007*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B5 5.0 *091205928-0008*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B6 1.5 *091205928-0009*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B6 7.0 *091205928-0010*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B7 1.5 *091205928-0011*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**

Analyst(s)

Rui Cindy Geng (14)

Baojia Ke, 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 05/16/2012 09:05:02

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:	091205928
CustomerID:	GECN21
CustomerPO:	E8560-06-38
ProjectID:	E8560-06-**

Attn: **John Love**
Geocon Consultants, Inc.
6671 Brisa Street

Livermore, CA 94550

Project: **E8560-06-38**

Phone:	(925) 371-5900
Fax:	(925) 371-5915
Received:	05/14/12 10:00 AM
Analysis Date:	5/16/2012
Collected:	5/10/2012

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

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
B7 7.0 *091205928-0012*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B8 1.5 *091205928-0013*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B8 7.0 *091205928-0014*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**

Analyst(s)

Rui Cindy Geng (14)

Baojia Ke, Laboratory Manager
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc San Leandro, CA

Initial report from 05/16/2012 09:05:02

THIS IS THE LAST PAGE OF THE REPORT.

091205928

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (*Lab Use Only*): 091205928

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

Company: Geocon Consultants, Inc.	EMSL-Bill to: ☒ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*
Street: 6671 Brisa St.	
City: Livermore State/Province: CA	Zip/Postal Code: Country:
Report To (Name): John Love	Fax #:
Telephone #: 925-371-5900 ext. 207	Email Address:
Project Name/Number: E8560-06-38	
Please Provide Results: ☐ Fax ☒ 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
- ☐ NIOSH 7400
- ☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
- ☐ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)

Point Count
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)

Point Count w/Gravimetric
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NYS 198.1 (friable in NY)
- ☐ NYS 198.6 NOB (non-friable-NY)
- ☐ NIOSH 9002 (<1%)

TEM – Air ☐ 4-4.5hr TAT (AHERA only)
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (non-friable-NY)
- ☐ Chatfield SOP
- ☐ TEM Mass Analysis-EPA 600 sec. 2.5

TEM – Water: EPA 100.2
- Fibers >10µm ☐ Waste ☐ Drinking
- All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
- ☐ Microvac - ASTM D 5755
- ☐ Wipe - ASTM D6480
- ☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite
- ☒ PLM CARB 435 - A (0.25% sensitivity)
- ☐ PLM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - C (0.01% sensitivity)
- ☐ EPA Protocol (Semi-Quantitative)
- ☐ EPA Protocol (Quantitative)

Other:
- ☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group**

Samplers Name: **Samplers Signature:**

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
B1 1.5	soil		5/10/12 9:05
B2 1.5			9:40
B3 1.5			10:20
B3 7.0			10:40
B4 1.5			10:31
B4 4.0			11:00
B5 1.5			9:47
B5 5.0			10:21

Client Sample # (s): **Total # of Samples:** 14

Relinquished (Client): John Love **Date:** 5/11/12 **Time:** 16:00

Received (Lab): my **Date:** 5/14/12 **Time:** 1006 counter

Comments/Special Instructions: Bill per Caltrans Contract # 04A3578 billing rates.

091205928

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number *(Lab Use Only)*: 091205928

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

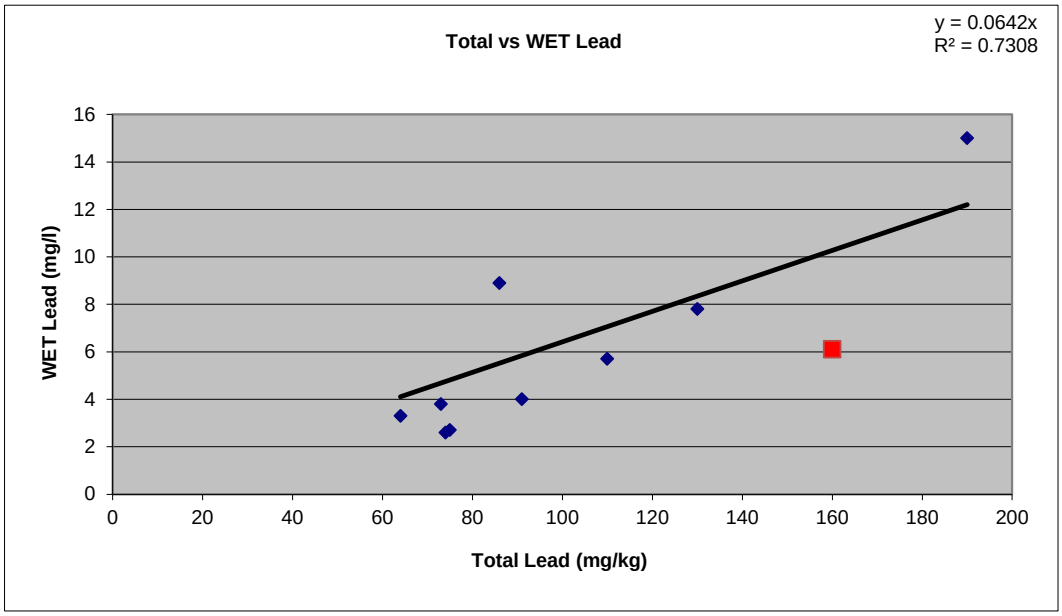
Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
B6 1.5	Soil		5/10/12 9:40
B6 7.0			10:10
B7 1.5			8:50
B7 7.0			9:10
B8 1.5			8:41
B8 7.0			9:24

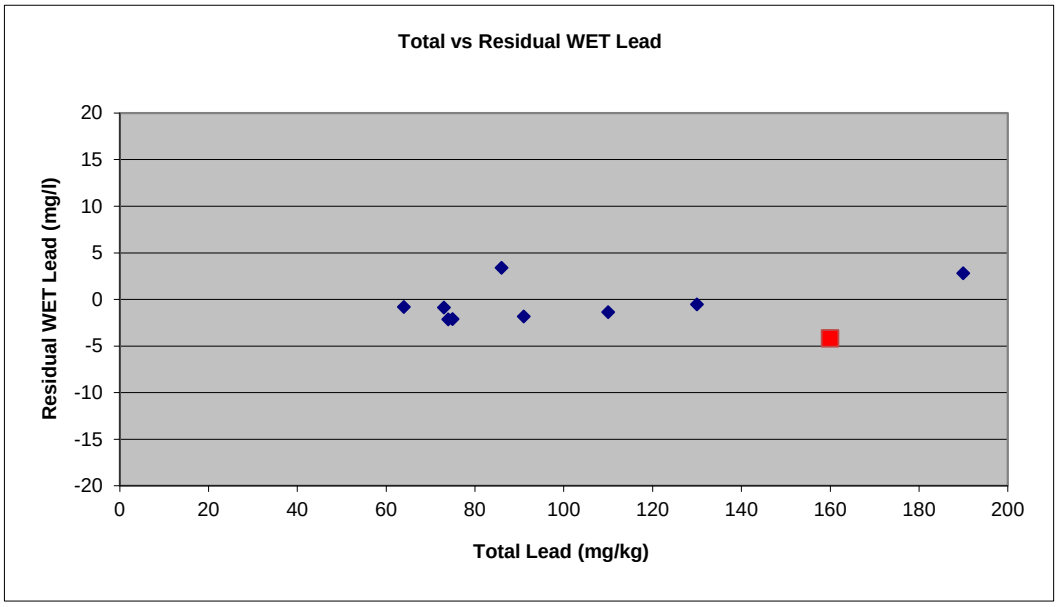
***Comments/Special Instructions:**

Page ____ of ____ pages

APPENDIX B

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	Residual WET Lead (mg/l)	Squared Residual WET Lead (mg/l)
B7 1.5	1 to 1.5	130	7.8	-0.55	0.30
B2 0.5	0 to 0.5	64	3.3	-0.81	0.65
B2 1.5	1 to 1.5	73	3.8	-0.89	0.79
B5 1.5	1 to 1.5	110	5.7	-1.36	1.86
B1 0.5	0 to 0.5	91	4.0	-1.84	3.39
B8 3.0	2.5 to 3	75	2.7	-2.12	4.47
B3 0.5	0 to 0.5	74	2.6	-2.15	4.63
B8 0.5	0 to 0.5	190	15	2.80	7.85
B5 0.5	0 to 0.5	86	8.9	3.38	11.41
Not Used					
B8 1.5	1 to 1.5	160	6.1	-4.17	17.41





Pb Site - 0

Number of Valid Observations	8
Number of Distinct Observations	8
Minimum	6.2
Maximum	190
Mean	72.3
Median	69
SD	55.94
Variance	3129
Coefficient of Variation	0.774
Skewness	1.336
Mean of log data	3.937
SD of log data	1.028
90% Standard Bootstrap UCL	**95.8**
95% Standard Bootstrap UCL	**102**

PB Site - 1

Number of Valid Observations	8
Number of Distinct Observations	8
Minimum	15
Maximum	160
Mean	69.1
Median	52.5
SD	57.94
Variance	3357
Coefficient of Variation	0.838
Skewness	0.532
Mean of log data	3.839
SD of log data	1.007
90% Standard Bootstrap UCL	**94.2**
95% Standard Bootstrap UCL	**101**

Pb Site - 2.5

Number of Valid Observations	8
Number of Distinct Observations	8
Minimum	6.3
Maximum	75
Mean	22.1
Median	12
SD	23.1
Variance	533.5
Coefficient of Variation	1.046
Skewness	2.141
Mean of log data	2.748
SD of log data	0.828
90% Standard Bootstrap UCL	**32.2**
95% Standard Bootstrap UCL	**34.3**

Pb Site - 6.5

Number of Valid Observations	5
Number of Distinct Observations	5
Minimum	5.7
Maximum	11
Mean	8.46
Median	9.1
SD	2.134
Variance	4.553
Coefficient of Variation	0.252
Skewness	-0.287
Mean of log data	2.108
SD of log data	0.266
90% Standard Bootstrap UCL	**9.56**
95% Standard Bootstrap UCL	**9.87**

As

Number of Valid Observations	8
Number of Distinct Observations	7
Minimum	0.5
Maximum	3.8
Mean	2.49
Median	2.7
SD	1.334
Variance	1.778
Coefficient of Variation	0.536
Skewness	-0.823
Mean of log data	0.675
SD of log data	0.861
95% Standard Bootstrap UCL	**3.20**

Pb - Site - All Depths

Number of Valid Observations	29
Number of Distinct Observations	28
Minimum	5.7
Maximum	190
Mean	46.6
Median	21
SD	50.2
Variance	2520
Coefficient of Variation	1.078
Skewness	1.44
Mean of log data	3.267
SD of log data	1.113
95% Standard Bootstrap UCL	**61.2**

V

Number of Valid Observations	8
Number of Distinct Observations	6
Minimum	16
Maximum	36
Mean	23.6
Median	21.5
SD	7.07
Variance	49.98
Coefficient of Variation	0.299
Skewness	1.107
Mean of log data	3.127
SD of log data	0.278
95% Standard Bootstrap UCL	**27.3**

TPHd

Number of Valid Observations	8
Number of Distinct Observations	8
Minimum	0.5
Maximum	870
Mean	121
Median	8.05
SD	303.3
Variance	91987
Coefficient of Variation	2.515
Skewness	2.811
Mean of log data	2.223
SD of log data	2.41
95% Standard Bootstrap UCL	**283**