

# ASBESTOS AND LEAD-CONTAINING PAINT SURVEY

**FIFTH AVENUE BRIDGE (33-0027)  
OAKLAND, CALIFORNIA**

**PREPARED FOR:**

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

**PREPARED BY:**

GEOCON CONSULTANTS, INC.  
6671 BRISA STREET  
LIVERMORE, CALIFORNIA

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TASK ORDER NO. 05  
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GEOCON PROJECT NO. E8435-06-05



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## REPORT LIMITATIONS

This asbestos and lead-containing paint (LCP) survey was conducted in conformance with generally accepted standards of practice for identifying and evaluating asbestos and LCP in structures. Due to the nature of structure surveys, asbestos and LCP use, and laboratory analytical limitations, some asbestos or LCP in the structure may not have been identified. Structure spaces, such as cavities, crawlspaces, and pipe chases, may have been concealed to Geocon's investigator. Previous structure renovation work may have concealed or covered spaces or materials, or may have partially demolished materials and left debris in inaccessible areas. Additionally, renovation activities may have partially replaced asbestos with indistinguishable non-asbestos materials. Asbestos or LCP may exist in areas of the structures not accessible or sampled in conjunction with this Task Order.

During renovation or demolition operations, suspect materials may be uncovered which are different from those accessible for sampling during this assessment. Personnel in charge of renovation/demolition should be alerted to note materials uncovered during such activities that differ substantially from those included in this or previous assessment reports. If suspect materials are found, additional sampling and analysis should be performed to determine if the materials contain asbestos or lead.

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 authors who are 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**



Chris Giuntoli, CAC  
Senior Project Scientist



David Watts, CAC  
Senior Project Scientist

**CALIFORNIA DEPARTMENT OF TRANSPORTATION – DISTRICT 4  
OFFICE OF ENVIRONMENTAL ENGINEERING**

Reviewed By:

Recommended by:

Approved By:

Steve Kadivar, PhD, BCEE  
Task Order Manager

Chris Wilson, P.E.  
District Branch Chief

Allen Baradar, P.E., REA  
District Office Chief

## PROJECT TEAM

<b>Contact</b>	<b>Affiliation</b>	<b>Responsibility</b>
Romy Fuentes, P.E. 510.622.8803 510.622.0198 fax romy_f_fuentes@dot.ca.gov	Caltrans – District 4 111 Grand Avenue, MS 7A Oakland, California 94612	Contract Manager
Steve Kadivar, PhD, BCEE 510.286.5630 510.286.5728 fax steve_kadivar@dot.ca.gov	Caltrans – District 4 Environmental Engineering 111 Grand Avenue, 14 <sup>th</sup> Floor Oakland, California 94623	Task Order Manager
Richard Day, CEG, CHG David Watts, CAC Chris Giuntoli, CAC 925.371.5900 925.371.5915 fax livermore@geoconinc.com	Geocon Consultants, Inc. 6671 Brisa Street Livermore, CA 94550 ( <i>Caltrans Contractor</i> )	Project Management Sample Collection Field QA/QC Investigation Report
Doug Krause, CIH 530.758.6397 530.758.6506 fax dskrause@pacbell.net	Krause & Associates 216 F. Street Suite 162 Davis, CA 95616 ( <i>Geocon Subcontractor</i> )	Health and Safety
Diane Galvan 562.989.4045 562.989.4040 fax diane@atlglobal.com	Advanced Technology Laboratories 1510 E. 33 <sup>rd</sup> Street Signal Hill, CA 90807 ( <i>Geocon Subcontractor</i> )	Lead Analysis
Dan Kocher 408.934.7010 408.934.7015 fax milpitaslab@emsl.com	EMSL Analytical, Inc. 2235 Polvorosa Avenue San Leandro, CA 94577 ( <i>Geocon Subcontractor</i> )	Asbestos Analysis

## EXECUTIVE SUMMARY

This asbestos and lead-containing paint (LCP) survey report was prepared for the Fifth Avenue Bridge Project (Post Mile [PM] 30.1/31.1; Kilometer Post [KP] 48.4/50) in Oakland, California. The project location (Bridge 33-0027) is depicted on the Vicinity Map, Figure 1, and Site Plan, Figure 2. Caltrans has requested an investigation at the project location to provide data regarding the presence of asbestos and LCP prior to demolition activities.

This report documents the investigation sampling methods and laboratory analytical data. The primary objective of our survey was to determine and quantify asbestos and deteriorated LCP at the project location prior to demolition activities. The information obtained from this investigation will be used by Caltrans to coordinate proposed demolition activities, determine appropriate abatement/disposal costs, and identify health and safety concerns during improvements.

The field investigation was performed on February 25, 2008. The following field activities were performed during asbestos and LCP sampling efforts:

- Collected nine bulk suspect asbestos samples at the project location;
- Collected three suspect LCP samples at the project location; and
- Transported samples to Caltrans-approved, California-certified environmental laboratories.

Samples were collected from locations as shown in the Site Plan (Figure 2). Suspect asbestos and LCP sample identification numbers are presented in Tables 1 and 2, respectively. Materials represented by the samples collected are presented in the Site Photographs.

Bulk suspect asbestos samples were collected after first wetting the material with a light mist of water. The samples were then cut from the substrate and transferred to labeled containers and sealed. A total of three suspect materials were identified during the survey (see Table 1). Note that when multiple samples were collected, the sampling locations were distributed throughout the homogeneous area (spaces where the material was observed).

Geocon relinquished bulk samples for asbestos analyses using standard chain-of-custody documentation. Asbestos content was determined using EPA Test Method 600/R-93/116 for polarized light microscopy (PLM). Laboratory analyses were performed within a 24-hour turn-around-time.

Bulk paint samples were collected using techniques presented in U.S. Department of Housing and Urban Development (HUD) guidelines. A total of two suspect LCPs were identified during the survey (see Table 2). In addition, each painted area was evaluated for evidence of deterioration such as flaking or cracking.

*It was not Geocon's intent during this inspection to conduct an evaluation of lead-based paint hazards in accordance with HUD guidelines. HUD protocol generally requires a very extensive sampling strategy that includes sampling of paint on each surface type.*

Geocon relinquished bulk paint samples for lead analysis using standard chain-of-custody documentation. Total lead content was determined using EPA Test Method 6010B. Soluble (Toxicity Characteristic Leaching Procedure [TCLP]) lead content was determined following EPA Test Method 1311. Laboratory analyses were requested within a 24-hour turn-around-time.

The laboratory analyses for asbestos indicated that chrysotile asbestos at concentrations of 40% and 2% were detected in samples representing nonfriable asbestos sheet packing used as bridge barrier rail shims and barrier rail thread compound, respectively. We were not able to quantify the amount of shim and thread compound materials due to safety concerns (i.e., traffic). No asbestos fibers were observed in samples of the remaining suspect material at the project location. Laboratory results for the asbestos samples are summarized on Table 1. Reproductions of the laboratory report and chain-of-custody documentation are presented in Appendix A.

The laboratory analyses for lead paint indicated the following:

- Laboratory analyses indicated that bulk samples representing intact green/multi-layer paint used on the bridge girders exhibited total lead concentrations of 59,000 to 100,000 milligrams per kilogram (mg/kg) and soluble (TCLP) lead concentrations of 230 to 300 milligrams per liter (mg/l).
- Laboratory analyses indicated that a bulk sample representing intact green/multi-layer paint used on the bridge drain piping exhibited a total lead concentration of 220,000 mg/kg and a soluble (TCLP) lead concentration of 450 mg/l.

Geocon paint sample laboratory results are summarized on Table 2. Reproductions of the lead laboratory report and chain-of-custody documentation are presented in Appendix B.

We provide the following conclusions and recommendations based on the results of our investigation.

The asbestos-containing sheet packing and bolt thread compound identified during our survey are National Emissions Standards for Hazardous Air Pollutants (NESHAP) Category I nonfriable/nonhazardous materials. NESHAP regulations do not require that Category I nonfriable/nonhazardous materials be removed prior to demolition or treated as hazardous waste. However, the disturbance of these materials is still covered by the Cal/OSHA asbestos standard (Title 8, CCR Section 1529). We recommend that a licensed demolition contractor registered with Cal/OSHA for asbestos-related work (or a licensed and certified asbestos abatement contractor) perform demolition activities if the asbestos-containing sheet packing and bolt thread compound identified during our survey is left in-place during demolition. Contractors are responsible for

informing the landfill of the contractor's intent to dispose of asbestos waste. Some landfills may require additional waste characterization. Contractors are responsible for segregating and characterizing waste streams prior to disposal.

We also recommend the notification of contractors (that will be conducting demolition, renovation, or related activities) of the presence of asbestos in their work areas (i.e., provide the contractor[s] with a copy of this report). Contractors not involved in asbestos abatement should be instructed not to disturb asbestos during their work.

In accordance with Bay Area Air Quality Management District (BAAQMD) Regulation 11, Rule 2, written notification is required ten working days prior to commencement of *any* demolition activity (whether asbestos is present or not) and for renovation activities involving specified quantities of regulated asbestos-containing material (RACM). In accordance with Title 8, CCR 341.9, written notification to the nearest Cal/OSHA district office is required at least 24 hours prior to certain asbestos-related work.

We recommend that all paints at the project location be treated as lead containing for purposes of determining the applicability of the Cal/OSHA lead standard during any future maintenance, renovation, and demolition activities. This recommendation is based on LCP sample results and the fact that lead was a common ingredient of paints manufactured before 1978 and is still an ingredient of some industrial paints. Construction activities (including demolition) that disturb materials containing *any* amount of lead are subject to certain requirements of the Cal/OSHA lead standard contained in Title 8, CCR Section 1532.1. We recommend that personnel with lead-related construction certification as supervisors or workers, as appropriate, from the California Department of Public Health (DPH) perform any required trigger tasks as defined in Title 8 CCR Section 1532.1(d). Common trigger tasks include manual scraping or sanding, heat gun applications, power tool cleaning, spray painting with lead paint, abrasive blasting, welding, cutting, grinding, and torch burning. Contractors should consult the Cal/OSHA lead standard for additional guidance.

Title 8, CCR, Section 1532.1(p) requires a written notification to the nearest Cal/OSHA district office at least 24 hours prior to certain lead-related work.

Contractors are responsible for informing the landfill of the contractor's intent to dispose of RCRA waste, California hazardous waste, and/or architectural components containing intact LCP. Deteriorated paint is a surface coating that is cracking, chalking, flaking, chipping, peeling, non-intact, failed, stripped, or otherwise separated from the substrate. Demolition of a deteriorated LCP component would require waste characterization and appropriate disposal. Most landfill facilities and recyclers currently accept intact LCP on a component; however, contractors are responsible for

segregating and characterizing waste streams prior to disposal. Some landfills may require additional waste characterization.

# ASBESTOS AND LEAD-CONTAINING PAINT SURVEY REPORT

## 1.0 INTRODUCTION

This asbestos and lead-containing paint (LCP) survey report was prepared for the Fifth Avenue Bridge Project (Post Mile [PM] 30.1/31.1; Kilometer Post [KP] 48.4/50) in Oakland, California. This report documents the investigation sampling methods and laboratory analytical data.

### 1.1 Site Description and Proposed Improvements

The project location (Bridge 33-0027) is depicted on the Vicinity Map, Figure 1, and Site Plan, Figure 2. Caltrans has requested an investigation at the project location to provide data regarding the presence of asbestos and LCP prior to demolition activities.

### 1.2 Purpose

This report documents the investigation sampling methods and laboratory analytical data. The primary objective of our survey was to determine and quantify asbestos and deteriorated LCP at the project location prior to demolition activities. The information obtained from this investigation will be used by Caltrans to coordinate proposed demolition activities, determine appropriate abatement/disposal costs, and identify health and safety concerns during improvements.

## 2.0 REGULATORY BACKGROUND

### 2.1 Asbestos

The *Code of Federal Regulations (CFR)*, 40 CFR 61, Subpart M, National Emissions Standards for Hazardous Air Pollutants (NESHAP) and Federal Occupational Safety and Health Administration (FED OSHA) classify asbestos-containing material (ACM) as any material or product that contains *greater than* 1% asbestos. Nonfriable ACM is classified by NESHAP as either Category I or Category II material defined as follows:

- **Category I** – asbestos-containing packings, gaskets, resilient floor coverings, and asphalt roofing products.
- **Category II** – all remaining types of non-friable asbestos-containing material not included in Category I that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Regulated asbestos-containing material (RACM), a hazardous waste when friable, is classified as any manufactured material that contains *greater than* 1% asbestos by dry weight *and* is:

- Friable; or
- Category I material that has become friable; or
- Category I material that has been subjected to sanding, grinding, cutting, or abrading; or
- Category II non-friable material that has a high probability of becoming crumbled, pulverized, or reduced to a powder during demolition or renovation activities.

Activities that disturb materials containing *any* amount of asbestos are subject to certain requirements of the Cal/OSHA asbestos standard contained in Title 8, CCR Section 1529. Typically, removal or disturbance of more than 100 square feet of material containing more than 0.1% asbestos must be performed by a registered asbestos abatement contractor, but associated waste labeling is not required if the material contains 1% or less asbestos. When the asbestos content of a material exceeds 1%, virtually all requirements of the standard become effective.

Materials containing more than 1% asbestos are also subject to NESHAP regulations (40 CFR Part 61, Subpart M). RACM (friable ACM and nonfriable ACM that will become friable during demolition operations) must be removed from structures prior to demolition. Certain nonfriable ACM and materials containing 1% or less asbestos may remain in structures during demolition; however, there are waste handling/disposal issues and Cal/OSHA work requirements that must be followed. Contractors are responsible for segregating and characterizing waste streams prior to disposal.

With respect to potential worker exposure, notification, and registration requirements, Cal/OSHA defines asbestos-containing construction material (ACCM) as construction material that contains more than 0.1% asbestos (Title 8, CCR 341.6).

## **2.2 Lead Paint**

Construction activities (including demolition) that disturb materials or paints containing *any* amount of lead are subject to certain requirements of the Cal/OSHA lead standard contained in Title 8, CCR, Section 1532.1. Deteriorated paint is defined by Title 17, CCR, Division 1, Chapter 8, §35022 as a surface coating that is cracking, chalking, flaking, chipping, peeling, non-intact, failed, or otherwise separating from a component. Demolition of a deteriorated LCP component would require waste characterization and appropriate disposal. Most landfill facilities and recyclers currently accept intact LCP on a component; however, contractors are responsible for segregating and characterizing waste streams prior to disposal.

For a solid waste containing lead, the waste is classified as California hazardous when: 1) the total lead content equals or exceeds the respective Total Threshold Limit Concentration (TTLC) of 1,000 milligrams per kilogram (mg/kg); or 2) the soluble lead content equals or exceeds the respective

Soluble Threshold Limit Concentration (STLC) of 5 milligrams per liter (mg/l) based on the standard Waste Extraction Test (WET). A waste has the potential for exceeding the lead STLC when the waste's total lead content is greater than or equal to ten times the respective STLC value since the WET uses a 1:10 dilution ratio. Hence, when total lead is detected at a concentration greater than or equal to 50 mg/kg, and assuming that 100 percent of the total lead is soluble, soluble lead analysis is required. Lead-containing waste is classified as "Resource, Conservation, and Recovery Act" (RCRA) hazardous, or Federal hazardous, when the soluble lead content equals or exceeds the Federal regulatory level of 5 mg/l 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. Since waste generated during the construction activities would not likely warrant testing for ignitability or other criteria, for the purposes of this investigation, toxicity (i.e., lead concentrations) is the primary factor considered for waste classification. Waste that is classified as either California hazardous or RCRA hazardous requires management as a hazardous waste.

Potential hazards exist to workers who remove or cut through LCP coatings during demolition. Dust containing hazardous concentrations of lead may be generated during scraping or cutting materials coated with LCP. Torching of these materials may produce lead oxide fumes. Therefore, air monitoring and/or respiratory protection may be required during the demolition of materials coated with LCP. Guidelines regarding regulatory provisions for construction work where workers may be exposed to lead are presented in the Title 8, CCR, Section 1532.1.

### **2.3 Architectural Drawings and Previous Survey Activities**

Architectural drawings and previous survey reports for the project were not available for our review.

## **3.0 SCOPE OF SERVICES**

The following scope of services was performed:

### **3.1 Pre-Field Activities**

- Prepared a Health and Safety Plan, dated December 20, 2007, to provide guidelines on personal safety during the field activities.
- Retained the services of EMSL, a Caltrans-approved laboratory accredited by the National Voluntary Laboratory Accreditation Program (NVLAP), to perform the asbestos analyses.
- Retained the services of ATL, a Caltrans-approved laboratory, to perform the lead paint analyses.

### 3.2 Field Activities

Mr. Chris Giuntoli, a California-Certified Asbestos Consultant (CAC), certification No. 02-3163 (expiration June 19, 2008), and Certified Lead Paint Inspector with the California Department of Public Health (DPH), certification numbers I-5502 (expiration June 14, 2008) performed the asbestos and LCP survey on February 25, 2008. A total of nine bulk samples of suspect ACM were collected. A total of three bulk samples of suspect LCP were collected.

## 4.0 INVESTIGATIVE METHODS

### 4.1 Asbestos

Bulk suspect asbestos samples were collected after first wetting the material with a light mist of water. The samples were then cut from the substrate and transferred to labeled containers and sealed. A total of three suspect materials were identified during the survey (see Table 1). When multiple samples were collected, the sampling locations were distributed throughout the homogeneous area (spaces where the material was observed).

Geocon relinquished bulk samples for asbestos analyses using standard chain-of-custody documentation. Asbestos content was determined using EPA Test Method 600/R-93/116 for polarized light microscopy (PLM). Laboratory analyses were performed within a 24-hour turn-around-time.

### 4.2 Lead Paint

Bulk paint samples were collected using techniques presented in U.S. Department of Housing and Urban Development (HUD) guidelines. A total of two suspect LCPs were identified during the survey (see Table 2). In addition, each painted area was evaluated for evidence of deterioration such as flaking or cracking.

*It was not Geocon's intent during this inspection to conduct an evaluation of lead-based paint hazards in accordance with HUD guidelines. HUD protocol generally requires a very extensive sampling strategy that includes sampling of paint on each surface type.*

Geocon relinquished bulk paint samples for lead analysis using standard chain-of-custody documentation. Total lead content was determined using EPA Test Method 6010B. Soluble (TCLP) lead content was determined following EPA Test Method 1311. Laboratory analyses were requested within a 24-hour turn-around-time.

## 5.0 INVESTIGATION RESULTS

The laboratory analyses indicated the following:

### 5.1 Asbestos

The laboratory analyses for asbestos indicated that chrysotile asbestos at concentrations of 40% and 2% were detected in samples representing nonfriable asbestos sheet packing used as bridge barrier rail shims and barrier rail thread compound, respectively. We were not able to quantify the amount of shim and thread sealant compound materials due to safety concerns (i.e., traffic). No asbestos fibers were observed in samples of the remaining suspect material at the project location. Laboratory results for the asbestos samples are summarized on Table 1. Reproductions of the laboratory report and chain-of-custody documentation are presented in Appendix A.

### 5.2 Lead Paint

Laboratory analyses indicated that bulk samples representing intact green/multi-layer paint used on the bridge girders exhibited total lead concentrations of 59,000 to 100,000 mg/kg and soluble (TCLP) lead concentrations of 230 to 300 mg/l.

Laboratory analyses indicated that a bulk sample representing intact green/multi-layer paint used on the bridge drain piping exhibited a total lead concentration of 220,000 mg/kg and a soluble (TCLP) lead concentration of 450 mg/l.

Geocon paint sample laboratory results are summarized on Table 2. Reproductions of the lead laboratory report and chain-of-custody documentation are presented in Appendix B.

## 6.0 CONCLUSIONS

### 6.1 Asbestos

NESHAP regulations do not require that asbestos-containing sheet piling and bolt thread compound (Category I nonfriable/nonhazardous materials) identified during our survey be removed prior to demolition or treated as hazardous waste. However, the disturbance of these materials is still covered by the Cal/OSHA asbestos standard (Title 8, CCR Section 1529). We recommend that a licensed demolition contractor registered with Cal/OSHA for asbestos-related work (or a licensed and certified asbestos abatement contractor) perform demolition activities if the asbestos-containing sheet piling and bolt thread compound identified during our survey is left in-place during demolition. Contractors are responsible for informing the landfill of the contractor's intent to dispose of asbestos waste. Some landfills may require additional waste characterization. Contractors are responsible for segregating and characterizing waste streams prior to disposal.

We also recommend that contractors (that will be conducting demolition, renovation, or related activities) be notified of the presence of asbestos in their work areas (i.e., provide the contractor[s] with a copy of this report). Contractors not involved in asbestos abatement should be instructed not to disturb asbestos during their work.

In accordance with Bay Area Air Quality Management District (BAAQMD) Regulation 11, Rule 2, written notification is required ten working days prior to commencement of *any* demolition activity (whether asbestos is present or not) and for renovation activities involving specified quantities of RACM. In accordance with Title 8, CCR 341.9, written notification to the nearest Cal/OSHA district office is required at least 24 hours prior to certain asbestos-related work.

### 6.2 Lead Paint

We recommend that all paints at the project location be treated as lead containing for purposes of determining the applicability of the Cal/OSHA lead standard during any future maintenance, renovation, and demolition activities. This recommendation is based on LCP sample results and the fact that lead was a common ingredient of paints manufactured before 1978 and is still an ingredient of some industrial paints. Construction activities (including demolition) that disturb materials containing *any* amount of lead are subject to certain requirements of the Cal/OSHA lead standard contained in Title 8, CCR Section 1532.1. We recommend that personnel with lead-related construction certification as supervisors or workers, as appropriate, from the California DPH perform any required trigger tasks as defined in Title 8 CCR Section 1532.1(d). Common trigger tasks include manual scraping or sanding, heat gun applications, power tool cleaning, spray painting with lead paint, abrasive blasting, welding, cutting, grinding, and torch burning. Contractors should consult the Cal/OSHA lead standard for additional guidance.

Title 8, CCR, Section 1532.1(p) requires a written notification to the nearest Cal/OSHA district office at least 24 hours prior to certain lead-related work.

Contractors are responsible for informing the landfill of the contractor's intent to dispose of RCRA waste, California hazardous waste, and/or architectural components containing intact LCP. Deteriorated paint is a surface coating that is cracking, chalking, flaking, chipping, peeling, non-intact, failed, stripped, or otherwise separated from the substrate. Demolition of a deteriorated LCP component would require waste characterization and appropriate disposal. Most landfill facilities and recyclers currently accept intact LCP on a component; however, contractors are responsible for segregating and characterizing waste streams prior to disposal. Some landfills may require additional waste characterization.

**TABLE I**  
**SUMMARY OF ANALYTICAL LABORATORY TEST RESULTS - ASBESTIOS**  
**BRIDGE 33-0027 IN OAKLAND, CALIFORNIA**

Polarized Light Microscopy (PLM) - EPA Test Method 600/R-93/116

Sample No.	Description of Material	Approximate Quantity	Friable	Site Photo	Asbestos Content
33-27-01A	Barrier rail shims	Unable to safely quantify	No	3	40%
33-27-01B					40%
33-27-01C					40%
33-27-02A	Bolt thread compound (barrier rail)	Unable to safely quantify	NA	4	2%
33-27-02B					2%
33-27-02C					2%
33-27-03A	Expansion joint fill material (span)	NA	NA	5	ND
33-27-03B					ND
33-27-03C					ND

Notes:

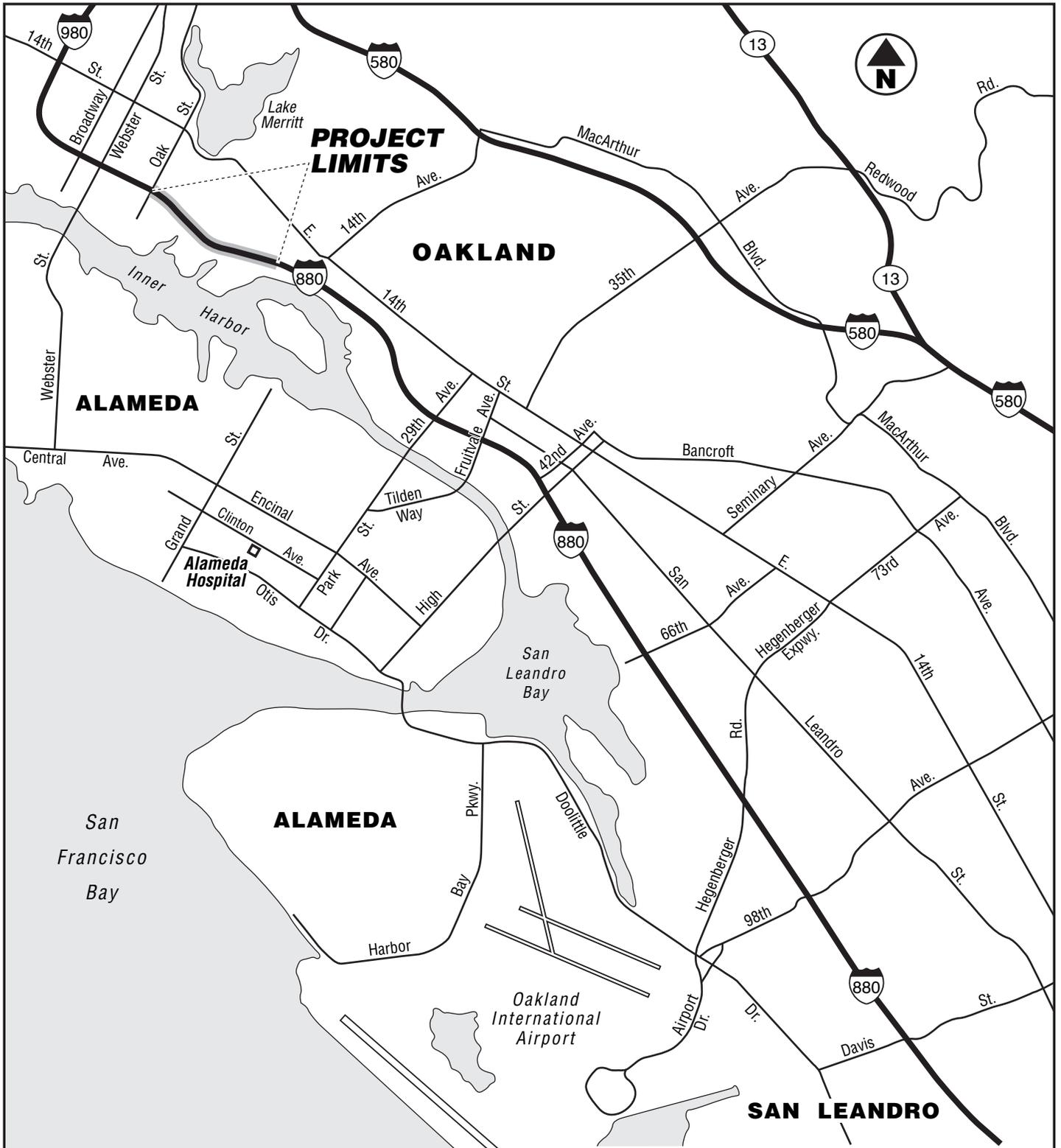
NA = Not applicable

ND = No asbestos fibers detected

**TABLE 2**  
**SUMMARY OF ANALYTICAL LABORATORY TEST RESULTS - PAINT**  
**BRIDGE 33-0027 IN OAKLAND, CALIFORNIA**

Sample ID	Paint Description	Total & Soluble Lead			
		Approximate Quantity Peeling & Flaking	Site Photo	Total Lead (mg/kg)	TCLP Lead (mg/l)
33-0027-P01A	Green paint (girders)	Intact	6	100,000	300
33-0027-P01B				59,000	230
33-0027-P02A	Green paint (piping)	Intact	7	220,000	450

Notes:  
mg/kg = milligrams per kilogram (EPA 6010)  
mg/l = milligrams per liter  
TCLP = Toxicity Characteristic Leaching Procedure (EPA Test Method 1311)



**GEOCON**

CONSULTANTS, INC.

6671 BRISASTREET - LIVERMORE, CA. 94550  
 PHONE 925 371-5900 - FAX 925 371-5915



State Route 880 (Fifth Avenue OH)  
 (PM 30.1/31.1) (KP 48.4/50)

Oakland, California

**VICINITY MAP**

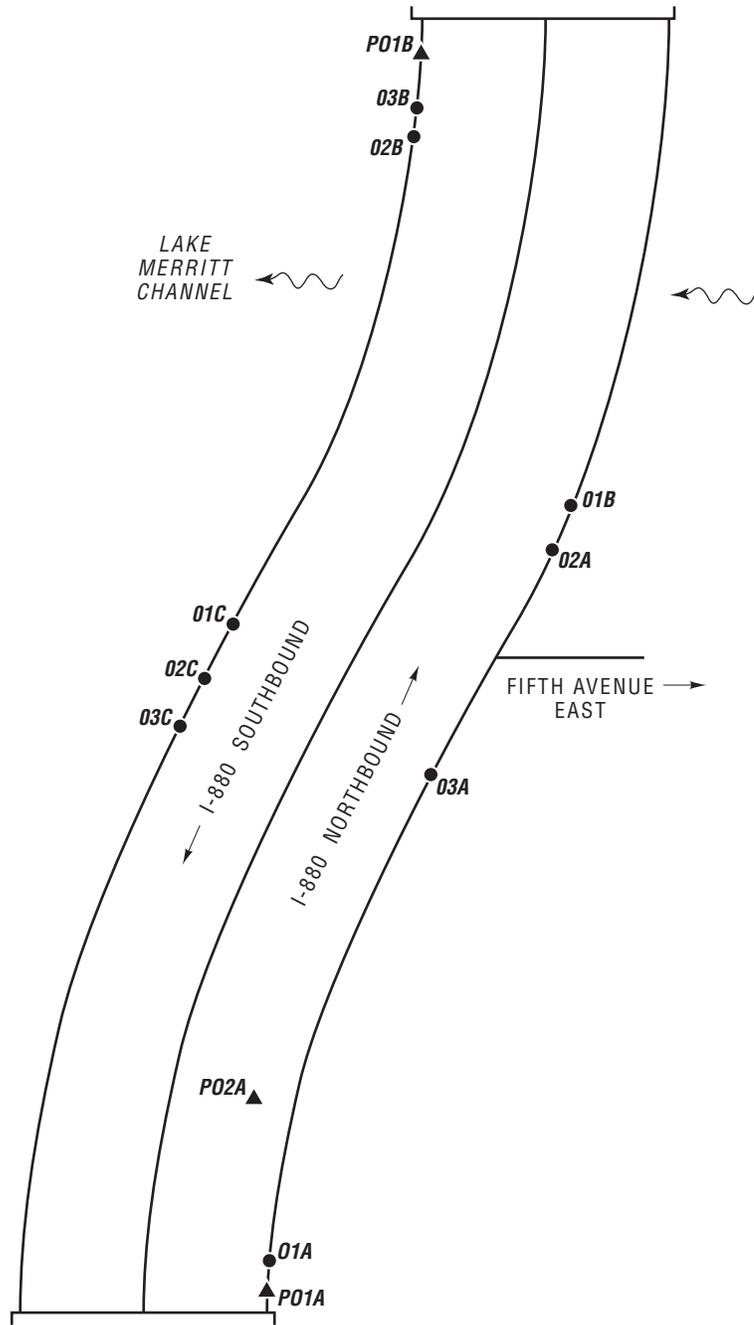
GEOCON Proj. No. E8435-06-05

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March 2008

Figure 1





**BRIDGE 33-0027**  
 (PM 30.1/31.1)  
 (KP 48.4/50)



NO SCALE

**LEGEND:**

- Approximate Asbestos Sample Location
- ▲ Approximate Paint-Chip Sample Location

**GEOCON**

CONSULTANTS, INC.

6671 BRISASTREET - LIVERMORE, CA. 94550  
 PHONE 925 371-5900 - FAX 925 371-5915



State Route 880 (Fifth Avenue OH)

Oakland,  
 California

**SITE PLAN**

GEOCON Proj. No. E8435-06-05

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Figure 2



**Photo 4 – Barrier rail bolt thread compound**



**Photo 5 – Expansion joint fill material (span)**



**Photo 6 – Bridge deck girders beneath southern portion of span**

**GEOCON**

CONSULTANTS, INC.  
6671 Brisa Street, Livermore, California 94550  
PHONE (925) 371-5900 – FAX (925) 371-5915



**PHOTOGRAPHS 4, 5, & 6**

Bridge 33-0027  
Oakland, California

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**Photo 7 – Drain pipe beneath southern portion of span**

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CONSULTANTS, INC.  
6671 Brisa Street, Livermore, California 94550  
PHONE (925) 371-5900 – FAX (925) 371-5915



**PHOTOGRAPH 7**

Bridge 33-0027  
Oakland, California

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# APPENDIX

# A



# EMSL Analytical, Inc

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

Phone: (510) 895-3675 Fax: (510) 895-3680 Email: [milpitaslab@emsl.com](mailto:milpitaslab@emsl.com)

Attn: **Chris Giuntoli**  
**Geocon Consultants**  
**6671 Brisa Street**  
**Livermore, CA 94550**

Customer ID: GECN21  
Customer PO: E8435-06-05  
Received: 02/26/08 9:00 AM  
EMSL Order: 090801354

Fax: (925) 371-5915 Phone: (925) 371-5900

Project: **E8435-06-05, EA1706UI**

EMSL Proj: E8435-06-\*\*  
Analysis Date: 2/27/2008  
Report Date: 2/28/2008

## Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Location	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
33-27-01A, Rail shim <i>090801354-0001</i>		Black Fibrous Homogeneous		60% Non-fibrous (other)	<b>40% Chrysotile</b>
33-27-01B, Rail shim <i>090801354-0002</i>		Black Fibrous Homogeneous		60% Non-fibrous (other)	<b>40% Chrysotile</b>
33-27-01C, Rail shim <i>090801354-0003</i>		Black Fibrous Homogeneous		60% Non-fibrous (other)	<b>40% Chrysotile</b>
33-27-02A, Thread sealant compound <i>090801354-0004</i>		Gray Non-Fibrous Homogeneous		98% Non-fibrous (other)	<b>2% Chrysotile</b>
33-27-02B, Thread sealant compound <i>090801354-0005</i>		Gray Non-Fibrous Homogeneous		98% Non-fibrous (other)	<b>2% Chrysotile</b>
33-27-02C, Thread sealant compound <i>090801354-0006</i>		Gray Non-Fibrous Homogeneous		98% Non-fibrous (other)	<b>2% Chrysotile</b>
33-27-03A, Fiber board <i>090801354-0007</i>		Brown Fibrous Homogeneous	100% Cellulose		<b>None Detected</b>

Analyst(s) \_\_\_\_\_

Yulia Grozman (9)

Baojia Ke, Laboratory Manager  
or other approved signatory

Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. Samples reported as <1% or none detected may require additional testing by TEM to confirm asbestos quantities. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL's liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.  
Analysis performed by EMSL San Leandro (NVLAP #101048-3)



**EMSL Analytical, Inc**

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

Phone: (510) 895-3675 Fax: (510) 895-3680 Email: milpitaslab@emsl.com

Attn: **Chris Giuntoli**  
**Geocon Consultants**  
**6671 Brisa Street**  
**Livermore, CA 94550**

Customer ID: GECN21  
Customer PO: E8435-06-05  
Received: 02/26/08 9:00 AM  
EMSL Order: 090801354

Fax: (925) 371-5915 Phone: (925) 371-5900  
Project: **E8435-06-05, EA1706UI**

EMSL Proj: E8435-06-\*\*  
Analysis Date: 2/27/2008  
Report Date: 2/28/2008

**Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy**

Sample	Location	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
33-27-03B, Fiber board 090801354-0008		Brown Fibrous Homogeneous	100%	Cellulose	<b>None Detected</b>
33-27-03C, Fiber board 090801354-0009		Brown Fibrous Homogeneous	100%	Cellulose	<b>None Detected</b>

Analyst(s) \_\_\_\_\_

Yulia Grozman (9)

Baojia Ke, Laboratory Manager  
or other approved signatory

Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. Samples reported as <1% or none detected may require additional testing by TEM to confirm asbestos quantities. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL's liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.  
Analysis performed by EMSL San Leandro (NVLAP #101048-3)



EMSL ANALYTICAL, INC.

90801354

EMSL - San Leandro ♦ 2235 Polvorosa Ave, Suite 230, San Leandro, CA 94577

(888) 455-3675 ♦ Phone (510) 895-3675 ♦ Fax (510) 895-3680 ♦ sanleandrolab@emsl.com

EMSL Rep: DAN KOCHER  
 Company: GEOCON  
 Contact: CHRIS GIUNTOLI  
 Address: 6671 BRISA ST  
 City & State: LIVERMORE, CA Zip 94550  
 Phone: 925-371-5900  
 Email Results GIUNTOLI@GEOCONING.COM  
 Project Name or Number: E8435-06-05  
(EA 1706 U1)

Third Party Billing *\*requires written authorization from third party*  
 EMSL-Bill to: \_\_\_\_\_  
 Contact: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City & State: \_\_\_\_\_ Zip \_\_\_\_\_  
 Fax: \_\_\_\_\_  
 Fax results \_\_\_\_\_  
 Purchase Order Number: \_\_\_\_\_

TURNAROUND TIME  
 3 Hours  6 Hours  12 Hours  24 Hours  48 Hours  72 Hours  4 Days  5 Days  6-10 Days

SAMPLE MATRIX  
 Air  Bulk  Soil  Wipe  Micro-Vac  Drinking Water  Wastewater  Chips  Other

**ASBESTOS ANALYSIS**  
**PCM - Air**  
 NIOSH 7400 (A) Issue 2: August 1994  
 OSHA w/TWA  
**TEM AIR**  
 AHERA 40 CFR, Part 763 Subpart E  
 NIOSH 7402 Issue 2  
 EPA Level II  
**PLM - Bulk**  
 EPA 600/R-93/116  
 NY Stratified Point Count  
 CARB 435 Level:  A  B  C  D  E  
 NIOSH 9002  
 PLM NOB (Gravimetric) NYS 198.1  
 EPA Point Count (400 Points)  
 EPA Point Count (1,000 Points)  
 Standard Addition Point Count  
**SOILS**  
 EPA Protocol  Qualitative  Quantitative  
 CARB 435 Level:  A  B  C  D  E  
 EMSL MSD 9000 Method fibers/gram  
 Superfund EPA 540-R097-028 (dust generation)  
**TEM BULK**  
 Drop Mount (Qualitative)  
 Chatfield SOP-1988-02  
 TEM NOB (Gravimetric) NY 198.4  
**TEM MICROVAC**  
 ASTM D 5755-95 (Quantitative)  
**TEM WIPE**  
 ASTM D-6480-99  
 Qualitative  
**TEM WATER**  
 EPA 100.1  
 EPA 100.2  
 NYS 198.2  
 OTHER: \_\_\_\_\_

**LEAD ANALYSIS**  
**Flame Atomic Absorption**  
 Wipe, SW846-7420  ASTM  non ASTM  
 Soil, SW846-7420  
 Air, NIOSH 7082  
 Chips, SW846-7420 or AOAC 5.009 (974.02)  
 Wastewater, SW 846-7420  
 TCLP LEAD SW846-1311/7420  
**Graphite Furnace Atomic Absorption**  
 Air, NIOSH 7105  
 Wastewater, SW846-7421  
 Soil, SW846-7421  
 Drinking Water, EPA 239.2  
**ICP - Inductively Coupled Plasma**  
 Wipe, SW846-6010  ASTM  non ASTM  
 Soil, SW846-6010  
 Air, NIOSH 7300

**MATERIALS ANALYSIS**  
 Full Particle Identification  
 Optical Particle Identification  
 Dust Mites and Insect Fragments  
 Particle Size & Distribution  
 Product Comparison  
 Paint Characterization  
 Failure Analysis  
 Corrosion Analysis  
 Glove Box Containment Study  
 Petrographic Examination of Concrete  
 Portland Cement in Workplace Atmospheres (OSHA ID-143)  
 Man Made Vitrous Fibers - MMVF's  
 Synthetic Fiber Identification  
 Other: \_\_\_\_\_

**MICROBIAL ANALYSIS**  
**Air Samples**  
 Mold & Fungi by Air O Cell  
 Mold & Fungi by Agar Plate count & id  
 Bacterial Count and Gram Stain  
 Bacterial Count and Identification  
**Water Samples**  
 Total Coliforms, Fecal Coliforms  
 Escherichia Coli, Fecal Streptococcus  
 Legionella  
 Salmonella  
 Giardia and Cryptosporidium  
**Wipe and Bulk Samples**  
 Mold & Fungi - Direct Examination  
 Mold & Fungi - (Culture follow up to direct examination if necessary)  
 Mold & Fungi - Culture (Count & ID)  
 Mold & Fungi - Culture (Count only)  
 Bacterial Count & Gram Stain  
 Bacterial Count & Identification (3 most prominent types)  
 Other: \_\_\_\_\_

**IAQ ANALYSIS**  
 Nuisance Dust (NIOSH 0500 & 0600)  
 Airborne Dust (PM10, TSP)  
 Silica Analysis by XRD  Niosh 7500  
 HVAC Efficiency  
 Carbon Black  
 Airborne Oil Mist  
 Other: \_\_\_\_\_

Client Sample # (S) \_\_\_\_\_ TOTAL SAMPLE # 9  
 Relinquished: [Signature] Date: 2/26/08 Time: 0600  
 Received: \_\_\_\_\_ Date: 2/26/08 Time: 9:00  
 Relinquished: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Received: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_



APPENDIX

B

February 28, 2008



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

ELAP No.: 1838  
NELAP No.: 02107CA  
NEVADA.: CA-401  
Arizona: AZ0689  
CSDLAC No.: 10196  
Workorder No.: 097304

RE: CALTRANS-5TH AVE OH, E8435-06-05

Attention: Chris Giuntoli

Enclosed are the results for sample(s) received on February 26, 2008 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

  
Eddie F. Rodriguez  
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.



**CLIENT:** Geocon Consultants, Inc.  
**Project:** CALTRANS-5TH AVE OH, E8435-06-05  
**Lab Order:** 097304

**CASE NARRATIVE**

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Analytical Comments for Method 6010

Dilution was necessary for samples 097304-001A, 097304-002A and 097304-003A, due to sample matrix.

Matrix Spike (MS) and /or Matrix Spike Duplicate (MSD) are/is outside recovery criteria for samples 097304-003AMS and 097304-003AMSD; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

Analytical Comments for Method 7420

Dilution was necessary for samples 097304-001A, 097304-002A and 097304-003A, due to sample matrix.

RPD for Duplicate (DUP) is outside criteria for sample 097092-011ADUP; however, the Laboratory Control Sample (LCS) validated the analytical batch.

**Advanced Technology Laboratories**

**ANALYTICAL RESULTS**

Print Date: 28-Feb-08

**CLIENT:** Geocon Consultants, Inc.  
**Project:** CALTRANS-5TH AVE OH, E8435-06-05

**Lab Order:** 097304

**Lab ID:** 097304-001  
**Client Sample ID:** 33-27-P01A

**Collection Date:** 2/25/2008  
**Matrix:** PAINT CHIPS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**LEAD BY ICP**

**EPA 3050M**

**EPA 6010B**

RunID: ICP8_080227B	QC Batch: 43886				PrepDate: 2/27/2008	Analyst: CL
Lead	100000	120		mg/Kg	25	2/27/2008 01:47 PM

**LEAD BY ATOMIC ABSORPTION (TCLP)**

**EPA3010A**

**EPA 1311/ 7420**

RunID: AA2_080228A	QC Batch: 43888				PrepDate: 2/27/2008	Analyst: LKN
Lead	300	10		mg/L	40	2/28/2008

**Lab ID:** 097304-002  
**Client Sample ID:** 33-27-P01B

**Collection Date:** 2/25/2008  
**Matrix:** PAINT CHIPS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**LEAD BY ICP**

**EPA 3050M**

**EPA 6010B**

RunID: ICP8_080227B	QC Batch: 43886				PrepDate: 2/27/2008	Analyst: CL
Lead	59000	100		mg/Kg	20	2/27/2008 11:40 AM

**LEAD BY ATOMIC ABSORPTION (TCLP)**

**EPA3010A**

**EPA 1311/ 7420**

RunID: AA2_080228A	QC Batch: 43888				PrepDate: 2/27/2008	Analyst: LKN
Lead	230	10		mg/L	40	2/28/2008

**Lab ID:** 097304-003  
**Client Sample ID:** 33-27-P02A

**Collection Date:** 2/25/2008  
**Matrix:** PAINT CHIPS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**LEAD BY ICP**

**EPA 3050M**

**EPA 6010B**

RunID: ICP8_080227B	QC Batch: 43886				PrepDate: 2/27/2008	Analyst: CL
Lead	220000	400		mg/Kg	40	2/27/2008 01:54 PM

**LEAD BY ATOMIC ABSORPTION (TCLP)**

**EPA3010A**

**EPA 1311/ 7420**

RunID: AA2_080228A	QC Batch: 43888				PrepDate: 2/27/2008	Analyst: LKN
Lead	450	12		mg/L	50	2/28/2008

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

**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** 097304  
**Project:** CALTRANS-5TH AVE OH, E8435-06-05

**ANALYTICAL QC SUMMARY REPORT**

**TestCode: 6010\_SPB**

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
LCS-43886	LCS	6010_SPB	mg/Kg	2/27/2008	91662						
Client ID: LCSS	Batch ID: 43886	TestNo: EPA 6010B EPA 3050M		Analysis Date: 2/27/2008	SeqNo: 1406611						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	237.780	5.0	250.0	0	95.1	80	120				

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
097304-003AMS	MS	6010_SPB	mg/Kg	2/27/2008	91662						
Client ID: 33-27-P02A	Batch ID: 43886	TestNo: EPA 6010B EPA 3050M		Analysis Date: 2/27/2008	SeqNo: 1406616						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	159965.226	200	500.0	217000	-11400	37	128				S

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
097304-003AMSD	MSD	6010_SPB	mg/Kg	2/27/2008	91662						
Client ID: 33-27-P02A	Batch ID: 43886	TestNo: EPA 6010B EPA 3050M		Analysis Date: 2/27/2008	SeqNo: 1406617						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	176355.037	200	500.0	217000	-8130	37	128	160000	9.75	20	S

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
MB-43886	MBLK	6010_SPB	mg/Kg	2/27/2008	91662						
Client ID: PBS	Batch ID: 43886	TestNo: EPA 6010B EPA 3050M		Analysis Date: 2/27/2008	SeqNo: 1406618						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	5.0									

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
097304-003ADUP	DUP	6010_SPB	mg/Kg	2/27/2008	91662						
Client ID: 33-27-P02A	Batch ID: 43886	TestNo: EPA 6010B EPA 3050M		Analysis Date: 2/27/2008	SeqNo: 1406736						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	187123.695	400						217000	14.8	20	

**Qualifiers:**

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

**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** 097304  
**Project:** CALTRANS-5TH AVE OH, E8435-06-05

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 7420\_TC**

Sample ID: <b>MB-43888A</b>	SampType: <b>MBLK</b>	TestCode: <b>7420_TC</b>	Units: <b>mg/L</b>	Prep Date: <b>2/27/2008</b>	RunNo: <b>91729</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43888</b>	TestNo: <b>EPA 1311/ 74 EPA3010A</b>		Analysis Date: <b>2/28/2008</b>	SeqNo: <b>1407041</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 0.25

Sample ID: <b>MB-43873A TCLP</b>	SampType: <b>MBLK</b>	TestCode: <b>7420_TC</b>	Units: <b>mg/L</b>	Prep Date: <b>2/27/2008</b>	RunNo: <b>91729</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43888</b>	TestNo: <b>EPA 1311/ 74 EPA3010A</b>		Analysis Date: <b>2/28/2008</b>	SeqNo: <b>1407042</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 0.25

Sample ID: <b>LCS-43888</b>	SampType: <b>LCS</b>	TestCode: <b>7420_TC</b>	Units: <b>mg/L</b>	Prep Date: <b>2/27/2008</b>	RunNo: <b>91729</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43888</b>	TestNo: <b>EPA 1311/ 74 EPA3010A</b>		Analysis Date: <b>2/28/2008</b>	SeqNo: <b>1407043</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 1.044 0.25 1.000 0 104 80 120

Sample ID: <b>097092-011A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>7420_TC</b>	Units: <b>mg/L</b>	Prep Date: <b>2/27/2008</b>	RunNo: <b>91729</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43888</b>	TestNo: <b>EPA 1311/ 74 EPA3010A</b>		Analysis Date: <b>2/28/2008</b>	SeqNo: <b>1407048</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 0.589 0.25 0.3404 53.5 20 R

Sample ID: <b>097092-011A-MS</b>	SampType: <b>MS</b>	TestCode: <b>7420_TC</b>	Units: <b>mg/L</b>	Prep Date: <b>2/27/2008</b>	RunNo: <b>91729</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43888</b>	TestNo: <b>EPA 1311/ 74 EPA3010A</b>		Analysis Date: <b>2/28/2008</b>	SeqNo: <b>1407049</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 3.043 0.25 2.500 0.3404 108 80 120

**Qualifiers:**

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

**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** 097304  
**Project:** CALTRANS-5TH AVE OH, E8435-06-05

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 7420\_TC

Sample ID: <b>097092-011A-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>7420_TC</b>	Units: <b>mg/L</b>	Prep Date: <b>2/27/2008</b>	RunNo: <b>91729</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43888</b>	TestNo: <b>EPA 1311/ 74 EPA3010A</b>	Analysis Date: <b>2/28/2008</b>	SeqNo: <b>1407050</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.978	0.25	2.500	0.3404	105	80	120	3.043	2.16	20	

**Qualifiers:**

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



**Diane Galvan**

---

**From:** Chris Giuntoli [giuntoli@geoconinc.com]  
**Sent:** Wednesday, February 27, 2008 3:04 PM  
**To:** Diane Galvan  
**Subject:** RE: TTLIC Results - CALTRANS-5TH AVE OH (097304)

Diane,

Please run the TCLP analysis for the three samples on a RUSH 24-hr TAT.

Thanks.

Chris