

**ENTEK  
CONSULTING GROUP, INC.**

4200 Rocklin Road, Suite 7 Rocklin, CA 95677

Telephone (916) 632-6800

Fax (916) 632-6812

**HAZARDOUS MATERIALS SURVEY  
FINAL REPORT**

**CLIENT**

**Blackburn Consulting  
11521 Blocker Drive 110  
Auburn, CA 95603**

**CONTACT**

**Rick Sowers P.E., C.E.G.**

**SURVEY ADDRESS**

**Blairsden-Graeagle Road  
Graeagle, CA 96103**

**STRUCTURE SURVEYED**

**Blairsden-Graeagle Road Bridge  
Plumas County, Blairsden-Graeagle Bridge Replacement Project**

**PREPARED BY**

**Inspector Name (Douglas R. Colley)  
Inspector #'s (CAC #92-0222 & CDPH #I/S/M-5785)  
Entek Consulting Group, Inc.  
4200 Rocklin Road; Suite 7  
Rocklin, CA 95677**

**Entek Project #11-2008**

**December 1, 2011**

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## **Introduction**

This report communicates the results of an asbestos and lead survey performed by Entek Consulting Group, Inc. (Entek) on November 10, 2011 of the Blairsden-Graeagle Road Bridge which crosses the Middle Fork Feather River, located in Graeagle, California. The bridge is scheduled to be impacted during an upcoming bridge replacement project. The attached aerial photograph and map show the location of the bridge on Blairsden-Graeagle Road in Graeagle, California.

The United States Environmental Protection Agency, National Emission Standards for Hazardous Air Pollutants (US EPA NESHAP), 40 CFR Part 61 - Nov. 20, 1990, requires an owner or operator of a demolition or renovation project to thoroughly inspect the affected facility or part of the facility where the demolition or renovation operation will occur for the presence of asbestos-containing materials (ACM) prior to the commencement of that project.

This inspection report was requested by Mr. Rick Sowers, P.E., C.E.G. with Blackburn Consulting. The purpose of the inspection was to comply with US EPA NESHAP and California Air Resources Board (CARB) requirements to determine if asbestos containing materials are present which may be impacted during the upcoming Blairsden-Graeagle Road bridge replacement project. It is our understanding the truss bridge was constructed in the early 1930's.

I conducted this survey and I am a US EPA Asbestos Hazard Emergency Response Act (AHERA)-accredited building inspector and a California Occupational Safety & Health Administration (Cal/OSHA) Certified Asbestos Consultant (CAC). I am also a State of California Department of Public Health (CDPH) certified Lead Inspector/Assessor.

## **Bridge Description**

The bridge is a "truss bridge" design. The bridge is approximately 16' in width and 270' in length with guard rails on each side. The road surface is asphalt supported by fluted metal decking. The main structural components of the bridge are mostly painted green. Other assorted components such as hand rails, ballards, etc. are painted silver. The guard rails which run the entire length of the bridge have remnants of a reflective paint present.

## **Asbestos Inspection & Regulatory Compliance**

Entek inspected all above ground components of the bridge identified in this report. No materials were found to be present which are suspected of containing asbestos in their manufacture or application. As a result, no sampling of materials was performed and no materials suspected of containing asbestos are listed in this report.

## US EPA

The bridge included in this survey report is located in Plumas County. Plumas County is located within the boundaries of the Northern Sierra District. This is a "Non-Delegated" District. As a result, US EPA and CARB have dual jurisdiction over enforcement of the NESHAP regulation.

A demolition is the wrecking, taking out, or burning of any load supporting structural member. A renovation is everything else. Ten day written notification to the US EPA Region IX and CARB is required prior to the performance of any demolition project regardless of asbestos being present or not.

Since there were no materials present which are considered suspect for containing asbestos, a 10 day asbestos related notification to US EPA Region IX or CARB will not be required prior to demolition of the bridge. Information taken directly from the CARB web site regarding the notification requirements for demolition has been included in Appendix A of this report. This information includes notification instructions and a copy of the notification form provided by CARB. The single form is used for notification to both agencies.

## Cal/OSHA

Disturbance of any ACM or asbestos containing construction material (ACCM) could generate airborne asbestos fibers and would be regulated by Cal/OSHA. Since no asbestos was suspected of being present in any materials used to construct the bridge to be impacted by this project, Cal/OSHA asbestos regulations do not apply.

## **Lead Inspection**

The structural components of the bridge are coated with green paint. The guard rails of the bridge have remnants of a reflective coating present and other assorted items such as ballards at each end of the bridge and guard rail supports, etc. are painted silver.

A X-ray fluorescence (XRF) Spectrum Analyzer produced by Niton was used during the lead inspection portion of this survey as a screening tool in determining if lead is present in quantities which would require existing paints and/or coatings to be classified as lead based paint (LBP).

In XRF spectroscopy, the process begins by exposing the sample in question to a source of x-rays or gamma rays. As these high energy photons strike the sample, they tend to knock electrons out of their orbits around the nuclei of the atoms that make up the sample. When this occurs, an electron from an outer orbit, or "shell", of the atom will fall into the shell of the missing electron. Since outer shell electrons are more energetic than inner shell electrons, the relocated electron has an excess of energy that is expended as an XRF photon. This fluorescence is unique to the composition of the sample.

The detector collects this spectrum and converts them to electrical impulses that are proportional to the energies of the various x-rays in the sample's spectrum. Since each element has a different and identifiable x-ray signature, we can look at specific parts of the emitted spectrum, and by counting the pulses in the sector, determine the presence and concentration of the element(s) in question within the sample.

### Lead Sampling Results

XRF Spectrum Analyzer testing indicated lead was present in concentrations  $>1.0 \text{ mg/cm}^2$  on various bridge components. These bridge components and colors of paints/coatings included: all metal and concrete painted green, all metal painted with silver paint, and all guard rails and securing bolt heads coated with reflective paint. These paints/coatings are classified as LBP. All XRF sampling data are presented on the attached "Lead Testing Data Sheets (OSHA)" in Appendix B of this report.

XRF direct reading technology is not capable of determining lead concentrations below  $1.0 \text{ mg/cm}^2$ . The limit of detection for this device with a 95% confidence level is  $1.0 \text{ mg/cm}^2$ . As a result, any reading provided by the XRF technology does not provide adequate information to determine the actual content of lead in the paint/coating being tested. Any XRF reading less than  $1.0 \text{ mg/cm}^2$  (including readings of 0.00) only indicate lead is not present at levels high enough to classify the paint/coating as LBP. Therefore, any component, paint color, or coating not specifically chip tested and analyzed by atomic absorption spectrometry (AAS) for lead content must be considered to contain some amount of lead and lead related work practices will apply if they are to be impacted.

The XRF results for silver paint applied to guard rail supports and ballards, etc. indicated LBP was not present. As a result, one bulk sample of the silver paint was collected and submitted to Asbestech laboratory. The sample was subsequently analyzed by atomic absorption spectrometry (AAS). Result of the analysis is listed in the following table:

Paints/Coatings Determined to be Lead Based		
Paint/Coating Color or Material	Lead Content	Component/Location
Silver Paint	18,000 ppm	Guard Rail Supports, Ballards and any other bridge component coated with silver paint.

LBP - Coatings/paints meeting the definition of lead-based paint as defined by the CDPH and the US EPA, currently defined as containing lead in concentrations equal to or greater than  $1.0 \text{ mg/cm}^2$ , 5,000 ppm, or 0.5% by weight.

LCP - Coatings/paints which contain measurable amounts of lead. The disturbance of these materials/coatings/paints is regulated by Cal/OSHA.

## **Lead Regulatory Compliance**

Any upcoming project which will result in the disturbance of coatings/paints containing various amounts of lead, but is not intended to remediate a lead hazard or specifically designed to remove LBP to reduce or eliminate a known hazard, would be considered "lead related construction work".

Lead related construction work does not fit the classification of a "lead abatement project" under CDPH Title 17 regulations. "*Abatement*" is defined in Title 17, Division 1, Chapter 8, Article 1 as "any set of measures designed to reduce or eliminate lead hazards or LBP for public and residential buildings, but does not include containment or cleaning." A *lead hazard* is defined in Title 17, Division 1, Chapter 8, Article 1 as "deteriorated LBP, lead contaminated dust, lead contaminated soil, disturbing LBP or presumed LBP without containment, or any other nuisance which may result in persistent and quantifiable lead exposure."

*Lead related construction work* means any "construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential or public building, including preparation and cleanup, that, by using or disturbing lead-containing material or soil, may result in significant exposure of adults or children to lead" (Title 17, California Code of Regulations, Division 1, Chapter 8, Article 1).

Currently, Cal/OSHA has not established a definition for LBP, nor have they established minimum concentrations where their regulations do not apply. Cal/OSHA regulates all construction activities involving materials containing lead, including LBP. These regulations are found in CCR, Title 8 Section 1532.1 (§1532.1) Lead in Construction.

Since Cal/OSHA has not established a concentration of lead in a product where their regulations do not apply, any disturbance to products containing lead come under the jurisdiction of Cal/OSHA and their regulations. These regulations include requirements for training, use of personal protective equipment, engineering controls, and notification.

## **Limitations**

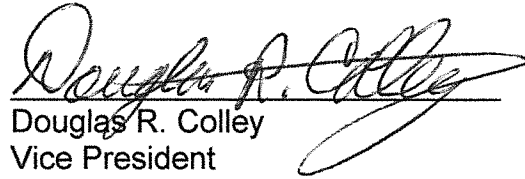
Entek inspected only the bridge identified in this report. As a result the information provided in this inspection report may not be used to extend the inspection results to other bridges or structures not included in this report.

Entek did not employ any destructive measures on areas covered with asphalt, concrete, or dirt. If any new materials not listed as suspect or having been sampled for containing asbestos in this report are discovered, the new material must be assumed to contain asbestos until properly inspected and tested for asbestos content.



Thank you for choosing Entek for your environmental needs. Please call me at (916) 632-6800, if you have any questions regarding this report.

Prepared by:

  
Douglas R. Colley  
Vice President  
Cal/OSHA CAC #92-0222  
CDPH I/S/M Certification #5785

## Appendices

- A. Asbestos Related Documents
- B. Lead Related Documents
- C. Backup Documentation

Z:\Clients\Blackburn Consulting\11-2008 Plumas County Blairsden-Graeagle Bridge Replacement Project - Lead Insp\Project Reports and Letters\Final Haz Mat Insp Rpt  
Blairsden-Graeagle 12-01-11.wpd

## **APPENDIX A**

### **ASBESTOS RELATED DOCUMENTS**

- US EPA Region IX Asbestos NESHAP Notification Instructions (Renovation or Demolition)
- CARB Asbestos NESHAP Program (Renovation or Demolition)
- Asbestos NESHAP Notification of Demolition and Renovation Form (Used for Notification to both US EPA & CARB)





## ▶ Asbestos NESHAP Notification Instructions

*This page last reviewed February 15, 2010*

The Asbestos NESHAP Notification Form should be typewritten and postmarked or delivered no later than ten working days prior to the beginning of the asbestos removal activity and/or demolition.

For specific information regarding California's Non-Delegated Air Districts, please view the Counties in Non-Delegated Districts table.

▶ Mail Original To:	▶ Send Copy or Fax To:
Mr. Bob Trotter U.S. EPA - Region IX Asbestos NESHAP Notification (Air 5) 75 Hawthorne Street San Francisco, California 94105	California Air Resources Board Enforcement Division Asbestos NESHAP Notification <b>Attn: Ahmad Najjar</b> Post Office Box 2815 Sacramento, California 95812 Fax: (916) 445-7986

### Notification Instructions

#### 1. Type of Notification:

Enter "O" if the notification is a first time or original notification, "R" if the notification is a revision of a prior notification, or "C" if the activity has been canceled.

#### 2. Facility Information:

Enter the names, addresses, contact persons and telephone numbers of the following:

- Owner: Legal owner of the site at which asbestos is being removed or demolition planned.
- Removal Contractor: Contractor hired to remove asbestos.
- Other Operator: Demolition contractor, general contractor, or any other person who leases, operates, controls or supervises the site.

If known, the name of the site supervisor should be entered as the contact person for the notification. If additional parties share responsibility for this site, demolition activity, renovations or ACM removal, include complete information (including name, address, contact person and telephone number) on additional sheets submitted with the form.

**3. Type of Operation:**

Enter "D" for facility demolition, "R" for facility renovation, "O" for ordered demolitions, or "E" for emergency renovations.

**4. Is Asbestos Present?**

Answer "Yes" or "No" regardless of the amount or type of asbestos.

**5. Facility Description:**

Provide detailed information on the areas being renovated or demolished. If applicable, provide the floor numbers and room numbers where renovations are to be conducted.

- Site Location: Provide information needed to locate site in the event that the address alone is inadequate.
- Building Size: Provide in square meters or square feet.
- No. of Floors: Enter the number of floors including basement or ground level floors.
- Age in Years: Enter approximate age of the facility.
- Present Use/Prior Use: Describe the primary use of the facility or enter the following codes:
  - H for Hospital; S for School; P for Public Building; O for Office; I for Industrial; U for University or College; B for Ship; C for Commercial; or R for Residence.

**6. Asbestos Detection Procedure:**

Describe methods and procedures used to determine whether ACM is present at the site, including a description of the analytical methods employed.

**7. Approximate Amount of Asbestos Including:**

- (1) Regulated ACM to be removed (including nonfriable ACM to be sanded, ground or abraded);
- (2) Category I ACM not removed; and (3) Category II ACM not removed.

For both removals and demolitions, enter the amount of RACM to be removed by entering a number in the appropriate box and an "X" for the unit. For demolitions only, enter the amount of Category I and II nonfriable asbestos not to be removed in the appropriate boxes.

Category I nonfriable material includes packing, gaskets, resilient floor covering and asphalt roofing materials containing more than one percent asbestos. Category II nonfriable material includes any material, excluding Category I products, containing more than one percent asbestos, that when dry, cannot be crumbled, pulverized or reduced to powder.

**8. Scheduled Dates of Asbestos Removal (MM/DD/YY):**

Enter scheduled dates (month/day/year) for asbestos removal work. Asbestos removal work includes any activity, including site preparation, which may break up, dislodge or disturb asbestos material.

**9. Scheduled Dates of Demo/Renovation (MM/DD/YY):**

Enter scheduled dates (month/day/year) for beginning and ending the planned demolition or renovation.

**10. Demolition of Planned Demolition or Renovation Work, and Method(s) to be Used:**

Include in this description the demolition and renovation techniques to be used and a description of the areas and types of facility components which will be affected by this work.

**11. Description of Engineering Controls and Work Practices to be Used to Control Emissions of Asbestos at the Demolition and Renovation Site:**

Describe the work practices and engineering controls selected to ensure compliance with the requirements of the regulations, including both asbestos removal and waste-handling emission control procedures.

**12. Waste Transporter(s):**

Enter the names, addresses, contact persons and telephone numbers of the persons or companies responsible for transporting ACM from the removal site to the waste disposal site. If the removal contractor or owner is the waste transporter, state "same as owner" or "same as removal contractor." If additional parties are responsible, include complete information on an additional sheet submitted with the form.

**13. Waste Disposal Site:**

Identify the waste disposal site, including the complete name, location and telephone number of the facility. If ACM is to be disposed of at more than one site, provide complete information on an additional sheet submitted with the form.

**14. If Demolition is Ordered by a Government Agency, Please Identify the Agency Below:**

Provide the name of the responsible official, title and agency, authority under which the order was issued, the dates of the order and the dates of the ordered demolition.

**15. Emergency Renovation Information:**

Provide the date and time of the emergency, a description of the event and a description of unsafe conditions, equipment damage or financial burden resulting from the event. The information should be detailed enough to evaluate whether a renovation falls within the emergency exception.

**16. Description of Procedures to be Followed in the Event that Unexpected Asbestos is Found or Previously Nonfriable Asbestos Material Becomes Crumbled, Pulverized or Reduced to Power:**

Provide adequate information to demonstrate that appropriate actions have been considered and can be implemented to control asbestos emissions adequately, including at a minimum, conformance with applicable work practice standards.

**17. Certification of Presence of Trained Supervisor:**

One year after promulgation of the applicable regulation, the notifier must certify that a person trained in asbestos-removal procedures will supervise the demolition or renovation. The supervisor is responsible for the activity on-site. Evidence that the training has been completed by the supervisor must be available for inspection during normal business hours.

**18. Verification:**

Please certify the accuracy and completeness of the information provided by signing and dating the notification form.

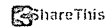
**There are no fees required to submit the notification.**

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## ► Asbestos NESHAP Program

*This page last reviewed March 9, 2011*

The Asbestos Program enforces compliance with NESHAP (Federal Asbestos National Emission Standard for Hazardous Air Pollutants) and investigates all related complaints, as specified by HSC Section 39658(b)(1).

► Of the 35 air districts in California, 19 of these districts do not have an asbestos program in place. In these "non-delegated" districts, a demolition/renovation notification is required for compliance with the Asbestos NESHAP. (Please Note: this notification is not equivalent to a permit.) ARB reviews and investigates the notifications.

The program also administers two annual statewide asbestos NESHAP task force meetings for air districts and U.S. EPA to facilitate communication and enforcement continuity, and assists U.S. EPA in training district staff to enforce the asbestos NESHAP.

**Please Note: The Air Resources Board does not have the authority to issue an asbestos license or accreditation for abatement or training.**

**For Contractor's Certification**, contact the Contractors State License Board at 1-800-321-CSLB (2752).

**For Asbestos Training and Inspections**, contact the Department of Industrial Relations (DIR) at 916-263-0704.

## ► Notification of Renovation or Demolition

**There are no fees associated with the notification for asbestos removal and or demolition in the following Counties in Non-Delegated Air Districts.**

The Asbestos NESHAP regulation, 40 CFR, Subpart M, Section 61.145 requires written notification of demolition or renovation operations. The notification forms linked in the boxes below may be used to fulfill this requirement. Only **complete and accurate** notification forms are accepted. Submittal of incomplete or inaccurate notification forms may result in enforcement action.

[Asbestos Notification Form \(pdf\)](#)

► The notification form should be typewritten and postmarked or delivered no later than ten working days prior to the beginning of the asbestos removal activity and/or demolition. This notification is required for demolition EVEN IF THERE IS NO ASBESTOS PRESENT.

**This notification is *not* a permit.**

Please visit the Asbestos NESHAP Notification Instructions web page for detailed information about how to fill out the Asbestos Notification Form and where to send it.

## ► Location of Asbestos Activity

The Air Resources Board requires that a notification be sent to ARB and U.S. EPA for those renovations and/or demolitions taking place in a Non-Delegated Air District. The following counties fall within Non-Delegated Air Districts.

Counties in Non-Delegated Air Districts		
Amador	Lassen	Sierra
Butte	Mariposa	Siskiyou
Calaveras	Nevada	Sutter
Colusa	Placer	Tehema
El Dorado	► Plumas	Tuolumne
Glenn	Shasta	Yuba
Imperial		

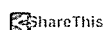
If your renovation or demolition is NOT taking place in any of the above counties, please contact your local Air District for information regarding reporting asbestos activity. For a map of California's delegated and non-delegated Air Pollution Control Districts, please visit the Asbestos NESHAP Enforcement Map.

- If you have further questions regarding the Asbestos NESHAP Program or notification details, please contact Ahmad Najjar at (916) 322-6036.

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# ASBESTOS NESHAP NOTIFICATION OF DEMOLITION AND RENOVATION FORM

For office use only: POSTMARK		DATE RECEIVED		NOTIFICATION #	
<b>I. TYPE OF NOTIFICATION:</b> <input type="checkbox"/> O - ORIGINAL <input type="checkbox"/> C - CANCELLED <input type="checkbox"/> R - REVISION         IF REVISION, WRITE REVISION # :					
<b>II. FACILITY INFORMATION (Identify Owner, Removal Contractor, and Other Operator)</b>					
Owner name:					
Address:					
City:		County:		State:	
ZIP:		Telephone:			
Asbestos Removal Contractor:					
Address:					
City:		State:		Zip:	
Contact:		Telephone:		Title:	
Demolition Contractor or General Contractor:					
Address:					
City:		State:		Zip:	
Contact:		Telephone:		Title:	
<b>III. TYPE OF OPERATION:</b> <input type="checkbox"/> D - DEMO <input type="checkbox"/> O - ORDERED DEMO <input type="checkbox"/> R - RENOVATION <input type="checkbox"/> E - EMERGENCY RENOVATION					
<b>IV. IS ASBESTOS PRESENT?</b> <input type="checkbox"/> YES or <input type="checkbox"/> NO         Which Asbestos Material(s) will be Removed?					
<b>V. FACILITY DESCRIPTION (Include Building Name, Number and Floor or Room Number)</b>					
Facility/Building Name:					
Address:				Major Cross Street:	
City:		County:		State:	
Zip:		Site Location:			
Building Size:		Number of floors:		Age in years:	
Present Use:		Prior Use:			
<b>VI. PROCEDURE, INCLUDING ANALYTICAL METHOD, IF APPROPRIATE, USED TO DETECT THE PRESENCE OF ASBESTOS MATERIAL:</b>					
<b>VII. APPROXIMATE AMOUNT OF ASBESTOS, INCLUDING:</b> 1. REGULATED ACM TO BE REMOVED 2. CATEGORY I ACM NOT REMOVED 3. CATEGORY II ACM NOT REMOVED		<b>RACM TO BE REMOVED</b>		<b>NONFRIABLE ASBESTOS MATERIAL TO BE REMOVED</b>	
Pipes: (Linear Feet)		CAT I		CAT II	
Surface Area (Square Feet)		CAT I		CAT II	
Volume RACM Off Facility Component (Cubic Feet)		CAT I		CAT II	
<b>VIII. SCHEDULED DATES DEMO/RENOVATION (MM/DD/YY)</b>					
Start Date:		Complete Date:			
<b>IX. SCHEDULED DATES ASBESTOS REMOVAL (MM/DD/YY)</b>					
Start Date:		Complete Date:			
Weekdays Work Hours: _____ Weekend Work Hours: _____					

<b>X. DESCRIPTION OF PLANNED DEMOLITION OR RENOVATION WORK, AND METHOD(S) TO BE USED (i.e.: are you using mechanical equipment to remove asbestos?):</b>		
<b>XI. DESCRIPTION OF WORK PRACTICES AND ENGINEERING CONTROLS TO BE USED TO PREVENT EMISSIONS OF ASBESTOS AT THE DEMOLITION AND RENOVATION SITE.</b>		
<b>XII. WASTE TRANSPORTER:</b>		
Name:		
Address:		
City:	State:	Zip:
Contact Person:	Telephone:	
<b>XIII. WASTE DISPOSAL SITE:</b>		
Name:		
Address:		
City:	State:	Zip:
Telephone:		
<b>XIV. IF DEMOLITION ORDERED BY A GOVERNMENT AGENCY, PLEASE IDENTIFY THE AGENCY BELOW:</b>		
Name:	TITLE:	
Authority:		
Date Of Order: (MM/DD/YY)	Date Ordered To Begin: (MM/DD/YY)	
<b>XV. FOR EMERGENCY RENOVATIONS</b>		
a) Date And Hour Of Emergency: (MM/DD/YY)		
b) Description Of The Sudden, Unexpected Event:		
c) Explanation of how the event caused unsafe conditions or would cause equipment damage or an unreasonable financial burden:		
<b>XVI. DESCRIPTION OF PROCEDURES TO BE FOLLOWED IN THE EVENT THAT UNEXPECTED ASBESTOS IS FOUND OR PREVIOUSLY NONFRIABLE ASBESTOS MATERIAL BECOMES CRUMBLED, PULVERIZED, OR REDUCED TO POWDER:</b>		
<b>XVII. I CERTIFY THAT AN INDIVIDUAL TRAINED IN THE PROVISIONS OF THIS REGULATION (40 CFR PART 61, SUBPART M) WILL BE ON-SITE DURING THE DEMOLITION OR RENOVATION AND EVIDENCE THAT THE REQUIRED TRAINING HAS BEEN ACCOMPLISHED BY THIS PERSON WILL BE AVAILABLE FOR INSPECTION DURING NORMAL BUSINESS HOURS ( REQUIRED 1 YEAR AFTER PROMULGATION)</b>		
_____ (SIGNATURE OF OWNER/OPERATOR)		_____ (DATE)
<b>XVIII. I CERTIFY THAT THE ABOVE INFORMATION IS CORRECT.</b>		
_____ (SIGNATURE OF OWNER/OPERATOR)		_____ (DATE)



## **APPENDIX B**

### **LEAD RELATED DOCUMENTS**

- Bulk Lead Material Analysis Report Form for Entek
- Lead in Paint Samples Analysis Report From Asbestech
- Bulk Lead Material Analysis Request Form for Entek
- XRF - Lead Testing Data Sheets (OSHA)
- Niton XLp (XRF) Calibration Check Test Results
- Aerial Photograph and Bridge Location Map
- Photograph of Bridge
- Lead Hazard Evaluation Report (CDPH 8552)



# BULK LEAD MATERIAL *Analysis Report Form for Entek Consulting Group, Inc.*

4200 ROCKLIN ROAD; SUITE 7  
ROCKLIN, CA 95677  
(916) 632-6800  
FAX (916) 632-6812

**Date of Sampling:** November 10, 2011

**Lab:** Asbestech

**Job Number:** 11-2008

**Turnaround Time:**

**Client Name:** Blackburn Consulting

**Collected by:** Douglas R. Colley

**Site Address:** Blairsden-Graeagle Road  
Graeagle, CA 96103  
Plumas County, CA

**ANALYSIS REQUESTED:** Lead by Flame AAS

SAMPLE #	LEAD RESULT (ppm)	RESULT IN WT%	MATERIAL DESCRIPTION/LOCATION
ECG-11- 2008-03Pb	18,000	1.8	Paint (Silver) - Blairsden-Graeagle Road Bridge, guard rail supports.

Z:\Clients\Blackburn Consulting\11-2008 Plumas County Blairsden-Graeagle Bridge Replacement Project - Lead Insp\Bulk Sample Pb\Bulk Rprt Pb Blairsden-Graeagle 11-10-11.wpd

ASBESTECH  
6825 Fair Oaks Blvd., Suite 103  
Carmichael, California 95608  
Tel (916) 481-8902  
Fax (916) 481-3975

**FLAME ATOMIC ABSORPTION SPECTROMETRY**  
**LEAD (Pb) IN PAINT SAMPLES**  
**METHOD SW846-3050B-7420**

*CLIENT:*  
Entek Consulting Group, Inc.  
4200 Rocklin Rd., Suite 7  
Rocklin, CA 95677

CDPH ELAP#1153  
ELPAT#101801

*JOB I.D.:* 11-2008, Blackburn Consulting, Keddie Resort  
Road Bridge & Blairsden-Graeagle Road Bridge,  
Plumas County, Ca

*DATE RECEIVED:* 11/11/11

*DATE ANALYZED:* 11/14/11

*LAB JOB NO:* 8953

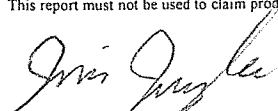
*DATE REPORTED:* 11/15/11

SAMPLE DATE	SAMPLE NUMBER	DESCRIPTION	PPM	RESULT IN WT%	RL	Q.C. BATCH
11/10/11	ECG-11- 2008-01Pb	Green paint, Keddie Resort Road Bridge walkway wood support below walkway deck	24000	2.4	0.0050%	226
11/10/11	ECG-11- 2008-02Pb	Silver paint, Keddie Resort Road Bridge guard rails & posts leading to the bridge from both directions	280	0.028	0.0050%	226
11/10/11	ECG-11- 2008-03Pb	Silver paint, Blairsden-Graeagle Road Bridge guard rail supports	18000	1.8	0.0050%	226

Analytical results and reports are generated at the request and for the exclusive use of the client. This report applies only to the items tested. Samples were not collected by ASBESTECH. This report must not be reproduced except in full, and only with the express permission of ASBESTECH. This report must not be used to claim product endorsement by any agency of the U.S. Government.

LABORATORY DIRECTOR: TOM CONLON

ANALYST: JIM JUNGLES



8953

BULK LEAD MATERIAL Analysis Request Form for **Entek Consulting Group, Inc.**

4200 ROCKLIN ROAD SUITE 7  
 ROCKLIN, CA 95677  
 (916) 632-6800  
 FAX (916) 632-6812

Date of Sampling: November 10, 2011

Lab: Asbestech

Job Number: 11-2008

Turnaround Time: Need results by Wednesday,  
November 16, 2011

Client Name: Blackburn Consulting

Collected by: Douglas R. Colley

Site Address: Keddle Resort Road Bridge &  
 Blairsden-Graeagle Road Bridge  
 Plumas County, CA

ANALYSIS REQUESTED: Lead by Atomic Absorption  
SpectrometrySPECIAL INSTRUCTIONS: Please report result in PPM and % by weight. Please fax results as soon as available.

B226

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-11-2008-01Pb	Paint (Green) - Keddle Resort Road Bridge, walkway, wood support below walkway deck. 24000 / 2.4
ECG-11-2008-02Pb	Paint (Silver) - Keddle Resort Road Bridge, guard rails & posts leading to the bridge from both directions. 280 / 0.28
ECG-11-2008-03Pb	Paint (Silver) - Blairsden-Graeagle Road Bridge, guard rail supports. 18000 / 1.8

Z:\Clients\Blackburn Consulting\11-2008 Plumas County Blairsden-Graeagle Bridge Replacement Project - Lead Insp\Bulk Sample Pb\BulkRqst Pb 11-10-11.wpd

DELIVERED BY:

DATE:

TIME:

RECEIVED BY:

DATE:

TIME:

### Lead Testing Data Sheet (OSHA)

Entek Project #11-2008

Niton: XLP-300 Lead Analyzer

Date: November 10, 2011

Address: Blairsden-Graeagle Road  
Graeagle, CA 96103

XRF Serial No.: 24015

Source No.: TR0791

Room Equivalent: Blairsden-Graeagle Road Bridge

Inspector(s): Douglas R. Colley

Component	Substrate	Color	Test Locations	XRF Reading (mg/cm <sup>2</sup> )
Structural Component	Metal	Green	East end of the bridge, north side, vertical structural member.	11.7
Structural Component	Metal	Green	East end of the bridge, south side, vertical structural member.	9.0
Tension Stringer	Metal	Green	East area of the bridge, south side, vertical tension stringer.	10.2
Structural Component	Metal	Green	East area of the bridge, south side, vertical structural member.	0.19
Guard Rail Support	Metal	Silver	East end of the bridge, north side of the bridge.	0.05
Structural Component	Metal	Green	East end of the bridge, south side, horizontal road surface support.	10.1
Guard Rail	Metal	Reflective Orange	Center area of the bridge, north side of the bridge.	9.3
Guard Rail Support	Metal	Silver	West end of the bridge, south side of the bridge.	0.28
Concrete Support Jacket	Metal	Green	West end of the bridge, metal jacket around concrete support column.	4.3
Concrete Support Jacket	Metal	Green	East end of the bridge, metal jacket around concrete support column.	4.0
Structural Steel	Metal	Silver	West end of the bridge, angle support, south side of bridge below and out from road surface.	3.12
Ballard	Metal	Silver	West end of the bridge, light rail ballard, south side of bridge at entry to bridge.	28.8
Ballard	Metal	Silver	East end of the bridge, light rail ballard, North side of bridge at entry to bridge.	0.01
Corrugated Panel	Metal	Green	West end of the bridge, below angle support, south side of bridge below and out from road surface.	15.0

Z:\Clients\Blackburn Consulting\11-2008 Plumas County Blairsden-Graeagle Bridge Replacement Project - Lead Insp\Lead Forms\Lead Testing Data Sheet Blairsden-Graeagle Bridge 11-10-11.wpd

All XRF Readings  $\geq 1.0$  mg/cm<sup>2</sup> = Lead Based Paint (LBP)

All XRF Readings  $< 1.0$  mg/cm<sup>2</sup> = Lead Containing Coating (LCC)

## Calibration Check Test Results

Blackburn Consulting

Site Name: Blairsden-Graeagle Bridge

Date: 11-10-11

Address: Blairsden-Graeagle Road

City: Quincy

Device: Niton Xlp 300

Source Assay Date: 11-2-09

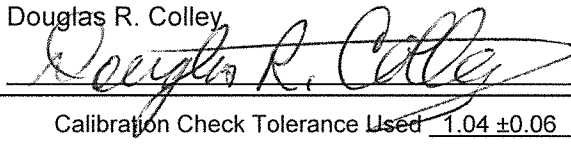
XRF Serial No. 24015

Source Number: TR0791

Contractor: Entek Consulting Group, Inc.

Inspector Name: Douglas R. Colley

Inspector Signature:



Calibration Check Tolerance Used 1.04 ±0.06

First Calibration Check 1200 hrs.

Red SRM (2573) 0.8 to 1.2 mg/cm <sup>2</sup>			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	YES
1.1	1.1	1.1	

Second Calibration Check 1300 hrs.

Red SRM (2573) 0.8 to 1.2 mg/cm <sup>2</sup>			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	YES
1.0	1.1	1.2	

Third Calibration Check N/A

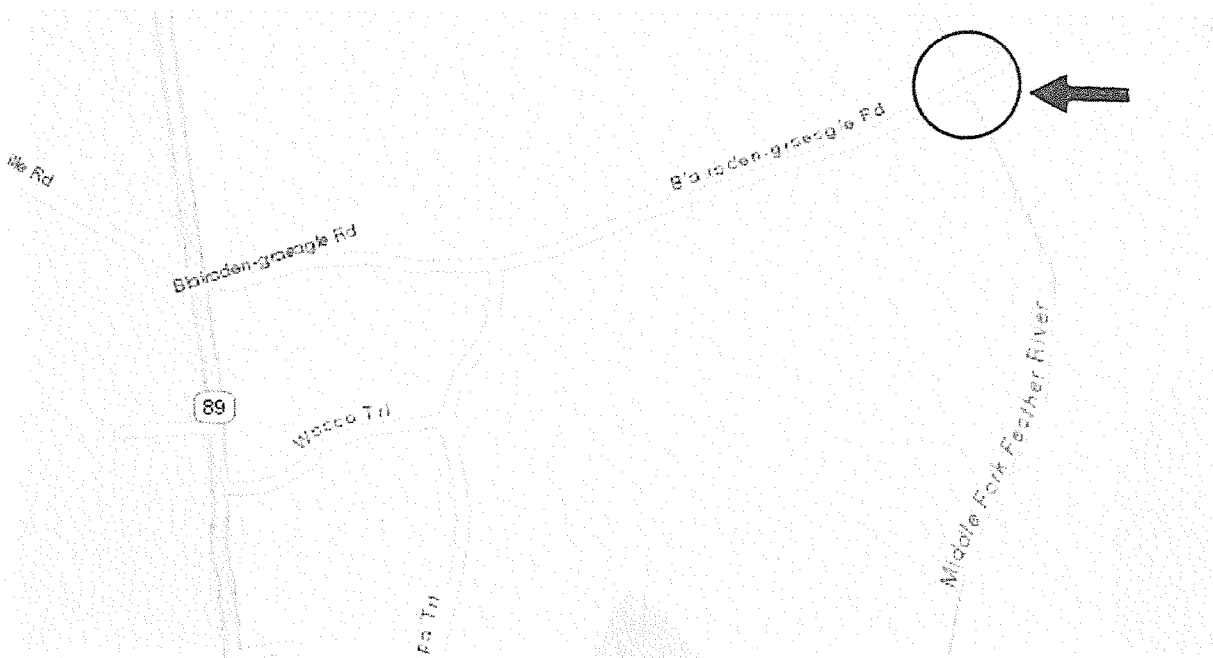
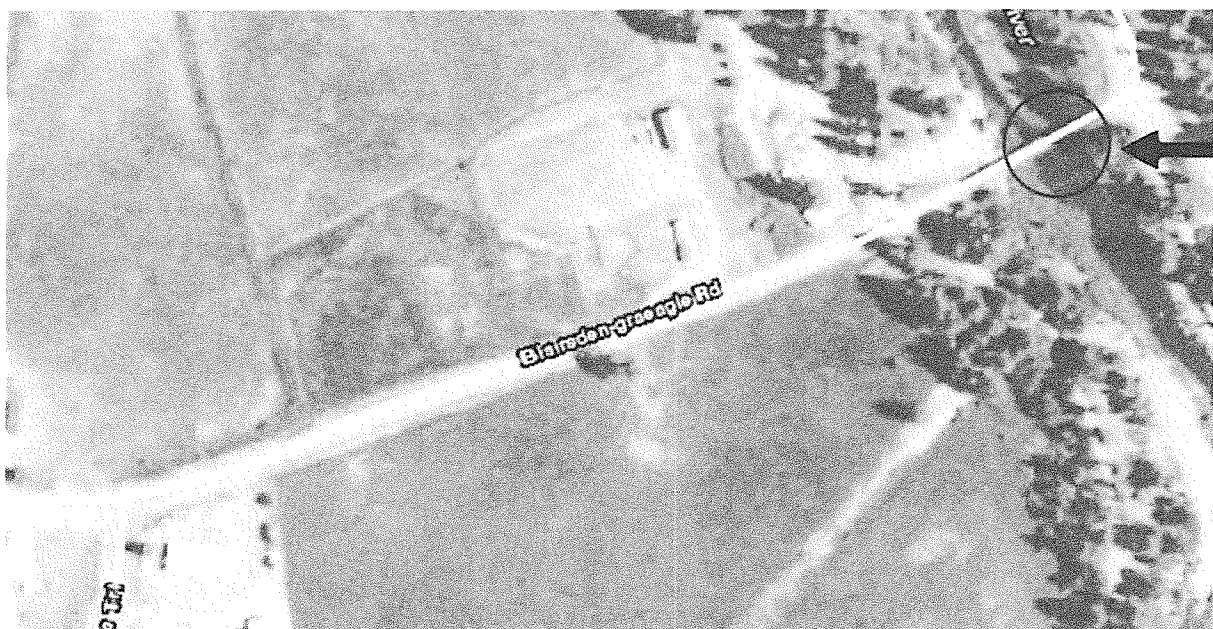
Red SRM (2573) 0.8 to 1.2 mg/cm <sup>2</sup>			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	N/A
N/A	N/A	N/A	

Fourth Calibration Check N/A

Red SRM (2573) 0.8 to 1.2 mg/cm <sup>2</sup>			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	N/A
N/A	N/A	N/A	

\* If the Calibration Check from the red SRM film value is greater or less than the specified Calibration Check Tolerance for this device, consult the manufacturer's recommendations to bring the instrument back into control. Retest all testing combinations tested since the last successful Calibration Check test.

↑  
N



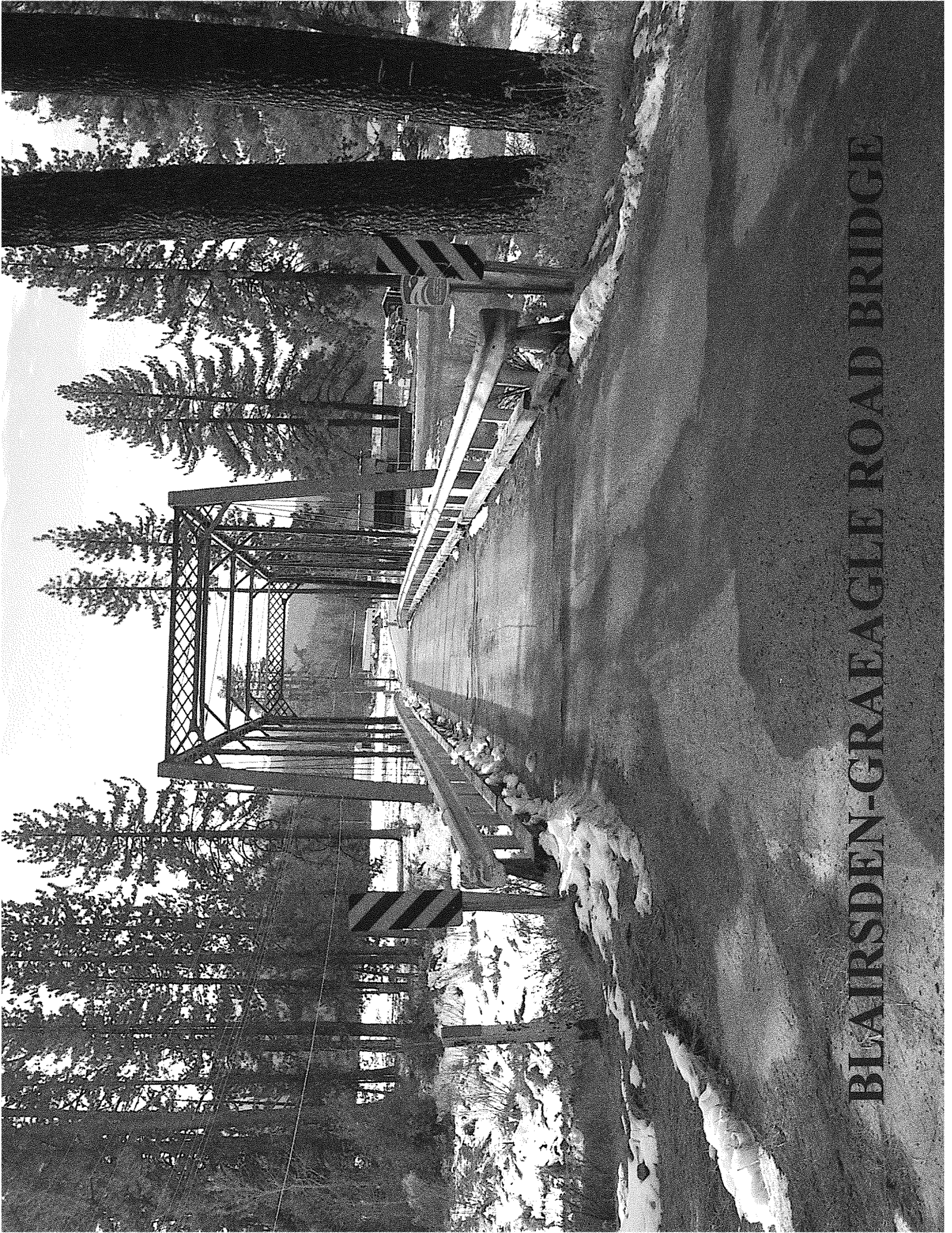
BLAIRSDEN-GRAEABLE RD. BRIDGE  
BLAIRSDEN-GRAEABLE ROAD  
PLUMAS COUNTY  
QUINCY, CA 96103

ENTEK CONSULTING GROUP, INC.  
4200 ROCKLIN ROAD; SUITE 7  
ROCKLIN, CA 95677  
JOB#: 11-2008

APPROXIMATE LOCATION OF  
BRIDGE INSPECTED BY  
DOUG COLLEY OF ENTEK ON  
NOVEMBER 10, 2011



BLAIRSDEN-GRAEAGLE ROAD BRIDGE





**LEAD HAZARD EVALUATION REPORT****Section 1 – Date of Lead Hazard Evaluation** November 10, 2011**Section 2—Type of Lead Hazard Evaluation** (Check one box only)

☐ Lead Inspection      ☐ Risk Assessment      ☐ Clearance Inspection      ☒ Other (specify) See Attached Letter dated Dec. 1, 2008

**Section 3—Structure Where Lead Hazard Evaluation Was Conducted**

Address [number, street, apartment (if applicable)] Blairsdan-Graeagle Road		City Graeagle	County Plumas	Zip Code 96103
Construction date (year) of structure 1930's	Type of structure (check one box only) <input type="checkbox"/> Multi-unit building <input type="checkbox"/> School or daycare <input type="checkbox"/> Single Family Dwelling <input checked="" type="checkbox"/> Other (specify) <u>Bridge</u>			

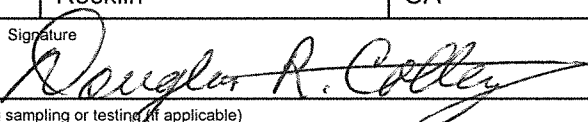
**Section 4—Owner of Structure** (If business/agency, list contact person)

Name Plumas County C/O Blackburn Consulting - Rick Sowers, P.E., C.E.		Telephone Number (530) 887-1494	
Address [number, street, apartment (if applicable)] 11521 Blocker Drive, Suite 110	City Auburn	State California	Zip Code 95603

**Section 5—Results of Lead Hazard Evaluation** (Check all that apply)

☐ No lead-based paint detected.      ☒ Lead-based paint detected.  
☐ No lead hazards detected.      ☐ Lead hazards detected.

**Section 6—Individual Conducting Lead Hazard Evaluation**

Name Douglas R. Colley		Telephone Number (916) 632-6800	
Address [number, street, apartment (if applicable)] 4200 Rocklin Road, Suite 7	City Rocklin	State CA	Zip Code 95677
CDPH certification number 5785	Signature 		Date 11-11-11
Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)			

**Section 7—Attachments**

- A. A foundation diagram or sketch of the structure indicating the specific locations of each lead hazard or presence of lead-based paint;
- B. Each testing method, device, and sampling procedure used;
- C. All data collected, including quality control data, laboratory results, indicating laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed to:

California Department of Public Health  
Childhood Lead Poisoning Prevention Branch Reports  
850 Marina Bay Parkway, Building P, Third Floor  
Richmond, CA 94804-6403  
FAX: (510) 622-5656

CDPH 8552 (6/07)



# ENTEK CONSULTING GROUP, INC.

4200 Rocklin Road, Suite 7 Rocklin, CA 95677

Telephone (916) 632-6800

Fax (916) 632-6812

December 1, 2008

State of California  
Health and Human Services Agency  
California Department of Public Health  
Childhood Lead Poisoning Prevention Branch Reports  
850 Marina Bay Parkway, Building P, Third Floor  
Richmond, CA 94804-6403

RE: Lead Hazard Evaluation Report (CDPH 8552 - 6/07)

To Whom it May Concern:

In a memorandum issued to all "California Department of Health Services Certified Inspector/Assessors and Project Monitors", by the State of California – Health and Human Services Agency, Department of Health Services (DHS), dated June 5, 2006, and signed by Mr. Paul Fitzmaurice, Chief, Lead Hazard Reduction Section, Childhood Lead Poisoning Prevention Branch, it was made clear that "... the on-site investigation, for compensation, of lead-based paint or lead hazards ..." includes "... conducting testing and/or sampling activities as part of a non- 'abatement' project (e.g. painting, remodeling, etc.)."

As a result of this directive, Entek Consulting Group, Inc. (Entek) is providing you with the current CDPH Form 8552 (6/07) documenting an inspection/assessment performed by Entek.

The investigation results being reported on the attached CDPH Form 8552 do not reflect a "Lead Inspection/Assessment" as defined in Title 17. As a result the "Other" box, in "Section 2 – Type of Lead Hazard Evaluation", is checked. This is being done to make it clear this investigation does not meet the definition of a "Lead Inspection/Assessment", and submission of the attached CDPH Form 8552 is not meant to reflect that it does.

CDPH Form 8552, Section 5 – Results of Lead Hazard Evaluation, does not allow for an appropriate option pertaining to the results of the investigation/assessment performed and being reported (i.e. for the purpose of compliance with Cal/OSHA, Title 8 1532.1. Lead), or an assessment being performed in an unregulated structure. While one of or more of the four boxes is checked to reflect the results of the inspection/assessment. The lead inspection/assessment was not required under Title 17.

This letter is not intended to disagree whether a CDPH Form 8552 must be submitted, but is for clarification as to the information included on the CDPH Form 8552, and its intended purpose, namely to reflect the goal of the services performed by Entek.

Sincerely,

Douglas R. Colley  
V.P. Operations  
CDPH Lead Certification #5785

Z:\Final\Letters\Lead Hazard Eval Disclaimer Let Updated 120108.wpd

## **APPENDIX C**

### **BACK UP DOCUMENTATION**

- Inspector Accreditations and Certifications
- Laboratory Accreditations for Lead Analysis
- Niton XLp (XRF) Performance Characteristic Sheet
- Niton XLp (XRF) Background Information

State of California  
Division of Occupational Safety and Health  
**Certified Asbestos Consultant**

**Douglas R Colley**



Name

Certification No. **92-0222**

Expires on **09/17/12**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

State of California Department of Public Health

Lead-Related  
Construction  
Certificate

Certificate  
Type

Expiration  
Date

Inspector/Assessor 05/19/2012

Supervisor 05/19/2012

Project Monitor 05/19/2012



Douglas R. Colley

ID #: 5785



CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM BRANCH

**CERTIFICATE OF ENVIRONMENTAL ACCREDITATION**

Is hereby granted to

**ASBESTECH**

6825 FAIR OAKS BLVD, SUITE 103

CARMICHAEL, CA 95608

Scope of the certificate is limited to the  
"Fields of Testing"  
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site,  
proficiency testing studies, and payment of applicable fees.

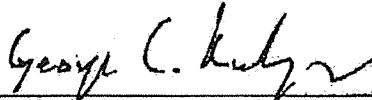
This Certificate is granted in accordance with provisions of  
Section 100825, et seq. of the Health and Safety Code.

Certificate No.: 1153

Expiration Date: 03/31/2012

Effective Date: 04/01/2010

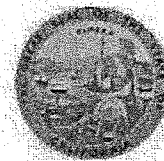
Richmond, California  
subject to forfeiture or revocation

  
\_\_\_\_\_  
George C. Kulasingam, Ph.D., Chief  
Environmental Laboratory Accreditation Program Branch



MARK B HORTON, MD, MSPH  
Director

State of California—Health and Human Services Agency  
California Department of Public Health



ARNOLD SCHWARZENEGGER  
Governor

March 3, 2010

TOM CONLON  
ASBESTECH  
6825 FAIR OAKS BLVD, SUITE 103  
CARMICHAEL, CA 95608

Dear TOM CONLON:

Certificate No. 1153

This is to advise you that the laboratory named above continues to be certified as an environmental testing laboratory pursuant to the provisions of the Health and Safety Code (HSC), Division 101, Part 1, Chapter 4, Section 100825, et seq. Certification for all currently certified Fields of Testing that the laboratory has applied for renewal shall remain in effect until 03/31/2012 unless it is revoked.

**Please note that the renewal application for certification is subject to an on-site process, and the continued use of this certificate is contingent upon:**

- \* successful completion of the on-site process;
- \* acceptable performance in the required proficiency testing (PT) studies;
- \* timely payment of all fees, including an annual fee due before March 31, 2011;
- \* compliance with Environmental Laboratory Accreditation Program Branch (ELAP) statutes (HSC, Section 100825, et seq.) and Regulations (California Code of Regulations (CCR), Title 22, Division 4, Chapter 19).

An updated certificate of the "Fields of Testing" will be issued to the laboratory upon successful completion of the on-site process.

The application for the renewal of this certificate must be received before the expiration date to remain in force according to the HSC100845(a).

Please note that the laboratory is required to notify ELAP of any major changes in the laboratory such as the transfer of ownership, change of laboratory director, change in location, or structural alterations which may affect adversely the quality of analyses (HSC, Section 100845(b)(d)). Please include the above certificate number in all your correspondence with ELAP.

If you have any questions, please contact ELAP at (510) 620-3155.

Sincerely,

George C. Kulasingam, Ph.D., Chief  
Environmental Laboratory Accreditation Program Branch



CALIFORNIA DEPARTMENT OF PUBLIC HEALTH  
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM  
Accredited Fields of Testing



Asbestech  
6625 Fair Oaks Blvd, Suite 103  
Carmichael, CA 95608  
Phone: (916) 481-6902

Certificate No.: 1153  
Renew Date: 3/31/2012

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Field of Testing: 114 - Inorganic Chemistry of Hazardous Waste

114.130 001 Lead EPA 7420

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Field of Testing: 115 - Extraction Test of Hazardous Waste

115.021 001 TCLP Inorganics EPA 1311

115.030 001 Waste Extraction Test (WET) CCR Chapter 11, Article 5, Appendix II

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Field of Testing: 121 - Bulk Asbestos Analysis of Hazardous Waste

121.010 001 Bulk Asbestos EPA 800/M4-82-020



## Environmental Lead Proficiency Analytical Testing Results

This document contains three sub-reports relating to ELPAT Round 74. The first report contains your laboratory's results listed per contaminant, per sample. The second report contains your past proficiency data for 2 and 4 rounds respectively (where applicable), and the final report contains summary results for all laboratories for ELPAT round 74.

### Testing Results for ELPAT Round 74

This part of your report contains your laboratory's results listed per contaminant, per sample.

Contaminant	Units	N	Result	Reference Value	Lower Limit	Upper Limit	Z-Score	Rating
Paint Chips	%	1	0.7770	0.7320	0.5877	0.8763	0.9	A
	%	2	1.5100	1.4164	1.1470	1.6858	1.0	A
	%	3	0.0887	0.0822	0.0660	0.0984	1.2	A
	%	4	2.8100	2.8923	2.1864	3.1982	0.7	A
Soil	mg/kg	1	285.0	273.8	235.0	312.5	0.9	A
	mg/kg	2	184.0	181.1	138.0	184.2	0.4	A
	mg/kg	3	575.0	550.6	471.2	630.0	0.9	A
	mg/kg	4	67.9	60.2	48.9	73.5	1.7	A

**Please note:**

Reference value is the mean of the reference laboratories

Lower limit: reference value - 3 standard deviations

Upper limit: reference value + 3 standard deviations

A: Acceptable\* Analysis; U: Unacceptable Analysis

Z-Score = (reported result - reference value)/standard deviation

\*Note: The acceptability of reported results is based on upper and lower performance limits.

### Overall Performance Summary Concluding with 74

The following table contains overall proficiency results for 2 and 4 rounds respectively (where applicable).

Sample	Round	Round Performance	2 Rounds	2 Round %	4 Rounds	4 Round %	Proficiency Status
Paint	71	4/4					
	72	4/4					
	73	4/4					
	74	4/4	8/8	100%	16/16	100%	P
Soil	71	4/4					
	72	4/4					
	73	4/4					
	74	4/4	8/8	100%	16/16	100%	P

**Please note:**

The denominators represent the total number of samples analyzed.

The numerators represent the number of acceptable results.

P – Proficient; NP – Non-proficient; I – Indeterminate

A laboratory is rated proficient (P) for the applicable FoT/Method(s), if

- 1) for the last two consecutive PT rounds, all samples are analyzed and the results are 100% acceptable or
- 2) three-fourths (75%) or more of the accumulated results over four PT rounds are acceptable.

If a lab receives samples and does not report the data, the results will be treated as outliers.

## Performance Characteristic Sheet

EFFECTIVE DATE: September 24, 2004

EDITION NO.: 1

### MANUFACTURER AND MODEL:

Make: Niton LLC

Tested Model: XLp 300

Source:  $^{109}\text{Cd}$ 

Note: This PCS is also applicable to the equivalent model variations indicated below, for the Lead-in-Paint K+L variable reading time mode, in the XLi and XLp series:

XLi 300A, XLi 301A, XLi 302A and XLi 303A.

XLp 300A, XLp 301A, XLp 302A and XLp 303A.

XLi 700A, XLi 701A, XLi 702A and XLi 703A.

XLp 700A, XLp 701A, XLp 702A, and XLp 703A.

Note: The XLi and XLp versions refer to the shape of the handle part of the instrument. The differences in the model numbers reflect other modes available, in addition to Lead-in-Paint modes. The manufacturer states that specifications for these instruments are identical for the source, detector, and detector electronics relative to the Lead-in-Paint mode.

### FIELD OPERATION GUIDANCE

#### OPERATING PARAMETERS:

Lead-in-Paint K+L variable reading time mode.

#### XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm<sup>2</sup> (inclusive)

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm<sup>2</sup> in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm<sup>2</sup> film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

#### SUBSTRATE CORRECTION:

For XRF results using Lead-in-Paint K+L variable reading time mode, substrate correction is not needed for:

Brick, Concrete, Drywall, Metal, Plaster, and Wood

#### INCONCLUSIVE RANGE OR THRESHOLD:

K+L MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm <sup>2</sup> )
Results not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

## BACKGROUND INFORMATION

### EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted in August 2004 on 133 testing combinations. The instruments that were used to perform the testing had new sources; one instrument's was installed in November 2003 with 40 mCi initial strength, and the other's was installed June 2004 with 40 mCi initial strength.

### OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

### SUBSTRATE CORRECTION VALUE COMPUTATION:

Substrate correction is not needed for brick, concrete, drywall, metal, plaster or wood when using Lead-in-Paint K+L variable reading time mode, the normal operating mode for these instruments. If substrate correction is desired, refer to Chapter 7 of the HUD Guidelines for guidance on correcting XRF results for substrate bias.

### EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use the K+L variable time mode readings.

Conduct XRF retesting at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family housing a result is defined as the average of three readings. In multifamily housing, a result is a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

#### TESTING TIMES:

For the Lead-in-Paint K+L variable reading time mode, the instrument continues to read until it is moved away from the testing surface, terminated by the user, or the instrument software indicates the reading is complete. The following table provides testing time information for this testing mode. The times have been adjusted for source decay, normalized to the initial source strengths as noted above. Source strength and type of substrate will affect actual testing times. At the time of testing, the instruments had source strengths of 26.6 and 36.6 mCi.

Testing Times Using K+L Reading Mode (Seconds)						
	All Data			Median for laboratory-measured lead levels (mg/cm <sup>2</sup> )		
Substrate	25 <sup>th</sup> Percentile	Median	75 <sup>th</sup> Percentile	Pb < 0.25	0.25 ≤ Pb < 1.0	1.0 ≤ Pb
Wood Drywall	4	11	19	11	15	11
Metal	4	12	18	9	12	14
Brick Concrete Plaster	8	16	22	15	18	16

#### CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than or equal to the threshold, and negative if they are less than the threshold.

#### DOCUMENTATION:

A document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD.

This XRF Performance Characteristic Sheet was developed by the Midwest Research Institute (MRI) and QuanTech, Inc., under a contract between MRI and the XRF manufacturer. HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.