TO: GERALD MIERS
FACILITIES PROJECT SUPERVISOR
CALIFORNIA STATE UNIVERSITY
5151 STATE UNIVERSITY DRIVE
LOS ANGELES, CA 90032

**LIMITED ASBESTOS SURVEY REPORT**
**King Hall – Boiler Room**

Date Prepared: April 5, 2018

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## I. Executive Summary and Purpose

At the request of Mr. Gerald Miers of California State University Los Angeles facilities Department, Terra Environmental Services conducted a limited asbestos survey at King Hall – Boiler Room. The Survey was authorized by Mr. Miers in acceptance of Terra Proposal for Asbestos Consulting Services.

## II. Scope of services

The scope of this investigation included a visual inspection of King Hall – Boiler Room, digital photography of key observations, sample collection of suspect asbestos containing building materials with laboratory analysis of samples, and production of this written report of findings, conclusions, and recommendations.

The building materials included in this assessment are those expected to be impacted during the King Hall – Boiler Room scheduled maintenance project. In general, the renovation project will involve the disturbance of the pipe insulation in the boiler room.

## III. Visual Survey, Sampling Methodology, and Analytical Procedures

a. Visual Survey

The Visual Survey consisted of a walk-through and visual inspection of the affected building. It included the identification of all suspect asbestos containing materials and the physical touching of suspect ACBM in an effort to determine the friability and condition of said materials.

In surveying the building, we used our training in identifying asbestos-containing materials, our familiarity with building construction and our general experience to locate potential sources of ACM and ACCM.

This evaluation was performed in accordance with the Asbestos-Containing Materials in Buildings rule prepared by the U.S. EPA. Destructive sampling collection methods were used by Terra Environmental on site representatives. The asbestos building survey was performed by Mr. Ricardo Ayala, a California, Division of Occupational Safety and Health (DOSH)-Certified Site Surveillance Technician, CSST 16-5785 on April 2, 2018.

b. Sampling Methodology

The next phase of the survey was the selection of sampling areas and collection of bulk samples. Material sampling areas were grouped based on material homogeneity. A homogeneous material is one, which contains the same texture, color, and uniform, applied during the same general time period. Terra employed destructive sampling methods for the collection of bulk samples. All sampled materials were in good condition at the time of the inspection and sample collection.

c. Analytical Procedures

The PLM Method is the most commonly used method to analyze building materials for the presence of asbestos. This method utilizes the optical properties of minerals to identify the selected constituent. The use of this method enables identification of the type and the percentage of asbestos in a given sample. The detection limit of the PLM method for asbestos identification is about one percent (1%) asbestos. Because the State of California recognizes asbestos-containing construction material (ACCM) as any material, which contains greater than or equal to one tenth of one percent (0.1%) asbestos, materials containing "trace" amounts of asbestos are reported by Terra Environmental as ACCM in the State of California.

Terra Environmental collected a total of three (3) bulk samples of suspect ACM that were analyzed eleven (11) times on a layer by layer basis. The samples were transferred following proper chain of custody protocol to L.A. Testing, located at 520 Mission Street Pasadena California, for analysis. L.A. Testing Laboratory is an accredited laboratory for bulk asbestos analysis under the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (Certification Number 200232-0). The samples were analyzed by Polarized Light Microscopy (PLM) with optical dispersion staining in accordance with the United States Environmental Protection Agency (EPA) Method (EPA 600/M4-82-020 per 40 CFR 763, subpart F, Appendix A).

## IV. Discussion of Survey Findings and Recommendations

The visual inspection and bulk sample analysis results revealed the following Asbestos-Containing Materials:

| Homogeneous Material | Location | Lab Sample Numbers | Asbestos detected | Quantity |
|---|---|---|---|---|
| Pipe Insulation (TSI) | Boiler Room | 321807578-0001<br>321807578-0002<br>321807578-0003 | Chrysotile 30% (Elbow only) | 10 LF |

### Recommendations for handling ACCM:

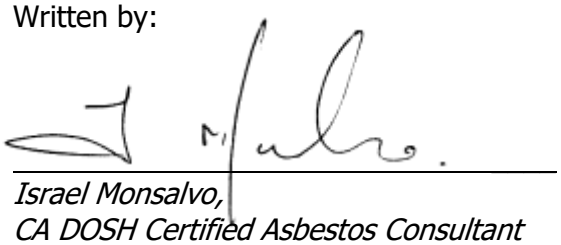
Asbestos containing materials will be impacted by the renovation activities. Removal and disposal of Asbestos containing pipe insulation must be performed by a California Licensed asbestos abatement contractor, in accordance with all applicable regulations, including but not limited to, 29 CFR 1926.1101 (OSHA), 40 CFR 763 (AHERA), 40 CFR Part 61 (NESHAPS) and 8 CAC 1529 (Cal/OSHA Asbestos), including mandatory and non-mandatory appendices as applicable, and Local Air Quality Management District regulations (SCAQMD 1403).

Should materials different to those identified in this report or, other forms of suspect hazardous materials be discovered during the renovation process, the contractor should be instructed to cease all work activities which may initiate an exposure episode and notify the appropriate management personnel.

## V. General Recommendations and Notes

Terra has endeavored to observe the exiting conditions within the subject property using generally accepted procedures. Regardless of the thoroughness of a survey, there is always a possibility some areas containing asbestos were overlooked or were inaccessible, or are different from those at specific sample locations. Therefore, conditions at every location may not be as anticipated by our field representative. In addition, demolition may uncover altered or differing conditions.

Written by:



*Israel Monsalvo,*
*CA DOSH Certified Asbestos Consultant*
*CAC #04-3551*
*Terra Environmental Services*

## VI. Confidentiality and Limitations

This report has been prepared for the sole use of California State University. Material quantities are, in some cases, listed within this document. Those quantities are not intended to be used for removal bidding purposes. This document also is not intended as a contract manual; work methods and sequence, coordination of participants, applicable codes, engineering controls, required submittals and notifications should in all cases be addressed in a separate and independent bidding and contract document.

ATTACHMENTS

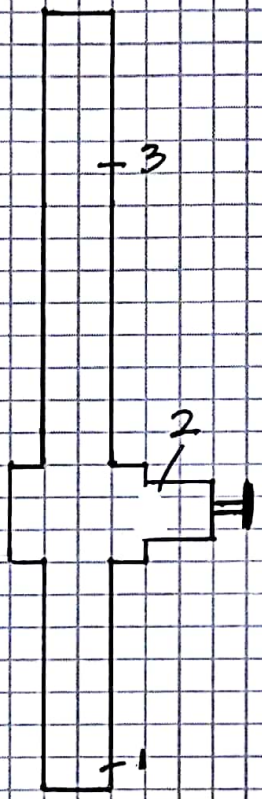
PHOTOGRAPHS

| King Hall – Boiler Room | |
|---|---|
|  |  |
| Non- ACM Pipe insulation | Asbestos Containing Insulation |
|  |  |
| Non-ACM raiser insulation | General view of boiler room |

Terra
Environmental

Poject # 71179
Date: 4/02/2018
Type of Work: AS

Customer CSULA
Project Name: King Hall
Project Adress: Boiler Room Cold Water Pipe




12631 Imperial Hwy Suite A225 Santa Fe Springs, CA 90670
Tel 562/868-3777 - Fax 562/868-3778 www.terraeng.com

Scanned by CamScanner

# LA Testing

**520 Mission Street South Pasadena, CA 91030**

Tel/Fax: (323) 254-9960 / (323) 254-9982

http://www.LATesting.com / pasadenalab@latesting.com


| | |
|---|---|
| **LA Testing Order:** | 321807578 |
| **Customer ID:** | 32TESV78 |
| **Customer PO:** | |
| **Project ID:** | |

| | | | |
|---|---|---|---|
| **Attention:** | Lab results | **Phone:** | (562) 868-3777 |
| | Terra Environmental Services | **Fax:** | |
| | 12631 Imperial Hwy | **Received Date:** | 04/02/2018 1:50 PM |
| | Suite A225 | **Analysis Date:** | 04/03/2018 |
| | Santa Fe Springs, CA 90670 | **Collected Date:** | |
| **Project:** | 71179 \| CSULA \| King Hall - Boiler Room | | |

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

| | | | Non-Asbestos | | Asbestos |
|---|---|---|---|---|---|
| **Sample** | **Description** | **Appearance** | **% Fibrous** | **% Non-Fibrous** | **% Type** |
| 1-Wrap 1<br>*321807578-0001* | Boiler Room Colder Water Pipe - Bottom | Brown/Silver<br>Fibrous<br>Homogeneous | 60% Cellulose | 40% Non-fibrous (Other) | None Detected |
| 1-Wrap 2<br>*321807578-0001A* | Boiler Room Colder Water Pipe - Bottom | Black/Silver<br>Non-Fibrous<br>Homogeneous | 10% Cellulose | 90% Non-fibrous (Other) | None Detected |
| 1-Insulation<br>*321807578-0001B* | Boiler Room Colder Water Pipe - Bottom | Yellow<br>Fibrous<br>Homogeneous | 98% Glass | 2% Non-fibrous (Other) | None Detected |
| 2-Wrap 1<br>*321807578-0002* | Boiler Room Colder Water Pipe - Shut off Valve | Brown/Silver<br>Fibrous<br>Homogeneous | 10% Cellulose | 60% Non-fibrous (Other) | 30% Chrysotile |
| 2-Wrap 2<br>*321807578-0002A* | Boiler Room Colder Water Pipe - Shut off Valve | Black/Silver<br>Fibrous<br>Homogeneous | 10% Cellulose | 90% Non-fibrous (Other) | None Detected |
| 2-Insulation 1<br>*321807578-0002B* | Boiler Room Colder Water Pipe - Shut off Valve | Yellow<br>Fibrous<br>Homogeneous | 98% Glass | 2% Non-fibrous (Other) | None Detected |
| 2-Insulation 2<br>*321807578-0002C* | Boiler Room Colder Water Pipe - Shut off Valve | Tan<br>Fibrous<br>Homogeneous | 98% Glass | 2% Non-fibrous (Other) | None Detected |
| 3-Wrap/Tar<br>*321807578-0003*<br>*Unable to separate* | Boiler Room Colder Water Pipe - Top | Black/Silver<br>Fibrous<br>Heterogeneous | 40% Cellulose | 60% Non-fibrous (Other) | None Detected |
| 3-Cloth<br>*321807578-0003A* | Boiler Room Colder Water Pipe - Top | White<br>Fibrous<br>Homogeneous | 40% Cellulose | 60% Non-fibrous (Other) | None Detected |
| 3-Silver Paint<br>*321807578-0003B* | Boiler Room Colder Water Pipe - Top | Silver<br>Non-Fibrous<br>Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 3-Insulation<br>*321807578-0003C* | Boiler Room Colder Water Pipe - Top | Yellow<br>Fibrous<br>Homogeneous | 95% Glass | 5% Non-fibrous (Other) | None Detected |

Initial report from: 04/03/2018 14:11:29

# LA Testing

**520 Mission Street South Pasadena, CA 91030**

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http://www.LATesting.com / pasadenalab@latesting.com


| | |
|---|---|
| **LA Testing Order:** | 321807578 |
| **Customer ID:** | 32TESV78 |
| **Customer PO:** | |
| **Project ID:** | |

Analyst(s)

*Kieu-anh Pham Duong (4)*

*Rosa Mendoza (7)*

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory


EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by LA Testing South Pasadena, CA NVLAP Lab Code 200232-0, CA ELAP 2283


Initial report from: 04/03/2018 14:11:29

OrderID: 321807578

TERRA ENVIRONMENTAL

#3218075 78

| Job Name - Location - Job Number | Billing Info: |
|---|---|
| CSULA | Terra Environmental Services Inc. |
| KING HALL - BOILER ROOM | Technician: RICARDO AYALA |
| | 12631 Imperial Hwy Suite A225, Santa Fe Springs CA 90760 |
| | Email: israel@terraeng.com/ulises@terraeng.com |

| Sample Analysis: | PLM – Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy | TAT | 24 HOURS |
|---|---|---|---|

| ID # | Material Description | HM | Location of Sample | Condition | Friable | Quantity |
|---|---|---|---|---|---|---|
| 1 | PIPE INSULATION (GSI) | 1 | BOILER ROOM COLD WATER PIPE - BOTTOM | GOOD | YES | APPROX 30 LF |
| 2 | ↓ | ↓ | SHUT OFF VALVE | ↓ | ↓ | ↓ |
| 3 | ↓ | ↓ | TOP | ↓ | ↓ | ↓ |

Notes

| Relinquished By: | Date & Time |
|---|---|
| IRENA VSUBOVA | 04/02/18 1:50 |
| **Received By:** | **Date & Time** |
| JIM MCKISSOCK (LOS) | 4/2/18 1350 |

**United States Department of Commerce**
**National Institute of Standards and Technology**

# Certificate of Accreditation to ISO/IEC 17025:2005

**NVLAP LAB CODE: 200232-0**

## LA Testing

South Pasadena, CA

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:*

## Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2017-07-01 through 2018-06-30

*Effective Dates*

*For the National Voluntary Laboratory Accreditation Program*

# NVLAP® National Voluntary Laboratory Accreditation Program

## SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

**LA Testing**
520 Mission Street
South Pasadena, CA 91030
Mr. Jerry Drapala Ph.D.
Phone: (323) 254-9960 Fax: (323) 254-9982
Email: jdrapala@latesting.com
http://www.latesting.com

**ASBESTOS FIBER ANALYSIS** **NVLAP LAB CODE 200232-0**

### Bulk Asbestos Analysis

| *Code* | *Description* |
|---|---|
| 18/A01 | EPA -- Appendix E to Subpart E of Part 763 -- Interim Method of the Determination of Asbestos in Bulk Insulation Samples |
| 18/A03 | EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials |

### Airborne Asbestos Analysis

| *Code* | *Description* |
|---|---|
| 18/A02 | U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A. |

*For the National Voluntary Laboratory Accreditation Program*

TERRA ENVIRONMENTAL


State of California
Division of Occupational Safety and Health
**Certified Site Surveillance Technician**

**Ricardo Ayala**
Name

Certification No. 16-5785

Expires on 11/16/17

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

Supervisor 08/08/2017

Sampling Technician 08/08/2017

270811

Ricardo Ayala

ID #: 27455

Ricardo Ayala CSST, CDPH ST
Cal/OSHA-Certified Site Surveillance Technician 16-5785
California Department of Public Health-Certified ST # 27455

TERRA ENVIRONMENTAL







Israel Monsalvo, CAC, CDPH-I/A & PM
Cal/OSHA-Certified Asbestos Consultant #04-3551
CDPH-Certified Lead I/A, PM # 9699
Certified Mold Inspector #CMI80727

12631 Imperial Hwy Suite A225. Santa Fe Springs, CA 90670
www.terraeng.com