March 20, 2018

Prepared for:

ROBERT SALERNO
CALIFORNIA STATE UNIVERSITY
5151 STATE UNIVERSITY DRIVE
LOS ANGELES, CA 90032

Re:
Asbestos TEM Air Clearance
King Hall Rooms 171A &172

Introduction

The California State University Los Angeles retained Terra Environmental Services, Inc. to perform final air clearance inspection at King Hall for the removal and cleanup of asbestos containing materials associated with the flooring renovation project at Rooms 171A & 172. Using visual inspections and air sampling Terra Environmental can confirm that the work performed by Quality Environmental, Inc. on this project was done in compliance with all applicable local, state and federal regulations.

Visual Inspection

Mr. Ricardo Ayala, Cal-DOSH Certified Site Surveillance Technician (CSST 16-5785) performed the on-site environmental clearance inspection on March 10, 2018 while Quality Environmental, Inc. performed the asbestos removal/cleanup work.

Terra Environmental made the following general observations.

- The ACM floor tile and mastic was removed under OSHA Class I method and SCAQMD Procedure 1 with attached 2 stage decontamination unit.
- The work area (Rooms 171A & 172) was free of ACM dust and debris.
- All ACM floor tile and mastic (approximately 1600 SF) was removed from rooms 171A and 172.
- The removed ACM was bagged out and no containers remain at the site.
- The abated substrates were sealed with post abatement encapsulant.
- Access to work area was restricted to students and CSU personnel.
- All equipment and materials used during the ACM removal were removed offsite by the abatement contractor.
- Terra Environmental did not monitor the ACM flooring materials removal/cleanup activities by Quality Environmental, Inc.

Sampling methodology, sampling procedures and Laboratory

TEM: The AHERA TEM method is the accepted state-of-the-art to determine background or clearance levels of asbestos. The analysis is used to quantify and identify asbestos structures through examination of their morphology crystal structures (through electron diffraction), and elemental composition (through energy dispersive X-ray analysis). The AHERA method will detect and report asbestos structures as small as 0.5 µm in length and 0.02 µm in diameter, well beyond the resolution of optical microscopy. The AHERA TEM clearance level for asbestos is 70 Structures per square millimeter.

Procedures: Clearance sampling for airborne asbestos is conducted after an abatement action and requires the use of sensitive sampling and analysis procedures. The TEM samples are collected on a 25 mm three-piece cassette with ca. 50 mm electrically conductive extension cowl, cellulose ester membrane filter, 0.45 µm pore size with a portable sampling pump calibrated between 0.5 to 16 liters per minute. Terra Environmental representative calibrated the sampling pump to 9.78 LPM at the beginning and end of the sampling procedure.

Laboratory: The TEM samples were transferred following proper chain of custody protocol to LA Testing, located at 520 Mission Street in South Pasadena, California, for analysis. LA Testing is an accredited laboratory for bulk asbestos analysis under the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP Certification Number 200232-0). The samples were analyzed by Transmission Electron Microscopy (TEM) by AHERA 40CFR 763 Appendix A Subpart E Method.

Laboratory Results

Terra Environmental collected a total of thirteen (13) TEM air samples: 5 inside the work area, 5 outside and three blanks.

The sample analysis results revealed the following:

Sample No	Location	Results	AHERA Limits 70 S/mm^2
1	Room 171A & 172 - Center	<15.00 S/mm^2	PASS
2	Room 171A & 172 - North	<15.00 S/mm^2	PASS
3	Room 171A & 172 - East	<15.00 S/mm^2	PASS
4	Room 171A & 172 - South	<15.00 S/mm^2	PASS
5	Room 171A & 172 - South	<15.00 S/mm^2	PASS

Outside samples and blanks are analyzed when inside samples exceed 70 S/mm^2.

Conclusion

Based on the sample analysis and visual inspection, Terra concludes the asbestos abatement activities in King Hall – Rooms 171A & 172 performed by Quality Environmental, Inc., were successful and the work area meets the EPA regulatory clearance of <70 S/mm^2 and is safe for general occupancy.

Respectfully submitted,

Israel Monsalvo, CAC, CDPH-I/A & PM
CA DOSH
CAC #04-3551

LIMITATIONS

The field observations, measurements, and research reported herein are considered sufficient in detail and scope to form a reasonable basis for a site specific TEM air clearance of the subject property. The assessment, conclusions, and recommendations presented herein are based upon the subjective evaluation of limited data. They may not represent all conditions at the subject site as they reflect the information gathered from specific locations. Terra Environmental warrants the findings and conclusions contained herein have been promulgated in accordance with generally accepted industrial hygiene methodology and only for the site described in this report.

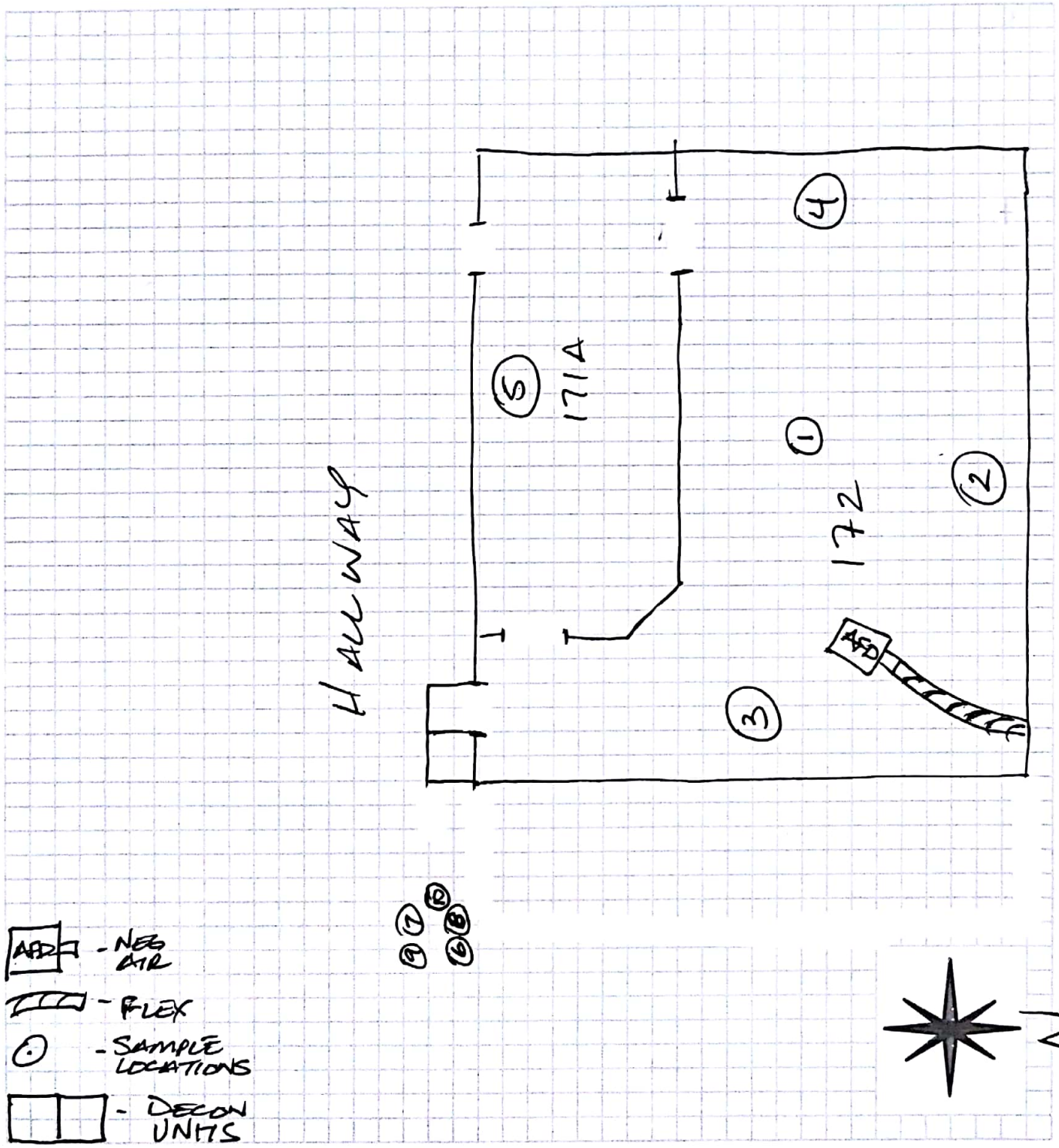
Attachments:
Laboratory results and COC
Laboratory Certification
Consultant Certification

Terra Environmental

Poject # 71134
Date: 3/10/2018
Type of Work: AC

Client

Name: CSUCA - KING Chavez Rooms 171A & 172
Adress: 5151 State Univ. DL St. LB. Ca. Zip



Scanned by CamScanner

LA Testing

520 Mission Street South Pasadena, CA 91030

Tel/Fax: (323) 254-9960 /

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

LA Testing Order: 321805754
Customer ID: 32TESV78
Customer PO:
Project ID:

Attention: Israel Monsalvo
Terra Environmental Services
12631 Imperial Hwy
Suite A225
Santa Fe Springs, CA 90670

Project: CAL. STATE L.A.71134 ROOM 171A & 172

Phone: (562) 868-3777
Fax:
Received Date: 03/11/2018 08:41 AM
Analysis Date: 03/11/2018
Collected Date: 03/10/2018

Test Report: Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) Performed by EPA 40 CFR Part 763 Appendix A to Subpart E

Sample	Location	Volume (Liters)	Area Analyzed (mm²)	Non Asb	Asbestos Type(s)	#Structures ≥0.5µ < 5µ	#Structures ≥5µ	Analytical Sensitivity (S/cc)	Asbestos Concentration (S/mm²)	Asbestos Concentration (S/cc)
1	IWA RM. 171A &172 CENTER	1234.80	0.0650	0	None Detected	0	0	0.0048	<15.00	<0.0048
321805754-0001										
2	IWA RM. 171A &172 N.	1234.80	0.0650	0	None Detected	0	0	0.0048	<15.00	<0.0048
321805754-0002										
3	IWA RM. 171A &172 E.	1234.80	0.0650	0	None Detected	0	0	0.0048	<15.00	<0.0048
321805754-0003										
4	IWA RM. 171A &172 S	1225.00	0.0650	0	None Detected	0	0	0.0048	<15.00	<0.0048
321805754-0004										
5	IWA RM. 171A &172 S.	1225.00	0.0650	0	None Detected	0	0	0.0048	<15.00	<0.0048
321805754-0005										
6	OWA HALL N.	1215.20			Not Analyzed					N/A
321805754-0006										
7	OWA HALL S	1215.20			Not Analyzed					N/A
321805754-0007										
8	OWA HALL W	1215.20			Not Analyzed					N/A
321805754-0008										
9	OWA HALL E	1215.20			Not Analyzed					N/A
321805754-0009										
10	OWA HALL E	1215.20			Not Analyzed					N/A
321805754-0010										
11	FIELD BLANK IWA	0.00			Not Analyzed					N/A
321805754-0011										
12	FIELD BLANK OWA	0.00			Not Analyzed					N/A
321805754-0012										
13	LAB BLANK	0.00			Not Analyzed					N/A
321805754-0013										

Analyst(s)

Sherrie Ahmad (5)

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 above 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 to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. Results reported in both structures/cm3 and structures/mm2 are dependent on the volume of air sampled and measured by non-laboratory personnel are not the responsibility of EMSL and are not covered by the laboratory's NVLAP accreditation . Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request.

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

Initial report from: 03/11/2018 10:01 AM

OrderID: 321805754

Client: Cal State L.A - King Hall
Project: 71134 - Rooms 1714 & 172
Address: 5151 State University Dr
Los Angeles, Ca.

TERRA ENVIRONMENTAL

#321805754

Date: 3/10/2018

* Analyze IWA only. Text Rick w/Result @ 562/309-7884

ASBESTOS AIR MONITORING

TAT: 6 Hours

SAMPLE ID NUMBER	SAMPLE TYPE	SAMPLE LOCATION	INITIAL FLOW RATE / FINAL FLOW RATE (LIT/MIN)	TIME ON / TIME OFF	TOTAL MINUTES (MIN)	TOTAL VOLUME (LIT)	LABORATORY RESULTS
1	Clearance	IWA Rm. 1714 & 172 Center	9.8 / 9.8	1500 / 1706	126	1234.8	
2		N.	9.8 / 9.8	1500 / 1706	126	1234.8	
3		E.	9.8 / 9.8	1500 / 1706	126	1234.8	
4		W.	9.8 / 9.8	1501 / 1706	125	1225	
5		S.	9.8 / 9.8	1501 / 1706	125	1225	
6		OWA Hall N.	9.8 / 9.8	1515 / 1719	124	1215.2	
7		S.	9.8 / 9.8	1515 / 1719	124	1215.2	
8		W.	9.8 / 9.8	1515 / 1719	124	1215.2	
9		E.	9.8 / 9.8	1515 / 1719	124	1215.2	
10		Center	9.8 / 9.8	1515 / 1719	124	1215.2	
11	Blank	Field IWA	/	/	.30 SEC		
12		Field OWA	/	/	.30 SEC		
13		Lab	/	/			

RELINQUISHED BY: Ricardo Ayala
DATE: 3/10/2018
TIME: 1801

RECEIVED BY: J Ahmad
DATE: 3.11.18
TIME: 7:08am

ANALYSED BY:
DATE:
TIME:

Asbestos TEM AHERA 40 CFR, Part 763

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