



June 25, 2018

Prepared for:

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

Re:
Asbestos TEM Air Clearance
King Hall: Room 4044

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 renovation project at Room 4044. Using visual inspections and air sampling Terra Environmental can confirm that the work performed by Quality Environmental 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) and Ms. Elnara Tagieva an AHERA certified Building Inspector performed the on-site environmental clearance inspection on June 22, 2018 while Quality Environmental 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 (Room 4044) was free of ACM dust and debris.
- All ACM mastic on cove base and hockey puck mastic (approximately 202 lf) was removed.
- 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.

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:

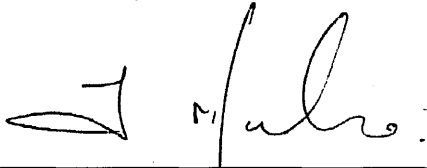
Sample No	Location	Results	AHERA Limits 70 S/mm ²
4044-1	Inside Work Area S.W.	<15.00 S/mm ²	PASS
4044-2	Inside Work Area W.	<15.00 S/mm ²	PASS
4044-3	Inside Work Area N.	<15.00 S/mm ²	PASS
4044-4	Inside Work Area N.E.	<15.00 S/mm ²	PASS
4044-5	Inside Work Area E.	<15.00 S/mm ²	PASS

Outside samples and blanks are analyzed when inside samples exceed 70 S/mm².

CONCLUSION

Based on the sample analysis and visual inspection, Terra concludes the asbestos abatement activities in King Hall: Room 4044 performed by Quality Environmental, were successful and the work area meets the EPA regulatory clearance of <70 S/mm².

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



LA Testing

520 Mission Street South Pasadena, CA 91030
Tel/Fax: (323) 254-9960 /
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order: 321814303
Customer ID: 32TESV78
Customer PO:
Project ID:

Attention: Lab results
Terra Environmental Services
12631 Imperial Hwy
Suite A225
Santa Fe Springs, CA 90670
Project: Cal State - LA | # 71334 - King Hall, Room 4044 | 5151 State University Dr., LA, CA 90032

Phone: (562) 868-3777
Fax:
Received Date: 06/22/2018 17:20 PM
Analysis Date: 06/22/2018
Collected Date: 06/22/2018

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 (mm ²)	Non Asb	Asbestos Type(s)	#Structures		Analytical Sensitivity (S/cc)	Asbestos Concentration	
						≥0.5μ < 5μ	≥5μ		(S/mm ²)	(S/cc)
4044-1 321814303-0001	Inside Work Area S.W	1244.60	0.0650	0	None Detected	0	0	0.0048	<15.00	<0.0048
4044-2 321814303-0002	Inside Work Area W.	1254.40	0.0650	0	None Detected	0	0	0.0047	<15.00	<0.0047
4044-3 321814303-0003	Inside Work Area N.	1244.60	0.0650	0	None Detected	0	0	0.0048	<15.00	<0.0048
4044-4 321814303-0004	Inside Work Area N.E.	1254.40	0.0650	0	None Detected	0	0	0.0047	<15.00	<0.0047
4044-5 321814303-0005	Inside Work Area E.	1254.40	0.0650	0	None Detected	0	0	0.0047	<15.00	<0.0047

Analyst(s)

Feng Liang (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: 06/22/2018 20:41 PM

Printed: 6/22/2018 8:41:46PM

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#321814303

Client: Cal State - LA
 Project: #71334 - King Hall, Room 4044
 Address: 5151 State University Dr., LA, CA 90032



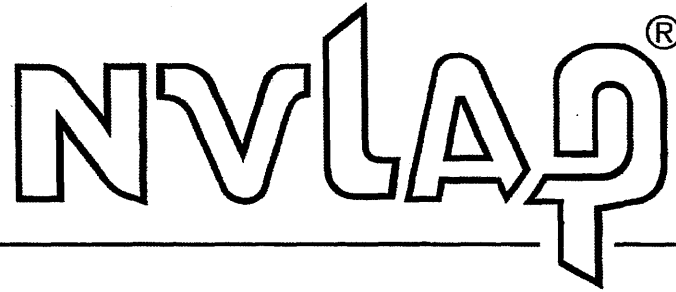
ASBESTOS AIR MONITORING

Date: 6/22/18 * Analyze IWA only TAT: 6 Hrs

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
4044-1	Clearance	Inside work Area S.W.	9.8	1430	127	1244.6	
			9.8	1637			
4044-2		W.	9.8	1432	128	1254.4	
			9.8	1640			
4044-3		N.	9.8	1435	127	1244.6	
			9.8	1642			
4044-4		N.E.	9.8	1437	128	1254.4	
			9.8	1645			
4044-5	V	E.	9.8	1439	128	1254.4	
			9.8	1647			
4044-6		Outside work Area N.	9.8	1451	126	1234.8	
			9.8	1657			
4044-7		S.W.	9.8	1451	126	1234.8	
			9.8	1657			
4044-8		S.E.	9.8	1451	126	1234.8	
			9.8	1657			
4044-9		E.	9.8	1451	126	1234.8	
			9.8	1657			
4044-10	V	N.E.	9.8	1451	126	1234.8	
			9.8	1657			
4044-11	Blank	FIELD	/		.30		
			/		Sec		
4044-12	V	FIELD	/		.30		
			/		Sec		
4044-13	V	LAB	/				
			/				

RELINQUISHED BY: <u>Elnara Tajfara</u>	RECEIVED BY: <u>AMALISSA (W)</u>	ANALYSED BY: _____
DATE: <u>6/22/18</u>	DATE: <u>6/22/18</u>	DATE: _____
TIME: <u>1716</u>	TIME: <u>1720</u>	TIME: _____

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

A handwritten signature in black ink, appearing to read 'David S. Lamm'. The signature is written over a horizontal line.

For the 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

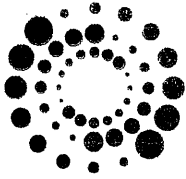
<u>Code</u>	<u>Description</u>
18/A01	EPA -- Appendix E to Subpart E of Part 763 -- Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
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.

A handwritten signature in black ink, appearing to read "Jerry Drapala".

For the National Voluntary Laboratory Accreditation Program



TERRA
ENVIRONMENTAL

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

Israel Monsalvo

Name



Certification No. **04-3551**

Expires on **05/20/19**

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 **09/01/2018**

Project Monitor **09/01/2018**



Israel Monsalvo

ID #: **9699**

Israel Monsalvo, CAC, CDPH-I/A & PM
Cal/OSHA-Certified Asbestos Consultant #04-3551
California Department of Public Health-Certified I/A, PM # 9699

