



August 13, 2018

Prepared for:

GERALD MIERS
CALIFORNIA STATE UNIVERSITY
5151 STATE UNIVERSITY DRIVE
LOS ANGELES, CA 90032

Re:
Asbestos TEM Air Clearance
King Hall – Room D150E

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 Room D150E. 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) performed the on-site environmental clearance inspection on August 4, 2018 while Quality Environmental performed the asbestos removal/cleanup work.

Terra Environmental made the following general observations.

- The ACM flooring and mastic was removed under OSHA Class I method and SCAQMD Procedure 1 with attached 2 stage decontamination unit.
- The work area (Room D150E) was free of ACM dust and debris.
- All ACM flooring and mastic (approximately 200 SF) was removed from Room D150E.
- 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 AmeriSci, located at 24416 South Main Street Suite 308, Carson CA, for analysis. AmeriSci is an accredited laboratory for bulk asbestos analysis under the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP Certification Number 200346-0). 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
KH-1	IWA Rm. D150E	<16.6 S/mm ²	PASS
KH-2	IWA Rm. D150E	<16.6 S/mm ²	PASS
KH-3	IWA Rm. D150E	<16.6 S/mm ²	PASS
KH-4	IWA Rm. D150E	<16.6 S/mm ²	PASS
KH-5	IWA Rm. D150E	<16.6 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 D150E 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

Table I
Summary of Transmission Electron Microscopy (TEM) Results for Asbestos (air)
 71409; CSULA; King Hall Room D150E

AmeriSci Sample #	Client Sample #	Dilution Factor	Air Filtered (liters)	Area Analyzed (sq. mm.)	* Analytical Sensitivity (struc/cc air)	Asbestos Structures Detected (Microns)		Structure Density (struc/sq mm)		Structure Concentration (struc/cc air)		Type of Asbestos
						0.5-5.0	>=5.0	>=5.0	Total	>=5.0	Total	
01 inside	KH-1		1225	.060	0.0052	0.0	0.0	<16.6	<16.6	<0.0052	<0.0052	NSD
Location:	Clearance / IWA Rm D150E											
02 inside	KH-2		1225	.060	0.0052	0.0	0.0	<16.6	<16.6	<0.0052	<0.0052	NSD
Location:	Clearance / IWA Rm D150E											
03 inside	KH-3		1225	.060	0.0052	0.0	0.0	<16.6	<16.6	<0.0052	<0.0052	NSD
Location:	Clearance / IWA Rm D150E											
04 inside	KH-4		1225	.060	0.0052	0.0	0.0	<16.6	<16.6	<0.0052	<0.0052	NSD
Location:	Clearance / IWA Rm D150E											
05 inside	KH-5		1225	.060	0.0052	0.0	0.0	<16.6	<16.6	<0.0052	<0.0052	NSD
Location:	Clearance / IWA Rm D150E											
06 outside**	KH-6		1205.4									
Location:	Clearance / OWA											
07 outside**	KH-7		1205.4									
Location:	Clearance / OWA											
08 outside**	KH-8		1205.4									
Location:	Clearance / OWA											
09 outside**	KH-9		1205.4									
Location:	Clearance / OWA											
10 outside**	KH-10		1205.4									
Location:	Clearance / OWA											
11 blank**	KH-11		0									
Location:	Blank / IWA Field											
12 blank**	KH-12		0									
Location:	Blank / OWA Field											
13 blank**	KH-13		0									
Location:	Blank / Lab											

* concentration represented by the detection of 1 structure
 ** not analyzed

NSD: No Asbestos Structures Detected

Reviewed By:  ; Analyzed By:  Date: 8/4/2018

Mean Total Structure Density For Inside Samples: 0 structures/sq. mm.

9180001124

Client: CSULA
 Project: 71409
 Address: King Hall Room DISOE



ASBESTOS AIR MONITORING

Date: 8/04/2018 *ANALYZE IWA (1-5) 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
KH-1	Clearance	IWA RM. DISOE	9.8	0714	125	1225	
			9.8	0919			
KH-2			9.8	0714	125	1225	
			9.8	0919			
KH-3			9.8	0714	125	1225	
			9.8	0919			
KH-4			9.8	0714	125	1225	
			9.8	0919			
KH-5			9.8	0714	125	1225	
			9.8	0919			
KH-6		DWA	9.8	0720	123	1205.4	
			9.8	0923			
KH-7			9.8	0720	123	1205.4	
			9.8	0923			
KH-8			9.8	0720	123	1205.4	
			9.8	0923			
KH-9			9.8	0720	123	1205.4	
			9.8	0923			
KH-10			9.8	0720	123	1205.4	
			9.8	0923			
KH-11	Blank	IWA FIELD	/	/	.30	SEC.	
KH-12		DWA FIELD	/	/	.30	SEC.	
KH-13		LAB	/	/			

RELINQUISHED BY Ricardo Garcia
 DATE 8/04/2018
 TIME 1024 Am

RECEIVED BY [Signature]
 DATE 8.4.18
 TIME 1025

ANALYSED BY _____
 DATE _____
 TIME _____

Asbestos TEM AHERA 40 CFR, Part 763



UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899

December 28, 2017

Glenn F. Massey
America Science TEAM Los Angeles, Inc.
DBA: AmeriSci Los Angeles
24416 South Main Street, Suite 308
Carson, CA 90745

NVLAP Lab Code: 200346-0

Dear Mr. Massey,

Thank you for continuing your accreditation for Asbestos Fiber Analysis under the National Voluntary Laboratory Accreditation Program (NVLAP). This accreditation is effective until December 31, 2018, provided that your laboratory continues to comply with the accreditation requirements contained in the NVLAP Procedures.

Your updated accreditation documents are enclosed. You may reproduce these documents in their entirety and use the NVLAP symbol and/or term to reference your accredited status in accordance with the requirements published in NIST Handbook 150, 1.8. Accreditation does not relieve your laboratory from observing and complying with any applicable existing laws and/or regulations.

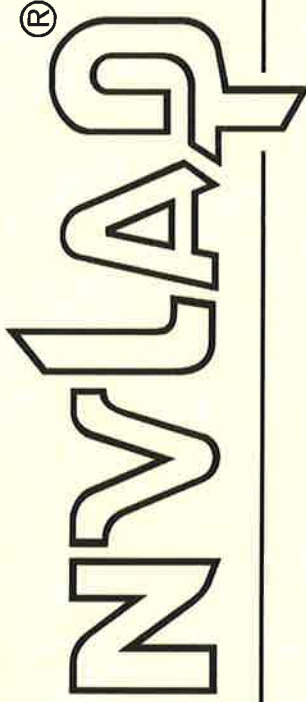
We are pleased to have you participate in NVLAP and look forward to your continued association with this program. If you have any questions concerning your NVLAP accreditation, please direct them to Hazel Richmond, Program Manager, Laboratory Accreditation Program, National Institute of Standards and Technology, 100 Bureau Dr. Stop 2140, Gaithersburg, MD 20899-2140; (301) 975-3024.

Sincerely,

Dana S. Leaman, Chief
National Voluntary Laboratory Accreditation Program



United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200346-0

AmeriSci Los Angeles
Carson, 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 Communiqué dated January 2009).*

2018-01-01 through 2018-12-31
Effective Dates

A handwritten signature in black ink, appearing to read "Paul S. Luman".

For the National Voluntary Laboratory Accreditation Program



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

AmeriSci Los Angeles
DBA: AmeriSci Los Angeles
24416 South Main Street, Suite 308
Carson, CA 90745
Mr. Glenn F. Massey
Phone: 310-834-4868 Fax: 310-834-4772
Email: gmassey@amerisci.com
<http://www.amerisci.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 200346-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR 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.

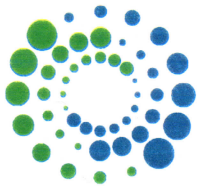
A handwritten signature in black ink, appearing to read "Dana S. Laman".

For the National Voluntary Laboratory Accreditation Program



A handwritten signature in black ink, appearing to read "Ricardo Ayala".

Ricardo Ayala
CSST #16-5786
DPH Lead Supervisor / ST # 27455



TERRA
ENVIRONMENTAL



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