

Asbestos Survey

Project: Replace Operating Room Chillers
VA Project No.: 539-18-203
Cincinnati VA Medical Center
3200 Vine Street
Cincinnati, Hamilton County, Ohio
October 7, 2016
Terracon Project No.: N1167069



Prepared for:
Levin-Porter Associates, Inc.
Miamisburg, Ohio

Prepared by:
Terracon Consultants, Inc.
Cincinnati, Ohio

terracon.com

Terracon

Environmental



Facilities



Geotechnical



Materials

October 7, 2016

Levin-Porter Associates, Inc.
3011 Newmark Drive
Miamisburg, Ohio 45342



Attn: Mr. Ward Scantlin, AIA
P: 937-224-1931
E: wscantlin@levin-porter.com

Re: Asbestos Survey
Project: Replace Operating Room Chillers
VA Project No.: 539-18-203
Cincinnati VA Medical Center
3200 Vine Street
Cincinnati, Ohio
Terracon Project No.: N1167069

Dear Mr. Scantlin,

Terracon Consultants, Inc. (Terracon) is pleased to submit the attached report in support of the above-referenced renovation project at the Cincinnati VA Medical Center to Levin Porter Associates, Inc. The purpose of this report is to present the results of a pre-renovation asbestos survey performed on August 12, 2016. This survey was conducted in general accordance with our proposal number PN1167069, dated February 8, 2016.

Terracon appreciates the opportunity to provide this service to Levin Porter Associates, Inc. If you have any questions regarding this report please contact the undersigned at 513-321-5816.

Sincerely,

Terracon Consultants, Inc.

A handwritten signature in blue ink, appearing to read "Michael Sulken".

Michael A. Sulken
Environmental Technician
OH AHES #34655

A handwritten signature in blue ink, appearing to read "Joseph A. Tussey".

Joseph A. Tussey, CHMM
Senior Project Manager
OH AHES #32388

A handwritten signature in blue ink, appearing to read "Tyler J. Stenten".

Tyler J. Stenten
Engineering Technician
OH AHES #35931

Terracon Consultants, Inc. 611 Lunken Park Dr Cincinnati, OH 45226-1813
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Environmental



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Geotechnical



Materials

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
	1.1 Project Objective	1
	1.2 Reliance	1
2.0	BUILDING DESCRIPTION	2
3.0	FIELD ACTIVITIES	2
	3.1 Visual Assessment.....	2
	3.2 Physical Assessment	2
	3.3 Sample Collection	3
	3.4 Sample Analysis.....	3
4.0	REGULATORY OVERVIEW	3
5.0	FINDINGS AND RECOMMENDATIONS	5
6.0	LIMITATIONS/GENERAL COMMENTS	5

APPENDIX A IDENTIFIED ASBESTOS-CONTAINING MATERIALS BY HOMOGENEOUS AREA (HA)

APPENDIX B ASBESTOS SURVEY SAMPLE SUMMARY

APPENDIX C ASBESTOS ANALYTICAL LABORATORY DATA

APPENDIX D LICENSES AND CERTIFICATIONS

ASBESTOS SURVEY

Project: Replace Operating Room Chillers

VA Project No.: 539-18-203

Cincinnati VA Medical Center

Terracon Project No. N1167069

October 7, 2016

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) conducted a pre-renovation asbestos survey in support of the “Replace Operating Room Chillers” project at the Cincinnati VA Medical Center (CVAMC), 3200 Vine Street, Cincinnati, Ohio. The survey was conducted on August 12, 2016 by Ohio Department of Health (ODH) certified Asbestos Hazard Evaluation Specialists (AHES) in general accordance with Terracon proposal number PN1167069, dated February 8, 2016. Building components and the chiller system located within the accessible areas of the renovation project boundaries were surveyed, and homogeneous areas (HAs) of suspect asbestos-containing materials (ACM) were visually identified and documented. Although reasonable effort was made to survey accessible suspect materials, additional suspect but un-sampled materials could be located in walls, in voids, or in other concealed areas. Suspect ACM samples were collected in general accordance with the sampling protocols outlined in United States Environmental Protection Agency (USEPA) 40 Code of Federal Regulations (CFR) Part 763, Subpart E, known as the Asbestos Hazard Emergency Response Act (AHERA). Samples were delivered to an accredited laboratory for analysis by Polarized Light Microscopy (PLM).

1.1 Project Objective

We understand this asbestos survey was requested due to the planned replacement of the operating room chiller system located on the 4th floor at the CVAMC to satisfy requirements of the USEPA 40 CFR Part 61, Subpart M, the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulation.

1.2 Reliance

This report is for the exclusive use of Levin Porter Associates, Inc. for the project being discussed. Reliance by any other party on this report is prohibited without written authorization of Terracon and Levin Poe Associates, Inc. Reliance on this report by Levin Porter Associates and all authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, this report, and Terracon’s Agreement for Services. The limitations of liability defined in Terracon’s Agreement for Services is the aggregate limit of Terracon’s liability to Levin Porter Associates, Inc.

Asbestos Survey

Project: Replace Operation Room Chillers. ■ CVAMC, Cincinnati, OH
October 7, 2016 ■ Terracon Project No. N1167069

2.0 RENOVATION PROJECT DESCRIPTION

Terracon understands that renovation project would involve the replacement of two roof-mounted chillers, which are located outside of the 4th floor mechanical room, as well as the indoor chiller, pumps, and chilled water piping that are located west of column “H” inside the 4th floor mechanical room. Our survey was specifically limited to this area, the components of the chiller system within this area, and building components such as the roofing system which will be impacted by the replacement of the roof-mounted chillers.

3.0 FIELD ACTIVITIES

The survey was conducted by Mr. Michael Sulken and Mr. Tyler Stenten, ODH certified AHES. A copy of Mr. Sulken’s and Mr. Stenten’s ODH credential is attached as Appendix D. The survey was conducted in general accordance with the sample collection protocols established in USEPA 40 CFR Part 763, Subpart E, Section 763.86, AHERA. A summary of survey activities is provided below.

3.1 Visual Assessment

Survey activities were initiated with visual observation of the subject renovation area and associated chiller components, to identify HAs of suspect ACM. A HA consists of building materials that appear similar throughout in terms of color and texture with consideration given to the date of application.

It should be noted that suspect materials, other than those identified during this asbestos survey, may exist in inaccessible areas. Should suspect materials, other than those which were identified during this survey be uncovered prior to or during renovation, those materials must be assumed to be asbestos-containing until sampled by an ODH certified AHES and laboratory analysis determines otherwise.

3.2 Physical Assessment

A physical assessment of each HA of suspect ACM was conducted to assess the friability and condition of the materials. A friable material is defined by the USEPA as a material which can be crumbled, pulverized, or reduced to powder by hand pressure when dry. Friability was assessed by physically touching suspect materials.

Asbestos Survey

Project: Replace Operation Room Chillers. ■ CVAMC, Cincinnati, OH
October 7, 2016 ■ Terracon Project No. N1167069

3.3 Sample Collection

Based on results of the visual observation, bulk samples of suspect ACM were collected in general accordance with USEPA AHERA sampling protocols. Samples of suspect materials were collected from randomly selected locations in each HA. Bulk samples were collected using wet methods as applicable to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker.

The selection of sample locations and frequency of sampling were based on Terracon's observations and the assumption that like materials in the same area are homogeneous in content.

Terracon collected a total of 31 bulk samples from nine (9) HAs of suspect ACM within the accessible rooms/areas of the renovation project boundaries. A summary of suspect ACM samples collected during the survey is included as Appendix B.

3.4 Sample Analysis

Bulk samples were submitted under chain of custody to International Asbestos Testing Laboratories (IATL) of Mount Laurel, New Jersey for analysis by polarized light microscopy (PLM) with dispersion staining techniques per USEPA methodology 600/R-93/116. IATL is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP), accreditation number 101165-0. In regard to samples identified by PLM to contain 10% asbestos or less, the point count (PC) method was utilized to more accurately quantify the percentage of asbestos.

4.0 REGULATORY OVERVIEW

The asbestos NESHAP (40 CFR Part 61, Subpart M) regulates asbestos fiber emissions and asbestos waste disposal practices. The asbestos NESHAP regulation also requires the identification and classification of existing ACM according to friability prior to demolition or renovation activity. Friable ACM is a material containing more than 1% asbestos that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. All friable ACM is considered regulated asbestos containing material (RACM).

The asbestos NESHAP regulation classifies material subject to demolition or renovation as either RACM, Category I non-friable ACM, or Category II non-friable ACM. RACM includes all friable ACM (pre-disturbance), along with Category I non-friable ACM that becomes friable (during disturbance), and Category I non-friable ACM subject to sanding, grinding, cutting, or abrading, or Category II non-friable ACM with a high probability of becoming crumbled, pulverized, or reduced to powder by forces expected to act on the material during disturbance. Category I non-friable ACM are exclusively asbestos-containing packings, gaskets, resilient floor coverings, and

Asbestos Survey

Project: Replace Operation Room Chillers. ■ CVAMC, Cincinnati, OH
October 7, 2016 ■ Terracon Project No. N1167069

asphalt roofing products that contain more than 1% asbestos. Category II non-friable ACM are all other non-friable materials (other than Category I non-friable ACM) that contain more than 1% asbestos. Category II non-friable ACM generally includes (but is not limited to) cementitious material such as: cement pipes, cement siding, cement panels, glazing, mortar, and grouts.

The Ohio Environmental Protection Agency (OEPA) adopted Chapter 3745-20 of the Ohio Administrative Code and implements the Asbestos NESAHP. The owner or operator must provide the OEPA district office or local air agency with jurisdiction where the operations will occur with written notification at least 10 working days prior to the commencement of asbestos abatement activities that will disturb RACM in amounts greater than 160 square feet, 260 linear feet, or 35 cubic feet.

The Ohio Environmental Protection Agency (OEPA) under Chapter 3745-20 of the Ohio Administrative Code (OAC) implements the USEPA asbestos NESAHP regulation. The owner and/or operator must provide the OEPA district office or local air agency with jurisdiction where the operations will occur with written notification at least 10 business days prior to the commencement of asbestos abatement activities that will disturb RACM in amounts greater than 160 square feet, 260 linear feet, or 35 cubic feet. The Southwest Ohio Air Quality Agency (SOAQA) has jurisdiction to implement the federal and state NESHAP regulations at the subject site's location. For more information, the SOAQA's website is <http://www.southwestohioair.org/residents/asbestos-2.html>.

ODH regulates friable ACM containing more than 1% asbestos, and asbestos abatement activities, asbestos personnel training, and issuance of asbestos professional certifications under OAC 3701-34-01 through 3701-34-11. Additionally, ODH audits asbestos abatement projects and responds to public health emergencies where friable ACMs has been released. ODH requires a 10-business day notification be submitted prior to the abatement of friable ACMs in quantities greater than 50 linear or 50 square feet (per project).

The United States Occupational Safety and Health Administration (USOSHA) asbestos standard for construction (29 CFR 1926.1101) regulates workplace exposure to asbestos. The USOSHA standard requires that employee exposure to airborne asbestos must not exceed 0.1 fibers per cubic centimeter of air (0.1 f/cc) as an eight hour time weighted average (TWA) and not exceed 1.0 fibers per cubic centimeter of air (1.0 f/cc) over a 30 minute time period known as an excursion limit (EL). The TWA and EL are known as USOSHA's asbestos permissible exposure limits (PELs). The USOSHA standard classifies construction and maintenance activities which could disturb ACM, and specifies work practices and precautions which employers must follow when engaging in each class of regulated work.

Asbestos Survey

Project: Replace Operation Room Chillers. ■ CVAMC, Cincinnati, OH
October 7, 2016 ■ Terracon Project No. N1167069



5.0 FINDINGS AND RECOMMENDATIONS

Analytical results for samples collected from suspect ACMs associated with the 4th floor mechanical room chiller system (those components which we understood were to be replaced/impacted by the proposed renovation project) were none detected for asbestos; this includes the roofing system at the existing roof-mounted chillers which will be impacted as a result of replacement.

Based on past surveys conducted by Terracon in the 4th floor mechanical room, Terracon was previously aware that brown and tan duct mastic on hard ductwork (air supply ducts) within this room had been previously sampled and analytically-confirmed to contain asbestos. Within the boundaries for this renovation project, ductwork was present in the vicinity of the door which opens to the roof where the roof-mounted chillers exist. During this survey, Terracon collected samples from the brown mastic on this duct and it was also analytically-confirmed to contain asbestos. Based on our understanding of the renovation project, it would not appear that this duct would be impacted by the chiller replacement project; however, if renovation plans were to change, and this duct had to be relocated to accommodate chiller replacement for example, its presence should be noted and addressed for proper abatement per applicable regulations. The duct mastic was in good condition and non-friable at the time of the survey.

Further information pertaining to the duct mastic is presented in Appendix A. The summary of sample collected during this survey is presented in Appendix B. Laboratory analytical reports are included in Appendix C.

6.0 LIMITATIONS/GENERAL COMMENTS

Terracon did not perform sampling requiring demolition or destructive activities such as knocking holes in walls, dismantling of equipment, or removal of protective coverings. Reasonable efforts to access suspect materials within known areas of restricted access (e.g., crawl spaces) were made; however, confined spaces or areas which may pose a health or safety risk to Terracon personnel were not sampled. Sampling did not include suspect materials which could not be safely reached with available ladders/man-lifts. Areas/rooms outside of the Client-defined renovation project boundaries and systems other than the chiller system were not included in this survey.

This asbestos survey was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions, and recommendations expressed in this report are based on conditions observed during our survey of the building. The information contained in this report is relevant to the date on which this survey was performed, and should not be relied upon to represent conditions at a later date. This report has been prepared on behalf of and exclusively for use by Levin-Porter Associates for specific application to their project as

Asbestos Survey

Project: Replace Operation Room Chillers. ■ CVAMC, Cincinnati, OH
October 7, 2016 ■ Terracon Project No. N1167069

discussed. This report is not a bidding document. Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation or remediation deemed necessary. Terracon does not warrant the work of regulatory agencies, laboratories, or other third parties supplying information which may have been used in the preparation of this report. No warranty, express or implied is made.

APPENDIX A

Project: Replace Operating Room Chillers

VA Project No.: 539-18-203

Cincinnati VA Medical Center

IDENTIFIED ASBESTOS-CONTAINING MATERIALS BY HOMOGENEOUS AREA (HA)

HA No.	Material Description	Material Location(s)	% and Type Asbestos**	NESHAP Classification	Condition	Estimated Quantity***
6	Brown duct mastic*	On duct above roof door near ceiling (this is located within the chiller project boundaries; please note, however, that all brown mastic located within the 4 th floor mechanical room must be considered as asbestos-containing)	1.6% chrysotile	Cat. I Non-Friable	Good	5 SF (at this vicinity within the project boundaries)

* Please note that the brown duct mastic appeared to be on a system other than the chiller system; appeared to be on a supplied air system duct, and is unlikely to be impacted by the renovation project. However, it was sampled as a contingency, in case for example, this duct would be impacted by renovation such as removal/relocation of the duct to accommodate the installation of the new chiller system. Please note that if disturbance of the identified ACM is necessary to accommodate renovation, various federal, state and local regulations apply. This material should be monitored for damage over time and repaired as necessary by appropriately trained personnel until removed. If impacted by renovation plans, removal would be necessary by a state-licensed abatement contractor. See Appendix B for a summary of samples collected. See Appendix C for detailed analytical results.

**Estimated quantities are based on a cursory field evaluation, and actual quantities may vary significantly, especially if asbestos-containing materials are present in hidden and/or inaccessible areas not evaluated as part of this survey.

***% & Type Asbestos = this column contains both the analytical result of the sample with the highest concentration of asbestos detected in the samples that make up the HA and the types of asbestos identified.

APPENDIX B

Project: Replace Operating Room Chillers VA Project No.: 539-18-203 Cincinnati VA Medical Center

ASBESTOS SURVEY SAMPLE SUMMARY

A#	ACM Code	Sample #	Sample Material Description	Sample Location	HA Location(s)	Results (% asbestos)
01	RF4	01	Curb flashing on stands holding lines up on roof	W. Side of ETR-CH1 on roof	On roof	None detected (ND)
01	RF4	02		E. Side of ETR-CH2 on roof		ND
01	RF4	03		W. side of ETR-CH2 on roof		ND
02	WB1	04	Drywall board	Next to door to roof	In chiller room	ND
02	WB1	05		Halfway between door and NWC		ND
02	WB1	06		NWC of room		ND
03	MG5	07	White end cap on chill water return lines	Chill water return at pump	In chiller room	ND
03	MG5	08		NWC by air compressor		ND
03	MG5	09		AHU 22		ND
04	MG5	10	White end cap on chill water supply lines	3' west of AHU-25	In chiller room	ND
04	MG5	11		NWC by blue air compressor		ND
04	MG5	12		By AHU-24		ND

HA#	ACM Code	Sample #	Sample Material Description	Sample Location	HA Location(s)	Results (% asbestos)
05	FP1	13	Gray fireproofing	2 columns west of door to roof	On beams and ceiling in chiller room	ND
05	FP1	14		1 column SW of roof door		ND
05	FP1	15		1 column W of roof door, N. half		ND
05	FP1	16		1 column E of roof door, N. half		ND
05	FP1	17		1 column S.E. of roof door		ND
05	FP1	18		1 column E. of roof door, S. half		ND
05	FP1	19		1 column W of roof door, S. half		ND
06	MG5	20	Duct mastic	On duct 2' W of roof door on ceiling	On ducts on ceiling	Point Count (PC) 1.6% chrysotile
06	MG5	21		On duct 12' W of roof door on ceiling		PC 1.3% chrysotile
06	MG5	22		On duct 10' E of roof door on ceiling		PC 1.4 % chrysotile
07	RF4	23	Curb flashing	SWC of E unit	On units on roof	ND
07	RF4	24		NWC of W unit		ND
07	RF4	25		NEC of W unit		ND
8	RF8	26	Built up roofing	SWC of E unit	On roof	ND
08	RF8	27		NWC of W unit		ND
08	RF8	28		NEC of W unit		ND

HA#	ACM Code	Sample #	Sample Material Description	Sample Location	HA Location(s)	Results (% asbestos)
09	CA5	29	Caulking on lines on roof	Lines from roof going into chiller room	Lines from roof going into chiller room	ND
09	CA5	30		Lines from roof going into chiller room		ND
09	CA5	31		Lines from roof going into chiller room		ND

APPENDIX C

ASBESTOS ANALYTICAL LABORATORY DATA

CERTIFICATE OF ANALYSIS

Client: Terracon
611 Lunken Park Drive
Cincinnati OH 45226

Report Date: 8/17/2016
Report No.: 517384 - PLM
Project: Cincinnati VA Chiller Room
Project No.: N1167069

Client: TER940

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6008480
Client No.: 01-RF4-01

Percent Asbestos:
None Detected

Description: Silver/Black Tar
Facility:

Percent Non-Asbestos Fibrous Material:
None Detected

Location: W Side Of ETR-CH1 On Roof

Percent Non-Fibrous Material:
100

Lab No.: 6008481
Client No.: 01-RF4-02

Percent Asbestos:
None Detected

Description: Silver/Black Tar
Facility:

Percent Non-Asbestos Fibrous Material:
5 Cellulose

Location: E Side Of ETR-CH2 On Roof

Percent Non-Fibrous Material:
95

Lab No.: 6008482
Client No.: 01-RF4-03

Percent Asbestos:
None Detected

Description: Silver/Black Tar
Facility:

Percent Non-Asbestos Fibrous Material:
2 Cellulose

Location: W Side Of ETR-CH2 On Roof

Percent Non-Fibrous Material:
98

Lab No.: 6008483
Client No.: 02-WB1-04

Percent Asbestos:
None Detected

Description: Brown/White Sheetrock
Facility:

Percent Non-Asbestos Fibrous Material:
10 Cellulose

Location: Next To Door To Roof

Percent Non-Fibrous Material:
90

Lab No.: 6008483(L2)
Client No.: 02-WB1-04

Percent Asbestos:
None Detected

Description: White Joint Compound
Facility:

Percent Non-Asbestos Fibrous Material:
None Detected

Location: Next To Door To Roof

Percent Non-Fibrous Material:
100

Lab No.: 6008483(L3)
Client No.: 02-WB1-04

Percent Asbestos:
None Detected

Description: Composite
Facility:

Percent Non-Asbestos Fibrous Material:
10 Cellulose

Location: Next To Door To Roof

Percent Non-Fibrous Material:
90

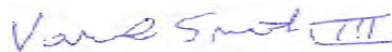
Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 8/16/2016

Date Analyzed: 08/17/2016

Signature:

Analyst:


Vane Smith

Approved By:



Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
611 Lunken Park Drive
Cincinnati OH 45226

Report Date: 8/17/2016
Report No.: 517384 - PLM
Project: Cincinnati VA Chiller Room
Project No.: N1167069

Client: TER940

PLM BULK SAMPLE ANALYSIS SUMMARY

<p>Lab No.: 6008484 Client No.: 02-WB1-05</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Brown/White Sheetrock Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose Trace Mineral Wool</p>	<p>Location: Halfway Between Door and NWC</p> <p><u>Percent Non-Fibrous Material:</u> 90</p>
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<p>Lab No.: 6008484(L2) Client No.: 02-WB1-05</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: White Joint Compound Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> None Detected</p>	<p>Location: Halfway Between Door and NWC</p> <p><u>Percent Non-Fibrous Material:</u> 100</p>
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<p>Lab No.: 6008484(L3) Client No.: 02-WB1-05</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Composite Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose Trace Mineral Wool</p>	<p>Location: Halfway Between Door and NWC</p> <p><u>Percent Non-Fibrous Material:</u> 90</p>
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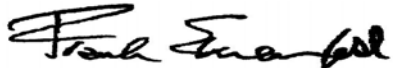
<p>Lab No.: 6008485 Client No.: 02-WB1-06</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Brown/White Sheetrock Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose Trace Mineral Wool</p>	<p>Location: NWC Of Room</p> <p><u>Percent Non-Fibrous Material:</u> 90</p>
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<p>Lab No.: 6008485(L2) Client No.: 02-WB1-06</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: White Joint Compound Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> None Detected</p>	<p>Location: NWC Of Room</p> <p><u>Percent Non-Fibrous Material:</u> 100</p>
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<p>Lab No.: 6008485(L3) Client No.: 02-WB1-06</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Composite Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose Trace Mineral Wool</p>	<p>Location: NWC Of Room</p> <p><u>Percent Non-Fibrous Material:</u> 90</p>
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Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 8/16/2016
Date Analyzed: 08/17/2016
Signature: 
Analyst: Vane Smith

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
611 Lunken Park Drive
Cincinnati OH 45226


Report Date: 8/17/2016
Report No.: 517384 - PLM
Project: Cincinnati VA Chiller Room
Project No.: N1167069

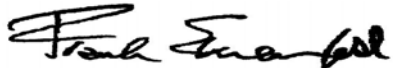
Client: TER940

PLM BULK SAMPLE ANALYSIS SUMMARY

<p>Lab No.: 6008486 Client No.: 03-MG5-07</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: White/Yellow Insulation Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 60 Mineral Wool</p>	<p>Location: Chill Water Return At Pump</p> <p><u>Percent Non-Fibrous Material:</u> 40</p>
<p>Lab No.: 6008487 Client No.: 03-MG5-08</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: White Insulation Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> None Detected</p>	<p>Location: NWC By Air Compressor</p> <p><u>Percent Non-Fibrous Material:</u> 100</p>
<p>Lab No.: 6008488 Client No.: 03-MG5-09</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: White Insulation Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> None Detected</p>	<p>Location: AHU 22</p> <p><u>Percent Non-Fibrous Material:</u> 100</p>
<p>Lab No.: 6008489 Client No.: 04-MG5-10</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: White Insulation Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 60 Mineral Wool</p>	<p>Location: 3' West OF AHU-25</p> <p><u>Percent Non-Fibrous Material:</u> 40</p>
<p>Lab No.: 6008490 Client No.: 04-MG5-11</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: White Insulation Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> None Detected</p>	<p>Location: NWC By Blue Air Compressor</p> <p><u>Percent Non-Fibrous Material:</u> 100</p>
<p>Lab No.: 6008491 Client No.: 04-MG5-12</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: White/Yellow Insulation Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 60 Mineral Wool</p>	<p>Location: By AHU-24</p> <p><u>Percent Non-Fibrous Material:</u> 40</p>

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 8/16/2016
Date Analyzed: 08/17/2016
Signature: 
Analyst: Vane Smith

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
611 Lunken Park Drive
Cincinnati OH 45226

Report Date: 8/17/2016
Report No.: 517384 - PLM
Project: Cincinnati VA Chiller Room
Project No.: N1167069

Client: TER940

PLM BULK SAMPLE ANALYSIS SUMMARY

<p>Lab No.: 6008492 Client No.: 05-FP1-13</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Tan Insulation Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 15 Cellulose Trace Mineral Wool</p>	<p>Location: 2 Columns West Of Door To Roof</p> <p><u>Percent Non-Fibrous Material:</u> 85</p>
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<p>Lab No.: 6008493 Client No.: 05-FP1-14</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Tan Insulation Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 15 Cellulose Trace Mineral Wool</p>	<p>Location: 1 Column SW Of Roof Door</p> <p><u>Percent Non-Fibrous Material:</u> 85</p>
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<p>Lab No.: 6008494 Client No.: 05-FP1-15</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Tan Insulation Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose Trace Mineral Wool</p>	<p>Location: 1 Column W Of Roof Door N Half</p> <p><u>Percent Non-Fibrous Material:</u> 90</p>
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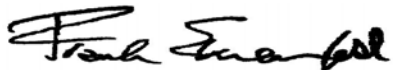
<p>Lab No.: 6008495 Client No.: 05-FP1-16</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Tan Insulation Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose Trace Mineral Wool</p>	<p>Location: 1 Column E Of Roof Door N Half</p> <p><u>Percent Non-Fibrous Material:</u> 90</p>
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<p>Lab No.: 6008496 Client No.: 05-FP1-17</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Tan Insulation Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose Trace Mineral Wool</p>	<p>Location: 1 Column SE Of Roof Door</p> <p><u>Percent Non-Fibrous Material:</u> 90</p>
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<p>Lab No.: 6008497 Client No.: 05-FP1-18</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Tan Insulation Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose Trace Mineral Wool</p>	<p>Location: 1 Column E Of Roof Door S Half</p> <p><u>Percent Non-Fibrous Material:</u> 90</p>
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Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 8/16/2016
Date Analyzed: 08/17/2016
Signature: 
Analyst: Vane Smith

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
611 Lunken Park Drive
Cincinnati OH 45226


Report Date: 8/17/2016
Report No.: 517384 - PLM
Project: Cincinnati VA Chiller Room
Project No.: N1167069

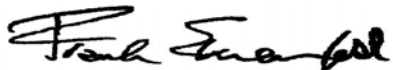
Client: TER940

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6008498 Client No.: 05-FP1-19	Description: Tan Insulation Facility:	Location: 1 Column W Of Roof Door S Half
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose Trace Mineral Wool	<u>Percent Non-Fibrous Material:</u> 90
Lab No.: 6008499 Client No.: 06-MG5-20	Description: Brown Mastic Facility:	Location: On Duct 2' W Of Roof Door On Ceiling
<u>Percent Asbestos:</u> <i>PC 1.6 Chrysotile</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 98.4
Lab No.: 6008500 Client No.: 06-MG5-21	Description: Brown Mastic Facility:	Location: On Duct 12' W Of Roof Door On Ceiling
<u>Percent Asbestos:</u> <i>PC 1.3 Chrysotile</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 98.7
Lab No.: 6008501 Client No.: 06-MG5-22	Description: Brown Mastic Facility:	Location: On Duct 10' E Of Roof Door On Ceiling
<u>Percent Asbestos:</u> <i>PC 1.4 Chrysotile</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 98.6
Lab No.: 6008502 Client No.: 07-RF4-23	Description: Black Tar Facility:	Location: SWC Of E Unit
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 10 Mineral Wool	<u>Percent Non-Fibrous Material:</u> 90
Lab No.: 6008503 Client No.: 07-RF4-24	Description: Black Tar Facility:	Location: NWC Of W Unit
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 5 Mineral Wool 5 Synthetic	<u>Percent Non-Fibrous Material:</u> 90

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 8/16/2016
Date Analyzed: 08/17/2016
Signature: 
Analyst: Vane Smith

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
611 Lunken Park Drive
Cincinnati OH 45226

Report Date: 8/17/2016
Report No.: 517384 - PLM
Project: Cincinnati VA Chiller Room
Project No.: N1167069

Client: TER940

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6008504	Description: White/Black Shingle	Location: NEC Of W Unit
Client No.: 07-RF4-25	Facility:	
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 5 Mineral Wool	<u>Percent Non-Fibrous Material:</u> 95

Lab No.: 6008505	Description: Black Roof Material	Location: SWC Of E Unit
Client No.: 08-RF8-26	Facility:	
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 2 Mineral Wool	<u>Percent Non-Fibrous Material:</u> 98

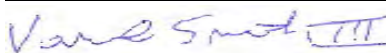
Lab No.: 6008505(L2)	Description: Black/Off-White Insulation	Location: SWC Of E Unit
Client No.: 08-RF8-26	Facility:	
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 20 Cellulose	<u>Percent Non-Fibrous Material:</u> 80

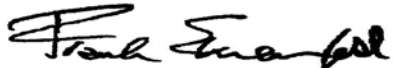
Lab No.: 6008505(L3)	Description: Brown Insulation	Location: SWC Of E Unit
Client No.: 08-RF8-26	Facility:	
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 60 Cellulose	<u>Percent Non-Fibrous Material:</u> 40

Lab No.: 6008506	Description: Black/Off-White Insulation	Location: NWC Of W Unit
Client No.: 08-RF8-27	Facility:	
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 20 Cellulose	<u>Percent Non-Fibrous Material:</u> 80

Lab No.: 6008506(L2)	Description: Brown Insulation	Location: NWC Of W Unit
Client No.: 08-RF8-27	Facility:	
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 60 Cellulose	<u>Percent Non-Fibrous Material:</u> 40

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 8/16/2016
Date Analyzed: 08/17/2016
Signature: 
Analyst: Vane Smith

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
611 Lunken Park Drive
Cincinnati OH 45226


Report Date: 8/17/2016
Report No.: 517384 - PLM
Project: Cincinnati VA Chiller Room
Project No.: N1167069

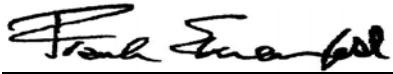
Client: TER940

PLM BULK SAMPLE ANALYSIS SUMMARY

<p>Lab No.: 6008507 Client No.: 08-RF8-28</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Black/Off-White Insulation Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 20 Cellulose</p>	<p>Location: NEC Of W Unit</p> <p><u>Percent Non-Fibrous Material:</u> 80</p>
<p>Lab No.: 6008507(L2) Client No.: 08-RF8-28</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Brown Insulation Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 60 Cellulose</p>	<p>Location: NEC Of W Unit</p> <p><u>Percent Non-Fibrous Material:</u> 40</p>
<p>Lab No.: 6008508 Client No.: 09-CA5-29</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Grey Caulk Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> None Detected</p>	<p>Location: Lines From Roof Going Into Chiller Room</p> <p><u>Percent Non-Fibrous Material:</u> 100</p>
<p>Lab No.: 6008509 Client No.: 09-CA5-30</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Grey Caulk Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> None Detected</p>	<p>Location: Lines From Roof Going Into Chiller Room</p> <p><u>Percent Non-Fibrous Material:</u> 100</p>
<p>Lab No.: 6008510 Client No.: 09-CA5-31</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Grey Caulk Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> None Detected</p>	<p>Location: Lines From Roof Going Into Chiller Room</p> <p><u>Percent Non-Fibrous Material:</u> 100</p>

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 8/16/2016
Date Analyzed: 08/17/2016
Signature: 
Analyst: Vane Smith

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
611 Lunken Park Drive
Cincinnati OH 45226

Report Date: 8/17/2016
Report No.: 517384 - PLM
Project: Cincinnati VA Chiller Room
Project No.: N1167069

Client: TER940

Appendix to Analytical Report

Customer Contact:

Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com

iATL Office Manager: cdavis@iatl.com

iATL Account Representative: Alyssa Peiffer

Sample Login Notes: See Batch Sheet Attached

Sample Matrix: Bulk Building Materials

Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

CERTIFICATE OF ANALYSIS

Client: Terracon
611 Lunken Park Drive
Cincinnati OH 45226

Report Date: 8/17/2016
Report No.: 517384 - PLM
Project: Cincinnati VA Chiller Room
Project No.: N1167069

Client: TER940

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at customerservice@iatl.com.

- 1) Note: No mastic provided for analysis.
- 2) Note: Insufficient mastic provided for analysis.
- 3) Note: Insufficient material provided for analysis.
- 4) Note: Insufficient sample provided for QC reanalysis.
- 5) Note: Different material than indicated on Sample Log / Description.
- 6) Note: Sample not submitted.
- 7) Note: Attached to asbestos containing material.
- 8) Note: Received wet.
- 9) Note: Possible surface contamination.
- 10) Note: Not building material. 1% threshold may not apply.
- 11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
- 12) Note: Asbestos detected but not quantifiable.
- 13) Note: Multiple identical samples submitted, only one analyzed.
- 14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
- 15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gänge, homogeneous exfoliated books of mica, or mixed mineral composites). Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

- 1) **Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.
- 2) **Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.
- 3) **Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.
- 4) **Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.
- 5) **Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.

*With advance notice and confirmation by the laboratory.

**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

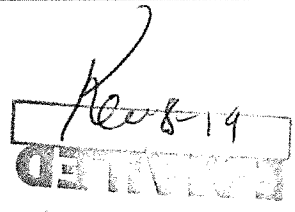


9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
 Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

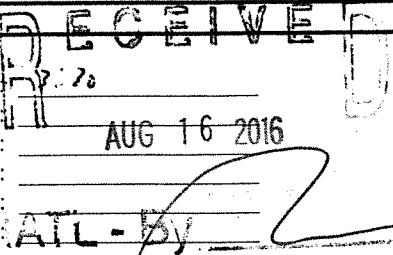
Chain of Custody

-Bulk Asbestos -

<u>Contact Information</u>	
Client Company: <u>Terracon Consultants, Inc.</u>	Project Number: <u>11167069</u>
Office Address: <u>611 Lunken Park Drive</u>	Project Name: <u>Cincinnati VA Chiller Room</u>
City, State, Zip: <u>Cincinnati, OH 45226</u>	Primary Contact: <u>Joe Tussey</u>
Fax Number: <u>513 321-0294</u>	Office Phone: <u>513-321-5816</u>
Email Address: <u>Joe.Tussey@terracon.com</u>	Cell Phone: <u>513-321-5034</u>

<u>PLM Instructions:</u>	
<input checked="" type="checkbox"/> PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993	
<input type="checkbox"/> PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982	
<input type="checkbox"/> PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985	
<input type="checkbox"/> PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002	
<input type="checkbox"/> PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010	
<input type="checkbox"/> TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009	
<input checked="" type="checkbox"/> PLM: Point Counting	<input type="checkbox"/> PLM: Analyze Until Positive (Positive Stop)
<input type="checkbox"/> PC: via ELAP 198.1	<input type="checkbox"/> AUP: by Homogenous Area as Noted
<input checked="" type="checkbox"/> PC: 400 Points	<input type="checkbox"/> AUP: by Material Type as Noted
<input type="checkbox"/> PC: 800 Points *	<input type="checkbox"/> PLM: NOB via 198.6
<input type="checkbox"/> PC: 1600 Points *	<input type="checkbox"/> PLM: Friable via EPA 600 2.3
<input checked="" type="checkbox"/> PLM: Instructions for Multi-Layered Samples	<input type="checkbox"/> If <1% by PLM, to TEM via 198.4 *
<input checked="" type="checkbox"/> Analyze and Report All Separable Layers per EPA 600	<input type="checkbox"/> If <1% by PLM, Hold for Instructions
<input checked="" type="checkbox"/> Report Composite for Drywall Systems per NESHAP	<input type="checkbox"/> PLM: Non-Building Material*** (Dust, Wipe, Tape)
<input type="checkbox"/> Report All Layers and Composite Where Applicable	<input type="checkbox"/> Soil or Vermiculite Analysis
<input type="checkbox"/> Only Analyze and Report Specifically Noted Layer	<input type="checkbox"/> CARB 435
Special Instructions: _____	
* Additional charge and turnaround may be required ** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory	

<u>Turnaround Time</u>	
Preliminary Results Requested Date: <u>8/19/16</u>	<input type="checkbox"/> Verbal <input checked="" type="checkbox"/> Email <input type="checkbox"/> Fax
<input type="checkbox"/> 10 Day <input type="checkbox"/> 5 Day <input checked="" type="checkbox"/> 3 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> 1 Day* <input type="checkbox"/> 12 Hour** <input type="checkbox"/> 6 Hour** <input type="checkbox"/> RUSH**	
* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***	

<u>Chain of Custody</u>			
Relinquished (Name/Organization): <u>Terracon</u>	Date: <u>8/15</u>	Time: <u>10:20</u>	<div style="border: 2px solid black; padding: 5px; display: inline-block;"> RECEIVED  </div>
Received (Name / iATL): _____	Date: _____	Time: _____	
Sample Login (Name / iATL): _____	Date: <u>8/17/16</u>	Time: <u>AUG 16 2016</u>	
Analysis(Name(s) / iATL): _____	Date: <u>8/17/16</u>	Time: _____	
QA/QC Review (Name / iATL): _____	Date: <u>8-19-16</u>	Time: _____	
Archived / Released: _____	QA/QC InterLAB Use: _____	Date: _____	
		Time: <u>ATL - by</u>	

SUSPECT ACM - BULK MATERIAL SAMPLE LOG

Page 1 of 3

Date: 8/12/16
Inspector: Mike Sulken/ Tyler Stenten
Project: Cincinnati VA- Chiller Room
Project # 21167069

Terracon

611 Lunken Park Drive
 Cincinnati, Ohio 45226
 (513) 321.5816

HA#	ACM Code	Sample #	Sample Material Description	Sample Location	HA Location(s)	Results
01	RF4	01	Curb flashing on stands holding lines up on roof	W. Side of ETR-CH1 on roof	On roof	6008480
01	RF4	02		E. Side of ETR-CH2 on roof		6008481
01	RF4	03		W. side of ETR-CH2 on roof		6008482
02	WB1	04	Drywall board	Next to door to roof	In chiller room	6008483
02	WB1	05		Halfway between door and NWC		6008484
02	WB1	06		NWC of room		6008485
03	MG5	07	White end cap on chill water return lines	Chill water return at pump	In chiller room	6008486
03	MG5	08		NWC by air compressor		6008487
03	MG5	09		AHU 22		6008488
04	MG5	10	White end cap on chill water supply lines	3' west of AHU-25	In chiller room	6008489
04	MG5	11		NWC by blue air compressor		6008490
04	MG5	12		By AHU-24		6008491

SUSPECT ACM - BULK MATERIAL SAMPLE LOG

Date: 8/12/16
Inspector: Mike Sulken/ Tyler Stenten
Project: Cincinnati VA- Chiller Room
Project # 1167069



611 Lunken Park Drive
 Cincinnati, Ohio 45226
 (513) 321.5816

HA#	ACM Code	Sample #	Sample Material Description	Sample Location	HA Location(s)	Results
05	FP1	13	Gray fireproofing	2 columns west of door to roof	On beams and ceiling in chiller room	6008492
05	FP1	14		1 column SW of roof door		6008493
05	FP1	15		1 column W of roof door, N. half		6008494
05	FP1	16		1 column E of roof door, N. half		6008495
05	FP1	17		1 column S.E. of roof door		6008496
05	FP1	18		1 column E. of roof door, S. half		6008497
05	FP1	19		1 column W of roof door, S. half		6008498
06	MG5	20	Duct mastic	On duct 2' W of roof door on ceiling	On ducts on ceiling	6008499
06	MG5	21		On duct 12' W of roof door on ceiling		6008500
06	MG5	22		On duct 10' E of roof door on ceiling		6008501
07	RF4	23	Curb flashing	SWC of E unit	On units on roof	6008502
07	RF4	24		NWC of W unit		6008503
07	RF4	25		NEC of W unit		6008504

SUSPECT ACM - BULK MATERIAL SAMPLE LOG

Date: 8/12/16
Inspector: Mike Sulken/ Tyler Stenten
Project: Cincinnati VA- Chiller Room
Project # 11167069



611 Lunken Park Drive
 Cincinnati, Ohio 45226
 (513) 321.5816

HA#	ACM Code	Sample #	Sample Material Description	Sample Location	HA Location(s)	Results
08	RF8	26	Built up roofing	SWC of E unit	On roof	6008505
08	RF8	27		NWC of W unit		6008506
08	RF8	28		NEC of W unit		6008507
09	CA5	29	Caulking on lines on roof	Lines from roof going into chiller room	Lines from roof going into chiller room	6008508
09	CA5	30		Lines from roof going into chiller room		6008509
09	CA5	31		Lines from roof going into chiller room		6008510

APPENDIX D

LICENSES AND CERTIFICATIONS

State of Ohio
Department of Health
Asbestos Program

Asbestos Hazard Evaluation Specialist



DOB: 02/14/1985

Michael A Sulken
Terracon Consultants Inc
611 Lunken Park Drive
Cincinnati OH 45226

Certification Number **Expiration Date**
ES34655 **01/14/2017**

This certification is issued pursuant to Chapter 3710 of the Revised Code and 3701-34 of the Ohio Administrative Code

Certification Card is not valid if altered

State of Ohio
Department of Health
Asbestos Program

Asbestos Hazard Evaluation Specialist



Tyler J Stenten
Terracon Consultants Inc
611 Linken Park Drive
Cincinnati OH 45226

Certification Number Expiration Date
ES35931 **08/11/2017**

DOB: 07/03/1992

This certification is issued pursuant to Chapter 3710 of the Revised Code and 3701-34 of the Ohio Administrative Code

Certification Card is not valid if altered

State of Ohio
Department of Health
Asbestos Program

Asbestos Hazard Abatement Specialist



Tyler J Stenten
Terracon Consultants
611 Lunken Park Drive
Cincinnati OH 45226

Certification Number Expiration Date
AS32278 **11/05/2016**

DOB: 07/03/1992

This certification is issued pursuant to Chapter 3710 of the Revised Code and 3701-34 of the Ohio Administrative Code

Certification Card is not valid if altered



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

June 7, 2016

Frank E. Ehrenfeld III
International Asbestos Testing Labs
9000 Commerce Parkway
Suite B
Mt. Laurel, NJ 08054

NVLAP Lab Code: 101165-0

Dear Mr. Ehrenfeld,

Thank you for continuing your accreditation for Asbestos Fiber Analysis under the National Voluntary Laboratory Accreditation Program (NVLAP). This accreditation is effective until June 30, 2017, 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





SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

International Asbestos Testing Laboratories

9000 Commerce Parkway

Suite B

Mt. Laurel, NJ 08054

Mr. Frank E. Ehrenfeld III

Phone: 856-231-9449 Fax: 856-231-9818

Email: frankehrenfeld@iatl.com

<http://www.iatl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101165-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA 600/M4-82-020: Interim Method for 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

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101165-0

International Asbestos Testing Laboratories

Mt. Laurel, NJ

*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).*

2016-07-01 through 2017-06-30

Effective Dates



Dana S. Laman
For the National Voluntary Laboratory Accreditation Program