Asbestos & Lead Based Paint Assessment

City of Spartanburg
100 Georgia Street
Spartanburg, South Carolina 29306

Prepared for:
The City of Spartanburg
440 South Church St., Suite B
Spartanburg, SC 29306

Prepared by:
Apex Environmental Management, Inc.
7 Winchester Court
Mauldin, South Carolina 29662

Project Number: 0118-14

September 4, 2018

PEX
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Management

Environmental Management

7 Winchester Court
Mauldin, SC 29662
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Apex Project Number 0118-14

September 4, 2018

Mr. Jeff Tillerson
City of Spartanburg
440 South Church Street, Suite B
Spartanburg, SC 29306

Reference: Asbestos and Lead-Based Paint Assessment Services
100 Georgia Street
Spartanburg, South Carolina 29306

Dear Mr. Tillerson:

Apex Environmental Management, Inc. (Apex) is pleased to provide the results of our assessment services for the referenced property.

This report and the associated attachments summarize our evaluation of the conditions observed at the project site. The findings presented by Apex are based upon sampling performed in the subject building. There is a chance that undetected ACM may exist in the building between walls or in other areas that would only be exposed during demolition or structural renovations. Should material be discovered that could potentially contain asbestos during the demolition process, additional samples of the material should be collected by a licensed asbestos inspector and submitted to an accredited laboratory for analytical interpretation. Our recommendations are based on the guidelines presented in EPA and/or OSHA regulations.

Please note that this document is not a specification for asbestos removal. It does not contain means and methods for abatement. Quantities are estimates and contractors must verify amounts prior to bidding or removal. If you are planning an abatement project, please contact Apex to discuss the requirements. Use of this document without the express written consent of Apex is at the sole risk of the user and or/abatement contractor.

The conclusions and/or recommendations contained in this report are based on our understanding of the applicable standards at the time this report was prepared. No warranty, expressed or implied, is made. If you have any questions please feel free to contact us at (864) 404-3210.

Respectfully submitted,
APEX ENVIRONMENTAL MANAGEMENT, INC.

Tom Oliver
Director of Operations

Appendices

ASBESTOS AND LEAD BASED PAINT ASSESSMENT

CITY OF SPARTANBURG
100 GEORGIA STREET
SPARTANBURG, SOUTH CAROLINA 29306

APEX PROJECT NO. 0118-14

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SECTION

SECTION I

Asbestos & Lead Evaluation Report

ASBESTOS EVALUATION REPORT
APEX PROJECT NUMBER: 0118-14

Date:	9/4/2018	Page Number:	1 of 4
Client:	City of Spartanburg	Client Contact:	Mr. Jeff Tillerson
Client Address:	440 South Church Street Suite B Spartanburg, SC 29306	Client Phone Number:	(864) 596-2911
Project:	Asbestos Evaluation and Lead Based Paint Assessment		
Property Address:	100 Georgia Street Spartanburg, SC 29306		
Assessor:	Tom Oliver	Date of Assessment:	8/16/2018
Company:	Apex Environmental Management 7 Winchester Court Mauldin, SC 29662	Phone Number:	(864) 404-3210
Purpose of Assessment:	Demolition	Age of Structure:	Approximately 80 years
Building Type:	Residential	Number of Stories:	1
Foundation:	CMU Block Crawlspace	Approximate Square Footage	550 SF

EXTERIOR BUILDING MATERIALS

- Pitched wooden roof with shingles & no felt beneath a large tarp.
- Wooden siding.
- Wooden windows with glazing.
- Wooden doors with no caulk.
- Black mastic/tar on 1 chimney – assumed positive.
- Large amount of construction debris and household items in the yard.

INTERIOR BUILDING MATERIALS

- Popcorn ceiling texture.
- Drywall with joint compound & tape.
- Multiple types & layers of vinyl flooring with and without mastics.
- Carpet over wooden floors.
- Large amount of house hold items throughout residence.

SCOPE OF THE SURVEY

The objectives of the asbestos and lead assessment included the following:

- Identification of suspect asbestos-containing material (ACM) and lead based paints (LBP) in readily observable locations. Limited demolition of building finishes was conducted.
- Asbestos survey with sample collection by a South Carolina accredited inspector.
- Suspect ACM analysis by polarized light microscopy (PLM) utilizing Eurofins CEI Labs, Inc. (CEI) as an NVLAP certified laboratory, their accreditation number is 101768-0.
- Transmission electron microscopy (TEM) analysis of non-friable organically bound materials suspected to contain asbestos and testing negatively by PLM analysis.
- Lead inspection by a lead inspector certified by the Environmental Protection Agency and licensed to conduct LBP surveys in South Carolina.
- In situ analysis of suspected lead based paints by X-ray fluorescence (XRF).
- Presenting the results in a report identifying confirmed ACMs and LBPs.

METHODS

Asbestos Containing Materials

In order to determine if the suspect materials observed during the visual survey contained asbestos, representative bulk samples were collected and placed in sealed packages. Twenty (20) bulk samples were collected during the survey and submitted to CEI in Cary, North Carolina for analysis using the EPA recommended method of Polarized Light Microscopy (PLM) coupled with dispersion staining (Method No. EPA 600/M4-82-020, Dec. 1982). CEI participates in the National Voluntary Laboratory Accreditation Program (NVLAP). Their NVLAP accreditation number is 101768-0. EPA regulations require that multiple samples of each homogeneous material be collected for laboratory analysis. In accordance with South Carolina Regulation 61-86.1, non-friable organically bound materials that are reported to be non-asbestos containing by PLM analysis must also be analyzed by Transmission Electron Microscopy (TEM). Eight (8) samples were analyzed using TEM.

Lead-Based Paint

Lead painted surfaces were analyzed in place using X-ray fluorescence. Painted surfaces were selected based on color of topcoat, underlying layers and substrate on which it was painted

RESULTS

Asbestos Results

The EPA defines an asbestos-containing material (ACM) as a material containing more than 1% asbestos. OSHA defines ACM as a material containing detectable amounts of asbestos. A specific *PLM* and *TEM Data Table* is located in Appendix II of this report and identifies positive materials and designates approximate quantities.

Suspect asbestos containing materials that were identified to be asbestos containing include:

- Approximately 5 wooden windows with glazing.
- Approximately 6 LF of mastic/tar on 1 chimney – assumed positive.

Lead Based Paint

OSHA does not recognize a threshold level of lead for definition purposes, only the presence or absence of lead. The current OSHA regulations recognize an airborne action level of thirty micrograms per cubic meter (30 µg/m^3) during an eight-hour workday and a permissible exposure level of fifty micrograms per cubic meter (50 µg/m^3) for employees.

Currently, SCDHEC defines LBP as paint containing in excess of, or equal to, 1.0 mg/cm^2. The laboratory analytical results and chain-of-custody are included in the Lead Analysis Reports in Appendix II. The approximate locations of the paint samples collected and analytical results are presented in the *LBP Data Table* included with this report.

The following surfaces in the building tested positive for lead in excess of the regulatory definition:

- Exterior white wooden siding.

RECOMMENDATIONS AND DISCUSSION

If the above referenced asbestos materials are to be disturbed by renovations or demolition, the asbestos must be removed in accordance with EPA, State of South Carolina and OSHA asbestos regulations. The State of South Carolina, Department of Health and Environmental Control (DHEC) has specific regulations that must be adhered to during asbestos removal/abatement projects.

Apex recommends the following:

1. Abate the asbestos containing materials in the structure prior to renovation or demolition.

2. Follow applicable asbestos regulations during renovation or demolition of the structure. You should be aware that stringent requirements are imposed upon anyone renovating or demolishing a structure in which ACM will be disturbed. This work must be performed in accordance with OSHA asbestos regulations, 29 CFR 1910 & 1926, and NESHAP asbestos regulations 40 CFR 61, subpart M. South Carolina regulations require the accreditation of personnel who work in the asbestos field and notification and permitting fees for asbestos removal projects. There is a 10 working day notification period required prior to abatement of asbestos in a facility. Failure to take proper precautions and actions to protect human health and the environment can result in penalties, danger to personnel, and construction delays.

Please note that this document is not a specification for asbestos removal. It does not contain means and methods for asbestos abatement. If you are planning an asbestos abatement project, please contact Apex to discuss the requirements. Use of this document without the express written consent of Apex is at the sole risk of the user and/or abatement contractor.

Quantities provided in this report are estimated. Contractors must verify material amounts prior to bidding or removal.

This report summarizes our evaluation of the conditions observed at the site. The findings prepared by Apex are based upon testing performed in the building space. Additional ACM may exist (undetected) in other areas due to their inaccessibility or due to the limited nature of our testing. Our assessment procedures and recommendations are based on the guidelines presented in EPA, State of South Carolina or OSHA asbestos regulations.

Lead-Based Paint

Currently the South Carolina Department of Health and Environmental Control (SCDHEC) define LBP as paint containing greater than 1.0 milligram per square centimeter (mg/cm^2) lead or in excess of, or equal to, 0.5 percent lead. Building materials identified as being painted with LBP should be segregated from the other building materials and recycled or disposed of in a municipal lined landfill. The removed wastes would need to be containerized and further tested by Toxic Characteristic Leaching procedures (TCLP) to determine if the waste is classified as hazardous. The remaining building materials that are not painted with LBP may be disposed of in a construction and demolition landfill. However, the landfills should be contacted to determine their specific disposal requirements.

Occupational Safety and Health Administration Lead Regulations apply to actions initiated on lead containing materials. This regulation applies to lead concentrations greater than the analytical limit of detection. This regulation sets exposure levels on airborne lead and does not reference the percent lead in paint. Therefore, initial personal air monitoring should be conducted on workers performing work on surfaces which have a lead concentration of 0.1 mg/cm^2 or above to satisfy the OSHA requirements. If a baseline exposure lower than the OSHA Action Level of 30 micrograms per cubic meter ($\mu g/m^3$) is established, personal air monitoring may be terminated. The full OSHA lead standard should be referenced for compliance.

A copy of this report must be submitted to SCDHEC at least ten (10) working days prior to demolition when applying for a demolition permit.

SECTION II

Asbestos & LBP Data Tables

ASBESTOS SURVEY FIELD DATA SHEET
PLM & TEM ANALYSIS

Project Name: COS 100 Georgia Street ACM/LBP
Sampled By: Tom Oliver

Project Location: 100 Georgia Street, Spartanburg, SC 29306
Project Manager: Tom Oliver

Project Number: 0118-14
Date: 8/16/2018

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
1	Roof	Roof shingles (3 layers) & no felt	PLM - NAD	Non-Friable	Good	800 SF
2						
3			TEM - NAD			
4	**Wooden windows**	**Window glazing**	**2% chrysotile**	**Non-Friable**	**Good**	**5 EA**
5						
6						
7	Throughout	Popcorn ceiling texture	PLM - NAD	Friable	Good	550 SF
8						
9						
10	Throughout	Drywall with joint compound & tape	PLM - NAD	Friable	Good	1,500 SF
11						
12						
13						
14						
15	Bathroom	Tan square pattern roll vinyl floor with no mastic	PLM - NAD	Non-Friable	Good	15 SF
16						
17			TEM - NAD			
18	Kitchen	12" x 12" beige square pattern self-stick floor tile over light grey vinyl floor & mastic	PLM - NAD	Non-Friable	Good	125 SF
19						
20			TEM - NAD			
Assumed	**Roof/chimneys**	**Mastic/tar on 1 chimney**	**Assumed**	**Non-Friable**	**Good**	**6 LF**

NAD = No Asbestos Detected
Bold = Positive For Asbestos
LF = Linear Feet
SF = Square Feet
EA = Each
Chry = Chrysotile
Amos = Amosite

FIELD DATA SHEET
LBP ANALYSIS

Project Name: COS 100 Georgia Street ACM/LBP

Sampled By: Tom Oliver

Project Location: 100 Georgia Street, Spartanburg, SC 29306

Project Manager: Tom Oliver

Project Number: 0118-14

Date: 8/16/2018

Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/m^3)
31	**Exterior**	**Siding**	**White**	**Wood**	**3.37**
32	Exterior	Window frame	Green	Wood	0.17
33	Exterior	Window frame	Green	Wood	0.09
34	Exterior	Door	White	Wood	0.04
35	Exterior	Door frame	Green	Wood	0.07
36	Exterior	Foundation	Blue	CMU Block	0.03
37	Interior	Wall	Grey	Drywall	0.00
38	Interior	Door	Grey	Wood	0.06
39	Interior	Door frame	Grey	Wood	0.04
40	Interior	Window	Grey	Wood	0.04

Bold = LBP

SECTION III

Laboratory Analytical Results

August 27, 2018

Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

CLIENT PROJECT: COS 100 Georgia St.; COS 0118-14
CEI LAB CODE: A189269

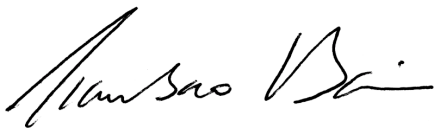
Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on August 20, 2018. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600 Method.

Sample results containing >1% asbestos are considered asbestos-containing materials (ACMs) per EPA regulatory requirements. The detection limit for the EPA 600 Method is <1% asbestos by weight as determined by visual estimation.

Thank you for your business and we look forward to continuing good relations. If you have any questions, please feel free to call our office at 919-481-1413.

Kind Regards,



Tianbao Bai, Ph.D., CIH
Laboratory Director

NVLAP TESTING
NVLAP LAB CODE 101768-0

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ASBESTOS ANALYTICAL REPORT
By: Polarized Light Microscopy

Prepared for

Apex Environmental Management

CLIENT PROJECT: COS 100 Georgia St.; COS 0118-14

LAB CODE: A189269

TEST METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORT DATE: 08/27/18

TOTAL SAMPLES ANALYZED: 16

SAMPLES >1% ASBESTOS: 2

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Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS 100 Georgia St.; COS 0118-14 **LAB CODE:** A189269

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
1	Layer 1	A84956A	White	Roof Shingle	None Detected
	Layer 2	A84956A	Brown	Roof Shingle	None Detected
		A84956B	Green	Roof Shingle	None Detected
2	Layer 1	A84957A	White	Roof Shingle	None Detected
	Layer 2	A84957A	Brown	Roof Shingle	None Detected
		A84957B	Green	Roof Shingle	None Detected
3		A84958		Sample Submitted for TEM Analysis	
4		A84959	Black/Gray	Window Glazing	Chrysotile 2%
5		A84960	Black/Gray	Window Glazing	Chrysotile 2%
6		A84961		Sample Not Analyzed per COC	
7		A84962	Brown/Cream	Popcorn Ceiling Texture	None Detected
8		A84963	Brown/Cream	Popcorn Ceiling Texture	None Detected
9		A84964	Brown/Cream	Popcorn Ceiling Texture	None Detected
10	Layer 1	A84965	White	Drywall	None Detected
	Layer 2	A84965	Clear	Joint Compound	None Detected
	Layer 3	A84965	Cream	Tape	None Detected
11	Layer 1	A84966	White	Drywall	None Detected
	Layer 2	A84966	Clear	Joint Compound	None Detected
	Layer 3	A84966	Cream	Tape	None Detected
12	Layer 1	A84967	White	Drywall	None Detected
	Layer 2	A84967	Clear	Joint Compound	None Detected
	Layer 3	A84967	Cream	Tape	None Detected
13	Layer 1	A84968	White	Drywall	None Detected
	Layer 2	A84968	Clear	Joint Compound	None Detected
	Layer 3	A84968	Cream	Tape	None Detected
14	Layer 1	A84969	White	Drywall	None Detected
	Layer 2	A84969	Clear	Joint Compound	None Detected
	Layer 3	A84969	Cream	Tape	None Detected
15		A84970	Tan,Square Pattern	Vinyl Flooring	None Detected

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS 100 Georgia St.; COS 0118-14 **LAB CODE:** A189269

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
16		A84971	Tan,Square Pattern	Vinyl Flooring	None Detected
17		A84972		Sample Submitted for TEM Analysis	
18		A84973A	Beige,Square Pattern	Self Stick Tile	None Detected
		A84973B	Clear	Mastic	None Detected
		A84973C	Cream	Self Stick Tile	None Detected
		A84973D	Clear	Mastic	None Detected
19		A84974A	Beige,Square Pattern	Self Stick Tile	None Detected
		A84974B	Clear	Mastic	None Detected
		A84974C	Cream	Self Stick Tile	None Detected
		A84974D	Clear	Mastic	None Detected
20		A84975		Sample Submitted for TEM Analysis	

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

Lab Code: A189269
Date Received: 08-20-18
Date Analyzed: 08-27-18
Date Reported: 08-27-18

Project: COS 100 Georgia St.; COS 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID / Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
1 Layer 1 A84956A	Roof Shingle	Heterogeneous White Fibrous Bound	25% 60% 5%	Fiberglass Tar Silicates	10% 60% 5%	Gravel Tar Silicates	None Detected
Layer 2 A84956A	Roof Shingle	Heterogeneous Brown Fibrous Bound	25% 60% 5%	Cellulose Tar Vermiculite	10% 60% 5%	Gravel Tar Vermiculite	None Detected
A84956B	Roof Shingle	Heterogeneous Green Fibrous Bound	30%	Cellulose	10% 60%	Gravel Tar	None Detected
2 Layer 1 A84957A	Roof Shingle	Heterogeneous White Fibrous Bound	25% 60% 5%	Fiberglass Tar Silicates	10% 60% 5%	Gravel Tar Silicates	None Detected
Layer 2 A84957A	Roof Shingle	Heterogeneous Brown Fibrous Bound	25% 60% 5%	Cellulose Tar Vermiculite	10% 60% 5%	Gravel Tar Vermiculite	None Detected
A84957B	Roof Shingle	Heterogeneous Green Fibrous Bound	30%	Cellulose	10% 60%	Gravel Tar	None Detected
3 A84958	Sample Submitted for TEM Analysis						
4 A84959	Window Glazing	Heterogeneous Black/Gray Fibrous Bound	2% 3%	Cellulose Talc	5% 88%	Paint Binder	**2% Chrysotile**

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ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

Lab Code: A189269
Date Received: 08-20-18
Date Analyzed: 08-27-18
Date Reported: 08-27-18

Project: COS 100 Georgia St.; COS 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID / Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
5 A84960	Window Glazing	Heterogeneous Black/Gray Fibrous Bound	2% 3%	Cellulose Talc	5% 88%	Paint Binder	**2% Chrysotile**
6 A84961	Sample Not Analyzed per COC						
7 A84962	Popcorn Ceiling Texture	Heterogeneous Brown/Cream Fibrous Bound	2%	Cellulose	5% 83% 10%	Paint Binder Foam	None Detected
8 A84963	Popcorn Ceiling Texture	Heterogeneous Brown/Cream Fibrous Bound	2%	Cellulose	5% 83% 10%	Paint Binder Foam	None Detected
9 A84964	Popcorn Ceiling Texture	Heterogeneous Brown/Cream Fibrous Bound	2%	Cellulose	5% 83% 10%	Paint Binder Foam	None Detected
10 Layer 1 A84965	Drywall	Heterogeneous White Fibrous Bound	15%	Cellulose	85%	Gypsum	None Detected
Layer 2 A84965	Joint Compound	Heterogeneous Clear Fibrous Bound	2%	Cellulose	5% 93%	Paint Calc Carb	None Detected
Layer 3 A84965	Tape	Homogeneous Cream Fibrous Bound	100%	Cellulose			None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

Lab Code: A189269
Date Received: 08-20-18
Date Analyzed: 08-27-18
Date Reported: 08-27-18

Project: COS 100 Georgia St.; COS 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID / Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
11	Drywall	Heterogeneous	15%	Cellulose	85%	Gypsum	None Detected
Layer 1		White					
A84966		Fibrous					
		Bound					
Layer 2	Joint Compound	Heterogeneous	2%	Cellulose	5%	Paint	None Detected
A84966		Clear			93%	Calc Carb	
		Fibrous					
		Bound					
Layer 3	Tape	Homogeneous	100%	Cellulose			None Detected
A84966		Cream					
		Fibrous					
		Bound					
12	Drywall	Heterogeneous	15%	Cellulose	85%	Gypsum	None Detected
Layer 1		White					
A84967		Fibrous					
		Bound					
Layer 2	Joint Compound	Heterogeneous	2%	Cellulose	5%	Paint	None Detected
A84967		Clear			93%	Calc Carb	
		Fibrous					
		Bound					
Layer 3	Tape	Homogeneous	100%	Cellulose			None Detected
A84967		Cream					
		Fibrous					
		Bound					
13	Drywall	Heterogeneous	15%	Cellulose	85%	Gypsum	None Detected
Layer 1		White					
A84968		Fibrous					
		Bound					

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

Lab Code: A189269
Date Received: 08-20-18
Date Analyzed: 08-27-18
Date Reported: 08-27-18

Project: COS 100 Georgia St.; COS 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID / Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
Layer 2 A84968	Joint Compound	Heterogeneous Clear Fibrous Bound	2%	Cellulose	5% 93%	Paint Calc Carb	None Detected
Layer 3 A84968	Tape	Homogeneous Cream Fibrous Bound	100%	Cellulose			None Detected
14 Layer 1 A84969	Drywall	Heterogeneous White Fibrous Bound	15%	Cellulose	85%	Gypsum	None Detected
Layer 2 A84969	Joint Compound	Heterogeneous Clear Fibrous Bound	2%	Cellulose	5% 93%	Paint Calc Carb	None Detected
Layer 3 A84969	Tape	Homogeneous Cream Fibrous Bound	100%	Cellulose			None Detected
15 A84970	Vinyl Flooring	Heterogeneous Tan,Square Pattern Fibrous Bound	25%	Cellulose	50% 25%	Vinyl Binder	None Detected

Lab Notes: No Mastic present.

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

Lab Code: A189269
Date Received: 08-20-18
Date Analyzed: 08-27-18
Date Reported: 08-27-18

Project: COS 100 Georgia St.; COS 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID / Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
16 A84971	Vinyl Flooring	Heterogeneous Tan,Square Pattern Fibrous Bound	25%	Cellulose	50% 25%	Vinyl Binder	None Detected
Lab Notes: No Mastic present.							
17 A84972	Sample Submitted for TEM Analysis						
18 A84973A	Self Stick Tile	Heterogeneous Beige,Square Pattern Fibrous Bound	2%	Cellulose	60% 38%	Vinyl Calc Carb	None Detected
A84973B	Mastic	Homogeneous Clear Fibrous Bound	2%	Cellulose	60% 38%	Mastic Calc Carb	None Detected
A84973C	Self Stick Tile	Heterogeneous Cream Fibrous Bound	2%	Cellulose	60% 38%	Vinyl Calc Carb	None Detected
A84973D	Mastic	Homogeneous Clear Fibrous Bound	2%	Cellulose	60% 38%	Mastic Calc Carb	None Detected
19 A84974A	Self Stick Tile	Heterogeneous Beige,Square Pattern Fibrous Bound	2%	Cellulose	60% 38%	Vinyl Calc Carb	None Detected

ASBESTOS BULK ANALYSIS

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID / Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
A84974B	Mastic	Homogeneous Clear Fibrous Bound	2%	Cellulose	60% 38%	Mastic Calc Carb	None Detected
A84974C	Self Stick Tile	Heterogeneous Cream Fibrous Bound	2%	Cellulose	60% 38%	Vinyl Calc Carb	None Detected
A84974D	Mastic	Homogeneous Clear Fibrous Bound	2%	Cellulose	60% 38%	Mastic Calc Carb	None Detected
20 A84975	Sample Submitted for TEM Analysis						

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LEGEND:
Non-Anth = Non-Asbestiform Anthophyllite
Non-Trem = Non-Asbestiform Tremolite
Calc Carb = Calcium Carbonate

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORTING LIMIT: <1% by visual estimation

REPORTING LIMIT FOR POINT COUNTS: 0.25% by 400 Points or 0.1% by 1,000 Points

REGULATORY LIMIT: >1% by weight

Due to the limitations of the EPA 600 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation. Estimated measurement of uncertainty is available on request.

This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins CEI. Eurofins CEI makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. Samples were received in acceptable condition unless otherwise noted. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.

ANALYST: Shilpa Ladekar

APPROVED BY: Tianbao Bai, Ph.D., CIH
Laboratory Director

NVLAP TESTING
NVLAP LAB CODE 101768-0

ASBESTOS
CHAIN OF CUSTODY

CEI LABS
730 SE Maynard Road, Cary, NC 27511
Tel: 866-481-1412; Fax: 919-481-1442

LAB USE ONLY:	A1892109 (20)
CEI Lab Code:	
CEI Lab I.D. Range:	A84956-A84975

COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact: Tom Oliver
Company: Apex Environmental Management, Inc.	Email / Tel: toliver@apexehs.com
Address: 7 Winchester Ct.	Project Name: COS 100 Georgia St.
Mauldin, South Carolina 29662	Project ID#: 0118-14
Email:	PO #:
Tel: (864) 404-3210 Fax:	STATE SAMPLES COLLECTED IN: SC

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

ASBESTOS	METHOD	TURN AROUND TIME					
		4 HR	8 HR	24 HR	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600	☐	☐	☐	☐	☐	☑
PLM POINT COUNT (400)	EPA 600	☐	☐	☐	☐	☐	☐
PLM POINT COUNT (1000)	EPA 600	☐	☐	☐	☐	☐	☐
PLM GRAV w POINT COUNT	EPA 600		☐	☐	☐	☐	☐
PLM BULK	CARB 435		☐	☐	☐	☐	☐
PCM AIR	NIOSH 7400	☐	☐	☐	☐	☐	☐
TEM AIR	EPA AHERA	☐	☐	☐	☐	☐	☐
TEM AIR	NIOSH 7402	☐	☐	☐	☐	☐	☐
TEM AIR	ISO 10312	☐	☐	☐	☐	☐	☐
TEM AIR	ASTM 6281-09	☐	☐	☐	☐	☐	☐
TEM BULK	CHATFIELD		☐	☐	☐	☐	☑
TEM DUST WIPE	ASTM D6480-05	☐	☐	☐	☐	☐	☐
TEM DUST MICROVAC	ASTM D5755-09	☐	☐	☐	☐	☐	☐
TEM SOIL	ASTM D7521-13			☐	☐	☐	☐
TEM VERMICULITE	CINCINNATI METHOD			☐	☐	☐	☐
OTHER:		☐	☐	☐	☐	☐	☐

REMARKS / SPECIAL INSTRUCTIONS:

☑ Accept Samples
☐ Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	8-17-18 2:45pm	[signature]	8/20 @ 10:00

Samples will be disposed of 30 days after analysis

Page 1 *of* 1

A1892109

ASBESTOS SAMPLING FORM

CEI LABS

COMPANY CONTACT INFORMATION	
Company: APEX Environmental Mgt.	Job Contact: Tom Oliver
Project Name: COS 100 Georgia St	
Project ID #: 0118-14	Tel:

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/ AREA	TEST	
1	Roof / 6 layers		PLM ☑	TEM ☐
2	of shingles - no felt		PLM ☑	TEM ☐
3	"		PLM ☐	TEM ☑
4	windows / glazing		PLM ☑	TEM ☐
5	"		PLM ☑	TEM ☐
6	"		PLM ☐	TEM ☑
7	ceiling / popcorn		PLM ☑	TEM ☐
8	ceiling texture		PLM ☑	TEM ☐
9	"		PLM ☑	TEM ☐
10	walls & ceiling /		PLM ☑	TEM ☐
11	drywall, joint compound		PLM ☑	TEM ☐
12	& tape		PLM ☑	TEM ☐
13	"		PLM ☑	TEM ☐
14	"		PLM ☑	TEM ☐
15	Bathrm / tan square		PLM ☑	TEM ☐
16	pattern roll vinyl		PLM ☑	TEM ☐
17	floor - no mastic		PLM ☐	TEM ☑
18	Kitchen / beige square		PLM ☑	TEM ☐
19	pattern self-stick over		PLM ☑	TEM ☐
20	2nd layer flooring light grey		PLM ☐	TEM ☑
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐

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September 4, 2018

Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

CLIENT PROJECT: COS 100 Georgia St.; 0118-14
LAB CODE: T181975

Dear Customer:

Enclosed are asbestos analysis results for TEM bulk samples received at our laboratory on August 27, 2018. The samples were analyzed for asbestos using transmission electron microscopy (TEM) per Chatfield Method.

Sample results containing > 1% asbestos are considered asbestos-containing materials (ACMs) per the EPA regulatory requirements. The detection limit for the TEM Chatfield method is <1% depending on the processed weight and constituents of the sample.

Thank you for your business and we look forward to continuing good relations. If you have any questions, please feel free to call our office at 919-481-1413.

Kind Regards,

Tianbao Bai, Ph.D., CIH
Laboratory Director

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ASBESTOS ANALYTICAL REPORT
By: Transmission Electron Microscopy

Prepared for

Apex Environmental Management

CLIENT PROJECT: COS 100 Georgia St.; 0118-14

LAB CODE: T181975

TEST METHOD: Bulk Chatfield
EPA 600 / R93 / 116

REPORT DATE: 09/04/18

ASBESTOS BULK ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

Client: Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

Project: COS 100 Georgia St.; 0118-14

Lab Code: T181975
Date Received: 08-27-18
Date Analyzed: 08-31-18
Date Reported: 09-04-18

TEM BULK CHATFIELD / EPA 600 / R93 / 116

Client ID Lab ID	Material Description	Sample Weight (g)	Organic Material %	Acid Soluble Material %	Acid Insoluble Material %	Asbestos %
3 T83605	White Roof Shingle	0.449	22.5	30.1	47.4	**None Detected**
3 T83606	Brown Roof Shingle	0.539	46.8	26	27.2	**None Detected**
3 T83607	Green Roof Shingle	0.503	42.3	3.2	54.5	**None Detected**
17 T83608	Tan, Square Pattern Vinyl Flooring	0.372	53	29.3	17.7	**None Detected**
20 T83609	Beige, Square Pattern Self Stick Tile	0.653	22.5	73.5	4	**None Detected**
20 T83610	Clear Mastic	0.136	71.3	23.5	5.2	**None Detected**
20 T83611	Cream Self Stick Tile	0.645	18.6	78.4	3	**None Detected**
20 T83612	Clear Mastic	0.092	35.9	51.1	13	**None Detected**

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LEGEND: None

METHOD: CHATFIELD & EPA/600/R-93/116

LIMIT OF DETECTION: Varies with the weight and constituents of the sample (<1%)

REGULATORY LIMIT: >1% by weight

This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins CEI. Eurofins CEI makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. Estimated measurement of uncertainty is available on request. Samples were received in acceptable condition unless otherwise noted.

ANALYST: Amanda Rucinski

APPROVED BY: Tianbao Bai, Ph.D., CIH
Laboratory Director

T81975

T8605-0612

(8)

ASBESTOS CHAIN OF CUSTODY

CEI LABS

730 SE Maynard Road, Cary, NC 27511
Tel: 866-481-1412; Fax: 919-481-1442

LAB USE ONLY:	A189209 (20)
CEI Lab Code:	
CEI Lab I.D. Range:	A84950-A84975

COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact: Tom Oliver
Company: Apex Environmental Management, Inc.	Email / Tel: toliver@apexehs.com
Address: 7 Winchester Ct.	Project Name: COS 100 Georgia St.
Mauldin, South Carolina 29662	Project ID#: 0118-14
Email:	PO #:
Tel: (864) 404-3210 Fax:	STATE SAMPLES COLLECTED IN: SC

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TEM AIR	NIOSH 7402	☐	☐	☐	☐	☐	☐
TEM AIR	ISO 10312	☐	☐	☐	☐	☐	☐
TEM AIR	ASTM 6281-09	☐	☐	☐	☐	☐	☐
TEM BULK	CHATFIELD		☐	☐	☐	☐	☑
TEM DUST WIPE	ASTM D6480-05	☐	☐	☐	☐	☐	☐
TEM DUST MICROVAC	ASTM D5755-09	☐	☐	☐	☐	☐	☐
TEM SOIL	ASTM D7521-13			☐	☐	☐	☐
TEM VERMICULITE	CINCINNATI METHOD			☐	☐	☐	☐
OTHER:		☐	☐	☐	☐	☐	☐

REMARKS / SPECIAL INSTRUCTIONS:

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☐ Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
	8-17-18 2:45pm	CS	8/20 @ 10:00
	08/27/18 9:45am		

Samples will be disposed of 30 days after analysis

Page 1 of 1

A1892109

ASBESTOS SAMPLING FORM

CEI LABS

COMPANY CONTACT INFORMATION			
Company:	APEX Environmental Mgt.	Job Contact:	Tom Oliver
Project Name:	COS 100 Georgia St		
Project ID #:	0118-14	Tel:	

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/ AREA	TEST	
1	Roof / 6 layers		PLM ☑	TEM ☐
2	of shingles - no felt		PLM ☑	TEM ☐
3	↓		PLM ☐	TEM ☑
4	windows / glazing		PLM ☑	TEM ☐
5			PLM ☑	TEM ☐
6	↓		PLM ☐	TEM ☑
7	ceiling / popcorn		PLM ☑	TEM ☐
8	ceiling texture		PLM ☑	TEM ☐
9	↓		PLM ☑	TEM ☐
10	walls & ceiling /		PLM ☑	TEM ☐
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			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐

SECTION IV

Photographic Log


Photo 1 – 100 Georgia Street in Spartanburg, South Carolina


Photo 2 – Large amount of debris in the back yard


Photo 3 –Roof shingles with no felt


Photo 4 – Wooden windows with glazing


Photo 5 – Tan square pattern roll vinyl floor with no mastic in the bathroom


Photo 6 – 12" x 12" beige square pattern self-stick floor tile over light grey vinyl floor & mastic in the kitchen

Photo 7 – popcorn ceiling texture throughout

Photo 8 –Drywall with joint compound & tape throughout

SECTION V

SC DHEC Asbestos Inspector License

SCDHEC ISSUED
Asbestos ID Card

Thomas H Oliver

		Expiration Date:
CONSULTBI	BI-00680	01/18/19
AIRSAMPLER	AS-00202	04/04/19

This card is nontransferable and considered invalid if loaned or given to another person for identification. This card will also be invalid if altered or defaced. This card is property of SCDHEC. It must be returned to the department if the holder's accreditation is revoked or if this card is invalidated. Any person performing regulated asbestos activities without current accreditation shall be subject to legal sanction. This card must be returned upon expiration and/or issuance of a new card.

YOU MUST HAVE THIS IDENTIFICATION CARD WITH YOU ON THE JOB.

For information of corrections contact: SCDHEC – Asbestos Section
2600 Bull Street
Columbia, SC 29201
(803) 898-4289