

# **Asbestos & Lead Based Paint Assessment**

City of Spartanburg 30 Varner 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 6, 2018





7 Winchester Court Mauldin, SC 29662 864.404.3210 office 864.404.3213 fax www.apex-ehs.com

# City of Spartanburg 440 South Church Street, Suite B Spartanburg, SC 29306

Reference: Asbestos and Lead-Based Paint Assessment Services 30 Varner Street Spartanburg, South Carolina 29306

Dear Mr. Tillerson:

Mr. Jeff 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

# Apex Project Number 0118-14

September 6, 2018

Indoor Air Quality

SERVICES

Mold Remediation

Asbestos & Lead

Industrial Hygiene

Worker Health & Safety

Mold Consulting

Moisture Management Plans

Safety Assessment

Environmental Site Assessments

> Hazard Communication

### ASBESTOS AND LEAD BASED PAINT ASSESSMENT

### CITY OF SPARTANBURG 30 VARNER STREET SPARTANBURG, SOUTH CAROLINA 29306

### APEX PROJECT NO. 0118-14

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**SECTION I** 

Asbestos & Lead Evaluation Report

### ASBESTOS EVALUATION REPORT APEX PROJECT NUMBER: 0118-14

Date:	9/6/2018	Page Number:	1 of 4
Client: Client Address:	City of Spartanburg 440 South Church Street Suite B Spartanburg, SC 29306	Client Contact: Client Phone Number:	Mr. Jeff Tillerson (864) 596-2911
Project: Property Address:	Asbestos Evaluation and Lead Based Paint Assessment 30 Varner Street Spartanburg, SC 29306		
Assessor:	Tom Oliver	Date of Assessment:	8/17//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	1,000 SF

#### EXTERIOR BUILDING MATERIALS

- Pitched wooden roof with shingles & no felt.
- Wooden siding.
- Wooden windows with glazing & caulk.
- Wooden doors with no caulk.
- 1 chimney with mastic/tar assumed positive.

### INTERIOR BUILDING MATERIALS

- Drywall with joint compound & tape ceiling in the bathroom.
- 12" x 12" ceiling tiles on a grid system with no mastic.
- Wooden wall panels with no mastic.
- Wooden floors, walls & ceilings.
- Multiple types & layers of vinyl floors with & without mastics.

## 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.

# <u>METHODS</u>

## 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-one (21) 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). Nine (9) 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

# <u>RESULTS</u>

# 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. It should be noted that materials were identified to contain less than 1% asbestos and OSHA Construction Industry Asbestos Standards (29 CFR 1926.1101) will apply if those materials are disturbed during renovation or demolition activities. 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 6 LF of chimney 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 ( $30 \ \mu g/m^3$ ) during an eight-hour workday and a permissible exposure level of fifty micrograms per cubic meter ( $50 \ \mu g/m^3$ ) for employees.

Currently, SCDHEC defines LBP as paint containing in excess of, or equal to, 1.0 mg/cm<sup>2</sup>. 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

- Tan wooden siding.
- White wooden windows and window frames.
- White wooden door frames.
- Tan wooden front porch ceiling and header/boards/framing.
- White wooden back porch siding, doors and door frames, ceiling, header boards/framing, walls and columns.

#### Interior

- White bead board walls and ceilings.
- White wooden doors and door frames.
- White wooden windows and window frames.
- White wooden fireplace mantle.

### **RECOMMENDATIONS AND DISCUSSION**

#### Asbestos Containing Materials

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.

City of Spartanburg 30 Varner Street Apex Project No. 0118-14 September 6, 2018

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.

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<sup>2</sup>) 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 30 Varner Street ACM/LBP

Project Location: 30 Varner Street, Spartanburg, SC 29306

Project Number: 0118-14

Project Manage Tom Oliver

Date: 8/17/2018

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
1						
2	Roof	Roof shingles (2 layers) & no felt	PLM - NAD	Non-Friable	Good	1,500 SF
3			TEM - NAD			
4						
5	Wooden windows	Window glazing	PLM - NAD	Non-Friable	Good	6 EA
6			TEM - NAD			
7						
8	Wooden windows	Window caulk	PLM - NAD	Non-Friable	Good	6 EA
9			TEM - NAD			
10						
11	Throughout	12" x 12" ceiling tiles with no mastic			Good	1,000 SF
12						
13	Kitchen &		PLM - NAD			
14	bathroom	12" x 12" wooden pattern self- stick floor tiles	PLIVI - NAD	Non-Friable	Good	215 SF
15	threshold		TEM - NAD			
16		Tan small square pattern				
17	Bathroom	vinyl floor & mastic over tan	PLM - NAD	Non-Friable	Good	25 SF
18	1	large square pattern vinyl floor & mastic	TEM - <1% chry (top layer floor): NAD top & bottom layer mastic & bottom layer floor			

Sampled By: Tom Oliver

# ASBESTOS SURVEY FIELD DATA SHEET PLM & TEM ANALYSIS

Project Name: COS 30 Varner Street ACM/LBP

Project Location: 30 Varner Street, Spartanburg, SC 29306

Project Number: 0118-14

Sampled By: Tom Oliver

Project Manage Tom Oliver

Date: 8/17/2018

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
19						
20	Bathroom ceiling	Drywall with joint compound & tape	PLM - NAD	Friable	Good	40 SF
21						
Assumed	Roof/chimney	Mastic/tar on 1 chimney	Assumed	Non-Friable	Good	6 LF
NAD = No Asbest	os Detected	LF = Linear Feet	EA = Each	Amos = Amosite	)	
Bold = Positive F	For Asbestos	SF = Square Feet	Chry = Chrysotile			

# FIELD DATA SHEET LBP ANALYSIS

Project Name: COS 30 Varner Street ACM/LBP

Project Location: 30 Varner Street, Spartanburg, SC 29306

Project Number: 0118-14

Sampled By: Tom Oliver
Project Manager: Tom Oliver

Date:

8/17/2018

Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/m <sup>3</sup> )
135	Exterior	Siding	Tan	Wood	2.61
136	Exterior	Window	White	Wood	3.14
137	Exterior	Window frame	White	Wood	3.11
138	Exterior	Door	Brown	Wood	0.00
139	Exterior	Door frame	White	Wood	3.41
140	Exterior front porch	Ceiling	Tan	Wood	3.92
141	Exterior front porch	Headers/framing	Tan	Wood	3.32
142	Exterior front porch	Column	White	Wood	0.00
143	Exterior front porch	Handrail	White	Wood	0.00
144	Exterior front porch	Steps	Grey	Concrete	0.00
145	Exterior back porch	Foundation	Tan	Brick	0.15
146	Exterior back porch	Foundation	Tan	CMU Block	0.09
147	Exterior back porch	Siding	White	Wood	5.00
148	Exterior back porch	Door frame	White	Wood	5.00
149	Exterior back porch	Door	White	Wood	2.92
150	Exterior back porch	Ceiling	White	Wood	2.69
151	Exterior back porch	Headers/framing	White	Wood	4.33
152	Exterior back porch	Walls	White	Wood	2.93
153	Exterior back porch	Column	White	Wood	1.62
154	Interior	Walls	White	Bead board	2.10
155	Interior	Ceiling	White	Bead board	2.80
156	Interior	Door	White	Wood	1.98
157	Interior	Door frame	White	Wood	1.67
158	Interior	Window	White	Wood	2.23

# **FIELD DATA SHEET** LBP ANALYSIS

Wall panel

Calibration

Calibration

Calibration

Project Name:	COS 30 Varner Street	ACM/LBP	_	Sampled By:	Tom Oliver
Project Location:	30 Varner Street, Spar	tanburg, SC 29306	_	Project Manage	r: Tom Oliver
Project Number:	0118-14		_	Date:	8/17/2018
Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/m <sup>3</sup> )
159	Interior	Window frame	White	Wood	2.20
160	Interior	Fireplace mantle	White	Wood	5.00

Brown

Wood

0.01

1.19

1.05

1.16

163 164

Interior

Bold = LBP

161

162

Project Name:

# SECTION III

Laboratory Analytical Results



August 27, 2018

Apex Environmental Management 7 Winchester Court Mauldin, SC 29662

CLIENT PROJECT:COS 30 Varner St.; COS 0118-14CEI LAB CODE:A189268

CEI

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.

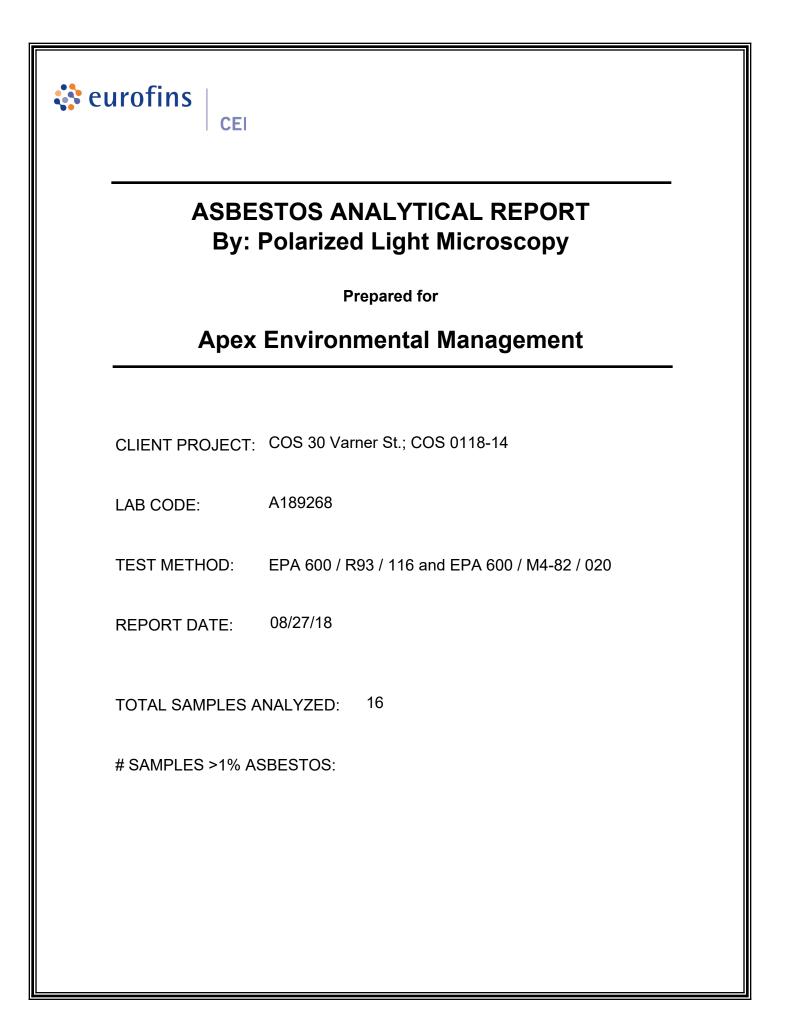
Thank you for your business and we look forward to continuing good relations. If you have any questions, please feel free to call our office at 919-481-1413.

Kind Regards,

Man Sao De

Tianbao Bai, Ph.D., CIH Laboratory Director







# **Asbestos Report Summary**

By: POLARIZING LIGHT MICROSCOPY

**PROJECT:** COS 30 Varner St.; COS 0118-14

LAB CODE: A189268

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

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
1		A84935	Black,Green	Roof Shingle	None Detected
2		A84936	Black,Green	Roof Shingle	None Detected
3		A84937		Sample Submitted for TEM Analysis	
4		A84938	Off-white,Gray	Window Glazing	None Detected
5		A84939	Off-white,Gray	Window Glazing	None Detected
6		A84940		Sample Submitted for TEM Analysis	
7		A84941	Off-white,Gray	Window Caulking	None Detected
8		A84942	Off-white,Gray	Window Caulking	None Detected
9		A84943		Sample Submitted for TEM Analysis	
10		A84944	Gray,Off-white	Ceiling Tile	None Detected
11		A84945	Gray,Off-white	Ceiling Tile	None Detected
12		A84946	Gray,Off-white	Ceiling Tile	None Detected
13		A84947A	Brown,Gray	Floor Tile	None Detected
		A84947B	Clear	Mastic	None Detected
14		A84948A	Brown,Gray	Floor Tile	None Detected
		A84948B	Clear	Mastic	None Detected
15		A84949		Sample Submitted for TEM Analysis	
16	Layer 1	A84950A	Tan,Gray	Vinyl Flooring (type 1)	None Detected
	Layer 2	A84950A	Tan	Mastic	None Detected
	Layer 1	A84950B	Tan,Gray	Vinyl Flooring (type 2)	None Detected
	Layer 2	A84950B	Tan	Mastic	None Detected
17	Layer 1	A84951A	Tan,Gray	Vinyl Flooring (type 1)	None Detected
	Layer 2	A84951A	Tan	Mastic	None Detected
	Layer 1	A84951B	Tan,Gray	Vinyl Flooring (type 2)	None Detected
	Layer 2	A84951B	Tan	Mastic	None Detected
18		A84952		Sample Submitted for TEM Analysis	
19	Layer 1	A84953	Gray,Tan	Drywall	None Detected



# **Asbestos Report Summary**

By: POLARIZING LIGHT MICROSCOPY

CEI

PROJECT: COS 30 Varner St.; COS 0118-14

LAB CODE: A189268

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

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
	Layer 2	A84953	Off-white	Joint Compound	None Detected
	Layer 3	A84953	Tan	Таре	None Detected
20	Layer 1	A84954	Gray,Tan	Drywall	None Detected
	Layer 2	A84954	Off-white	Joint Compound	None Detected
	Layer 3	A84954	Tan	Таре	None Detected
21	Layer 1	A84955	Gray,Tan	Drywall	None Detected
	Layer 2	A84955	Off-white	Joint Compound	None Detected
	Layer 3	A84955	Tan	Таре	None Detected



By: POLARIZING LIGHT MICROSCOPY

CEI

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

 Lab Code:
 A189268

 Date Received:
 08-20-18

 Date Analyzed:
 08-27-18

 Date Reported:
 08-27-18

Project: COS 30 Varner St.; COS 0118-14

Client ID	Lab	Lab	NO	N-ASBESTOS	COMPO	NENTS	ASBESTOS
Lab ID	Description	Attributes	Fibr	ous	Non-	Fibrous	%
1	Roof Shingle	Heterogeneous	<1%	Cellulose	30%	Tar	None Detected
A84935		Black,Green Fibrous Bound	25%	Fiberglass	40% 5%	Gravel Silicates	
Lab Notes:	No felt present.						
2	Roof Shingle	Heterogeneous	<1%	Cellulose	30%	Tar	None Detected
A84936		Black,Green Fibrous Bound	25%	Fiberglass	40% 5%	Gravel Silicates	
Lab Notes:	No felt present.						
<b>3</b> A84937	Sample Submitted for TEM Analysis						
4	Window Glazing	Heterogeneous	<1%	Cellulose	85%	Caulk	None Detected
A84938		Off-white,Gray			10%	Binder	
		Fibrous Bound			5%	Paint	
5	Window Glazing	Heterogeneous	<1%	Cellulose	85%	Caulk	None Detected
A84939		Off-white,Gray			10%	Binder	
		Fibrous Bound			5%	Paint	
<b>6</b> A84940	Sample Submitted for TEM Analysis						
7	Window Caulking	Heterogeneous	<1%	Cellulose	85%	Caulk	None Detected
A84941		Off-white,Gray			10%	Binder	
		Fibrous Bound			5%	Paint	
8	Window Caulking	Heterogeneous	<1%	Cellulose	85%	Caulk	None Detected
A84942		Off-white,Gray			10%	Binder	
		Fibrous Bound			5%	Paint	



By: POLARIZING LIGHT MICROSCOPY

CEI

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

 Lab Code:
 A189268

 Date Received:
 08-20-18

 Date Analyzed:
 08-27-18

 Date Reported:
 08-27-18

Project: COS 30 Varner St.; COS 0118-14

Client ID Lab ID	Lab Description	Lab Attributes	NOI Fibr	N-ASBESTOS ous		NENTS Fibrous	ASBESTOS %
<b>9</b> A84943	Sample Submitted for TEM Analysis						
<b>10</b> A84944	Ceiling Tile	Heterogeneous Gray,Off-white Fibrous Bound	35% 25%	Cellulose Fiberglass	15% 5% 20%	Binder Paint Perlite	None Detected
<b>11</b> A84945	Ceiling Tile	Heterogeneous Gray,Off-white Fibrous Bound	35% 25%	Cellulose Fiberglass	15% 5% 20%	Binder Paint Perlite	None Detected
<b>12</b> A84946	Ceiling Tile	Heterogeneous Gray,Off-white Fibrous Bound	35% 25%	Cellulose Fiberglass	15% 5% 20%	Binder Paint Perlite	None Detected
<b>13</b> A84947A	Floor Tile	Heterogeneous Brown,Gray Fibrous Tightly Bound	<1%	Cellulose	95% 5%	Vinyl Calc Carb	None Detected
A84947B	Mastic	Heterogeneous Clear Fibrous Bound	2%	Cellulose	98%	Mastic	None Detected
<b>14</b> A84948A	Floor Tile	Heterogeneous Brown,Gray Fibrous Tightly Bound	<1%	Cellulose	95% 5%	Vinyl Calc Carb	None Detected
A84948B	Mastic	Heterogeneous Clear Fibrous Bound	2%	Cellulose	98%	Mastic	None Detected



By: POLARIZING LIGHT MICROSCOPY

CEI

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

 Lab Code:
 A189268

 Date Received:
 08-20-18

 Date Analyzed:
 08-27-18

 Date Reported:
 08-27-18

Project: COS 30 Varner St.; COS 0118-14

#### ASBESTOS BULK PLM, EPA 600 METHOD **NON-ASBESTOS COMPONENTS Client ID** Lab Lab **ASBESTOS** Lab ID Description Attributes **Fibrous** Non-Fibrous % Sample Submitted for 15 **TEM Analysis** A84949 Vinyl Flooring (type 1) 16 Heterogeneous 15% Cellulose 50% Vinyl None Detected Tan,Gray 10% Fiberglass 25% Binder Layer 1 A84950A Fibrous Bound Mastic Heterogeneous 2% Cellulose 98% None Detected Layer 2 Mastic A84950A Tan Fibrous Bound Layer 1 Vinyl Flooring (type 2) Heterogeneous 15% Cellulose 50% Vinyl None Detected A84950B 10% 25% Binder Tan,Gray Fiberglass Fibrous Bound Heterogeneous 2% 98% Layer 2 Mastic Cellulose Mastic None Detected A84950B Tan Fibrous Bound 17 Vinyl Flooring (type 1) Heterogeneous 15% Cellulose 50% Vinyl None Detected Layer 1 Tan,Gray 10% Fiberglass 25% Binder A84951A Fibrous Bound Layer 2 Mastic Heterogeneous 2% Cellulose 98% Mastic None Detected A84951A Tan Fibrous Bound Layer 1 Vinyl Flooring (type 2) Heterogeneous 15% Cellulose 50% Vinyl None Detected A84951B Tan,Gray 10% 25% Binder Fiberglass Fibrous Bound



By: POLARIZING LIGHT MICROSCOPY

CEI

Client: Apex Environmental Management 7 Winchester Court Mauldin, SC 29662 
 Lab Code:
 A189268

 Date Received:
 08-20-18

 Date Analyzed:
 08-27-18

 Date Reported:
 08-27-18

Project: COS 30 Varner St.; COS 0118-14

Client ID	Lab	Lab		N-ASBESTOS	СОМРО	NENTS	ASBESTOS
Lab ID	Description	Attributes	Fibr	ous	Non-l	Fibrous	%
Layer 2 A84951B	Mastic	Heterogeneous Tan Fibrous Bound	2%	Cellulose	98%	Mastic	None Detected
<b>18</b> A84952	Sample Submitted for TEM Analysis						
<b>19</b> Layer 1 A84953	Drywall	Heterogeneous Gray,Tan Fibrous Bound	25%	Cellulose	65% 10%	Gypsum Binder	None Detected
Layer 2 A84953	Joint Compound	Heterogeneous Off-white Fibrous Bound	<1%	Cellulose	85% 15%	Calc Carb Binder	None Detected
Layer 3 A84953	Таре	Heterogeneous Tan Fibrous Bound	85%	Cellulose	15%	Binder	None Detected
<b>20</b> Layer 1 A84954	Drywall	Heterogeneous Gray,Tan Fibrous Bound	25%	Cellulose	65% 10%	Gypsum Binder	None Detected
Layer 2 A84954	Joint Compound	Heterogeneous Off-white Fibrous Bound	<1%	Cellulose	85% 15%	Calc Carb Binder	None Detected
 Layer 3 A84954	Таре	Heterogeneous Tan Fibrous Bound	85%	Cellulose	15%	Binder	None Detected



By: POLARIZING LIGHT MICROSCOPY

CEI

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

 Lab Code:
 A189268

 Date Received:
 08-20-18

 Date Analyzed:
 08-27-18

 Date Reported:
 08-27-18

Project: COS 30 Varner St.; COS 0118-14

### ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes		N-ASBESTOS ous		NENTS Fibrous	ASBESTOS %
<b>21</b> Layer 1 A84955	Drywall	Heterogeneous Gray,Tan Fibrous Bound	25%	Cellulose	65% 10%	Gypsum Binder	None Detected
Layer 2 A84955	Joint Compound	Heterogeneous Off-white Fibrous Bound	<1%	Cellulose	85% 15%	Calc Carb Binder	None Detected
Layer 3 A84955	Таре	Heterogeneous Tan Fibrous Bound	85%	Cellulose	15%	Binder	None Detected



CEI

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:

Scott Minyard

APPROVED BY:

Tianbao Bai, Ph.D., CIH Laboratory Director





# **ASBESTOS** CHAIN OF CUSTODY

LABS	LAB USE ONLY:
730 SE Maynard Road, Cary, NC 27511	CEI Lab Code: H189208
Tel: 866-481-1412; Fax: 919-481-1442	CEI Lab I.D. Range: A84935-A84955
COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact: Tom Oliver
Company: Apex Environmental Management, Inc.	Email/Tel: foliver@apex-ehs.com
Address: 7 Winchester Ct.	Project Name: COS 30 Varner St
Mauldin, South Carolina 29662	Project ID#: COS 0118-14
Email:	PO #:
Tel: (864) 404-3210 Fax:	STATE SAMPLES COLLECTED IN: SC

### IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

		TURN AROUND TIME					
ASBESTOS	METHOD	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	Sector Lands					
PLM BULK	CARB 435						
PCM AIR	NIOSH 7400						
TEM AIR	EPA AHERA						
TEMAIR	NIOSH 7402						
TEM AIR	ISO 10312						
TEMAIR	ASTM 6281-09						
TEM BULK	CHATFIELD	A CONTRACTOR					
TEM DUST WIPE	ASTM D6480-05						
TEM DUST MICROVAC	ASTM D5755-09						
TEM SOIL	ASTM D7521-13						
TEM VERMICULITE	CINCINNATI METHOD	Product Reserve					
OTHER:							

REMARKS / SPECIAL INSTRUCTIONS:		<b>Ø</b>	Accept Samples Reject Samples
Relinquished By:/// Date/Time	Received By:		Date/Time
Lema Mult 8-17-18 3:20pm	co	BL	20 @ (0:00
Samples will be disposed of 30 days after analysis	P	age / of 2	

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A1892U8

# ASBESTOS SAMPLING FORM



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COMPANY CO	NTAC	TINFORMATION					
Company: A	P5	X Env. mgt	Job Contac	ct:	Tom	Oliv	er
Project Name:	Co	- 1					
Project ID #:	Co.	S 0118-14	Tel:			1 =	
SAMPLE ID#		DESCRIPTION / LOCATION	VOLUME/ AREA		TE	ST	
	1	Roof / 1 shingle		PLM	U-	TEM	
	2	11 felt		PLM	4	TEM	
	3			PLM		TEM	
7	4	windows/ glaze		PLM	1	TEM	
	5	1 Jan	-	PLM		TEM	
	0		-	PLM		TEM	4
	7	windows/ and		PLM	U-	TEM	
	8	Jert -		PLM	4	TEM	
	9			PLM		TEM	
	0	ceiling / 12×12		PLM		TEM	
1	11	Ceiling / 12×12 Ceiling +ile		PLM	4	TEM	
1	12			PLM		TEM	
1	3	Kitche + batham Thres	hadd /	PLM		TEM	
		in the internet these	run u				

PLM

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12×12 wood pattern

Bathem/ tan small square A

W/mastic & tan large square pati

Self-stick flr. tile

drywall, JC + tape

vinyl flr

Bathem ceiling

PLM \_\_\_\_\_ TEM \_\_\_\_ PLM \_\_\_\_\_ TEM \_\_\_\_ PLM \_\_\_\_\_ TEM \_\_\_\_ Page \_\_\_\_\_ of \_\_\_\_

TEM

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September 4, 2018

Apex Environmental Management 7 Winchester Court Mauldin, SC 29662

CLIENT PROJECT: COS 30 Varner St; COS 0118-14 LAB CODE: T181979

CEI

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.

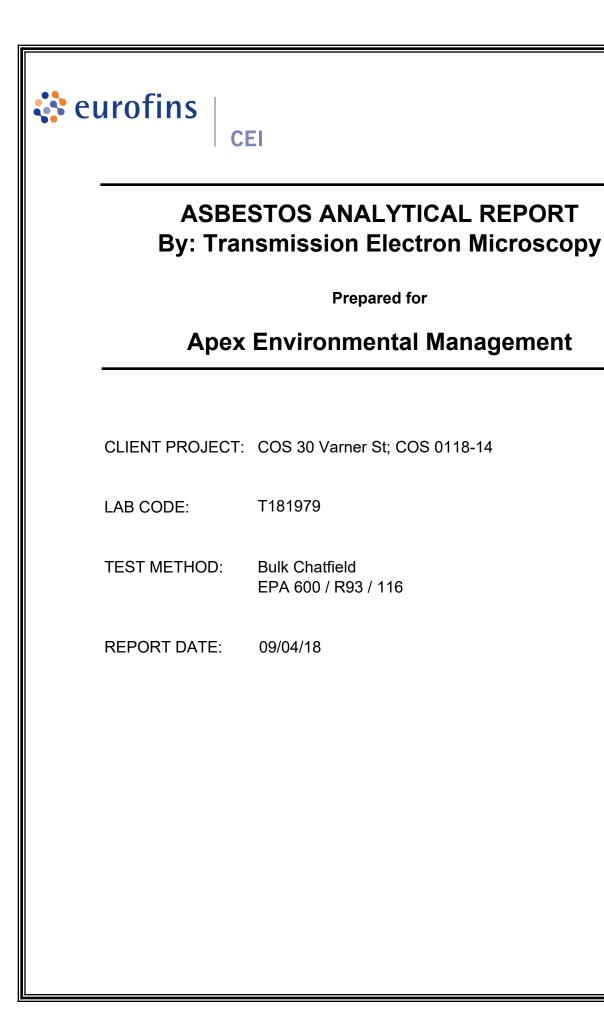
Sample results containing > 1% asbestos are considered asbestos-containing materials (ACMs) per the EPA regulatory requirements. The detection limit for the TEM Chatfield method is <1% depending on the processed weight and constituents of the sample.

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,

Man Sao De-

Tianbao Bai, Ph.D., CIH Laboratory Director





By: TRANSMISSION ELECTRON MICROSCOPY

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

CEI

Lab Code:	T181979
Date Received:	08-27-18
Date Analyzed:	09-04-18
Date Reported:	09-04-18

Project: COS 30 Varner St; COS 0118-14

### 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 T83638	Black, Green Roof Shingle	0.341	31.7	54	14.3	None Detected
6 T83639	Off-white, Gray Window Glazing	0.387	10.1	79.6	10.3	None Detected
9 T83640	Off-white, Gray Window Caulking	0.331	25.7	64	10.3	None Detected
15 T83641	Brown, Gray Floor Tile	0.591	17.9	79.9	2.2	None Detected
15 T83642	Clear Mastic	0.116	52.6	44.8	2.6	None Detected
18 T83643	Tan, Gray Vinyl Flooring (type 1)	0.252	65.9	19.8	14.3	<1% Chrysotile
18 T83644	Tan Mastic	0.198	40.9	20.2	38.9	None Detected
18 T83645	Tan, Gray Vinyl Flooring (type 2)	0.307	67.1	17.3	15.6	None Detected
18 T83646	Tan Mastic	0.227	19.8	40.5	39.7	None Detected



CEI

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.

Kamila Reichert **APPROVED BY:** ANALYST: Tianbao Bai, Ph.D., CIH Laboratory Director

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COMPANY INFORMATIO	N	and the second	PROJEC		MATION	morros	- A-8498S
CEI CLIENT #:					/	- 1	
Company: Apex Environr	nental Managemen	t Inc	Job Conta			Diver	1-
Address: 7 Winchester C	in the second	<u>, 110.</u>					ets.com
			Project Na	me: Co	53	O Varne	ir st
Mauldin, South	Carolina 29662		Project ID#	#: CO°	S c	118-14	
Email:			PO #:				
<sub>Tel:</sub> (864) 404-3210	Fax:		STATE SA	MPLESC		ED IN: S	0
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ASBESTOS	METHOD	4 HR	8 HR	24 HR	2 DA	Y 3 DAY	5 DAY
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TEM AIR	ASTM 6281-09						
TEM BULK	CHATFIELD	r Annalin I					
TEM DUST WIPE	ASTM D6480-05			$\Box$			
TEM DUST MICROVAC	ASTM D5755-09						
TEM SOIL	ASTM D7521-13	C. S. State					
TEM VERMICULITE	CINCINNATI METHOD						
OTHER:							
REMARK\$ / SPECIAL IN	STRUCTIONS						
CEMARKS / SPECIAL IN	STRUCTIONS:				<b>Ø</b>	Accept Sample Reject Sample	
Relinquished By	Date/Time		Receive	ed By:		Date/Time	<b>教授</b> 一部的第三人称单数
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Samples will be disposed of 30 days after analysis

Page \_of \_ 1



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# ASBESTOS SAMPLING FORM

COMPANY CONTACT INFORMATION						
Company: AP5x Env. mgt	Job Contact: Tom Oliver					
Project Name: COS 30 Varner St.						
Project ID #: COS 0118-1-1	Tel:					
SAMPLE ID# DESCRIPTION / LOCATION	YOLUMÉ/ AREA TEST					
1 Roof / Ishirale						
2 11felt	PLM TEM					
3						
Windows/ glaze	PLM TEM					
	PLM TEM					
la contra	PLM TEM					
7 windows/	PLM TEM					
8	PLM TEM					
9	PLM TEM					
10 Ceiling / 12×12	PLM TEM					
10 Ceiling / 12×12 11 Ceiling +ile	PLM G TEM					
ia d	PLM TEM					
13 Kitche + batham Three	shad PLM I TEM					
14 Izris wood partern						
15 sett-stick flr. tile	PLM TEM					
16 Bathem/ tan small s	quare Ar PLM TEM					
17 Warastic & tan Jarge squ	TEM TEM					
18 vinyl flr	PLM TEM					
- pathron ceiling	PLM TEM					
20 drywall, JC + tape						
	PLM TEM					

Page \_\_\_\_\_ of \_\_\_\_

# SECTION IV

Photographic Log

Asbestos & Lead Assessment City of Spartanburg 30 Varner Street Spartanburg, South Carolina 29306



Photo 1 - 30 Varner Street in Spartanburg, South Carolina



Photo 2 - Roof shingles & no felt



Photo 3 – 1 chimney wit mastic/tar – assumed positive



Photo 4 – Wooden windows with glazing & caulk



Photo 5 - 12" x 12" ceiling tiles with no mastic throughout



Photo 6 – 12" x 12" wooden pattern self-stick floor tiles in the kitchen & bathroom threshold

Asbestos & Lead Assessment City of Spartanburg 30 Varner Street Spartanburg, South Carolina 29306



ceiling

SECTION V

SC DHEC Asbestos Inspector License

# **SCDHEC ISSUED** Asbestos ID Card

BI-00680

#### **Thomas H Oliver**



CONSULTBI AIRSAMPLER AS-00202

C

Expiration Date: 01/18/19 04/04/19

This card is nontransferable and unit 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