Asbestos & Lead Based Paint Assessment

City of Spartanburg
575 Farley Avenue
Spartanburg, South Carolina 29301

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

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

Project Number: 0119-09

May 19, 2019

PEX
Environmental
Management

Environmental Management

7 Winchester Court
Mauldin, SC 29662
864.404.3210 office
864.404.3213 fax

802 E. Martintown Rd
N. Augusta, SC 29841
803.440-2790 office

www.apex-ehs.com

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Apex Project Number 0119-09

May 19, 2019

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

Reference: Asbestos and Lead-Based Paint Assessment Services
575 Farley Avenue
Spartanburg, South Carolina 29301

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
575 FARLEY AVENUE
SPARTANBURG, SOUTH CAROLINA 29301

APEX PROJECT NO. 0119-09

TABLE OF CONTENTS

SECTION

SECTION I

Asbestos & Lead Evaluation Report

ASBESTOS EVALUATION REPORT
APEX PROJECT NUMBER: 0119-09

Date:	5/19/2019	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:	575 Farley Avenue Spartanburg, SC 29301		
Assessor:	Tom Oliver	Date of Assessment:	5/3/2019
Company:	Apex Environmental Management 7 Winchester Court Mauldin, SC 29662	Phone Number:	(864) 404-3210
Purpose of Assessment:	Demolition	Age of Structure:	Approximately 120 years
Building Type:	Residential	Number of Stories:	1
Foundation:	Brick Crawlspace	Approximate Square Footage	1,425 SF

EXTERIOR BUILDING MATERIALS

- Pitched wooden with roof shingles, tar & felt.
- Vinyl siding over styrofoam and wooden siding.
- Wooden windows with glazing.
- Wooden doors with no caulk.
- Portions of the roof and front porch are unstable, leaning and collapsing.
- 2 chimney's with tar – assumed positive as ACM.

INTERIOR BUILDING MATERIALS

- Drywall with joint compound & tape throughout.
- Popcorn ceiling texture throughout.
- Multiple types & layers of vinyl flooring with & without mastics.
- Carpet over wooden floors.
- A portion of the floors in the front right bedroom are unstable and collapsing.

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 EMSL Analytical, Inc. (EMSL) as an NVLAP certified laboratory, their accreditation number is 200841-0.
- 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-eight (28) bulk samples were collected during the survey and submitted to EMSL in Pineville, 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). EMSL participates in the National Voluntary Laboratory Accreditation Program (NVLAP). Their NVLAP accreditation number is 200841-0. 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. 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 demolition activities.

Provided below is a general discussion of the asbestos containing materials identified in the residence. 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 400 SF of brown hexagon pattern vinyl flooring in the front hallway, back right bedroom, kitchen & laundry room.
- Approximately 50 SF of tan paisley pattern vinyl floor in the bathroom.
- Approximately 12 LF of tar on 2 chimneys – assumed positive.
- The square footages referenced above should be field verified prior to bidding.

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 are included in the LBP Analysis Report in Appendix II of this report. The approximate locations of the paint samples collected and analytical results are presented in the *LBP Data Table* included in Appendix II of this report.

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

Exterior:

- White wooden siding & front porch ceiling under vinyl.
- White wooden front porch columns.
- Green wooden windows.
- Wooden window casings under metal coverings.
- Black wooden doors & door casings.
- Soffits & fascia's under vinyl.

Interior:

- White wooden wainscoting, doors, fireplaces & mantles, base boards, windows & window casings.
- Grey wooden book case.

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.

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.

Lead-Based Paint

Currently SCDHEC defines LBP as paint containing greater than 1.0 milligrams 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.

Changes to SC DHEC and federal regulations have changed the disposal options for LBP waste and LBP residue. LBP waste is defined as material such as wood, brick, metal, etc. that is coated with LBP. LBP residue is defined as residue that is generated from the removal (scraped, chipped, sandblasted, chemical means, etc.) of LBP from a structure. The regulations allow LBP waste from residential and commercial structures to be disposed of in Class 2 (construction and demolition debris) and Class 3 (municipal solid waste or industrial) landfills in South Carolina. The management of LBP residue is based on the source and lead concentration characterized by Toxic Characteristic Leaching Procedures (TCLP) to determine if the waste is classified as hazardous or non-hazardous. LBP residues that have TCLP sample results less than 5 milligrams per liter (mg/L) lead may be disposed of in a Class 3 landfill and is considered to be non-hazardous. LBP residues that have TCLP sample results equal to or greater than 5 mg/L lead should be disposed of in a Subtitle C landfill and is considered to be hazardous. 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 575 Farley Avenue ACM/LBP

Sampled By: Tom Oliver

Project Location: 575 Farley Avenue, Spartanburg, South Carolina 29301

Project Manager: Tom Oliver

Project Number: 0119-09

Date: 5/3/2019

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
1	Roof	Roof shingles (1 layer) with tar & felt	PLM - NAD	Non-Friable	Good	2,000 SF
2						
3			TEM - NAD			
4	Wooden windows	Window glazing	PLM - NAD	Non-Friable	Good	7 EA
5						
6			TEM - NAD			
7	Throughout	Drywall with joint compound & tape	PLM - NAD	Friable	Good	3,500 SF
8						
9						
10						
11						
12	Throughout	Popcorn ceiling texture	PLM - NAD	Friable	Significantly Damaged	1,425 SF
13						
14						
15						
16						
17	**Front hallway, back right bedroom, kitchen & laundry room**	**Brown hexagon pattern vinyl floor with brown mastic**	**PLM - 10% chry (flooring)** NAD (mastic)	**Non-Friable**	**Good**	**400 SF**
18						
19			TEM - 0.86% chry			
20	**Bathroom**	**Tan paisley pattern vinyl floor with adhesive**	**PLM - 10% chry (flooring)** NAD (mastic)	**Non-Friable**	**Good**	**50 SF**
21						
22			TEM - 0.81% chry			
23	Middle back room at the end of the front hallway (under carpet)	Green streaked pattern vinyl floor with no mastic (1st layer)	PLM - NAD	Non-Friable	Good	150 SF
24						
25			TEM - NAD			

ASBESTOS SURVEY FIELD DATA SHEET
PLM & TEM ANALYSIS

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Sampled By: Tom Oliver

Project Location: 575 Farley Avenue, Spartanburg, South Carolina 29301

Project Manager: Tom Oliver

Project Number: 0119-09

Date: 5/3/2019

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
26	Middle back room at the end of the front hallway (under carpet)	Brown pattern vinyl floor with no mastic (2nd layer)	PLM - NAD	Non-Friable	Good	150 SF
27						
28			TEM - NAD			
Assumed	**Chimney's**	**2 Chimney's with tar**	**Assumed**	**Non-Friable**	**Good**	**12 LF**

NAD = No Asbestos Detected
LF = Linear Feet
EA = Each
Amos = Amosite

Bold = Positive For Asbestos
SF = Square Feet
Chry = Chrysotile
FT3 = Cubic Feet

FIELD DATA SHEET
XRF LBP ANALYSIS

Project Name: COS 575 Farley Avenue ACM/LBP

Sampled By: Tom Oliver

Project Location: 575 Farley Avenue, Spartanburg, SC 29301

Project Manager: Tom Oliver

Project Number: 0119-09

Date: 5/17/2019

Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/m^3)
1	Calibration				1.13
2	Calibration				1.08
3	Calibration				1.12
4	**Exterior**	**Siding**	**White**	**Wood**	**2.08**
5	**Exterior**	**Front porch column**	**White**	**Wood**	**1.82**
6	**Exterior**	**Window**	**Green**	**Wood**	**1.98**
7	**Exterior**	**Window casing**	**White**	**FFM**	**3.32**
8	Exterior	Front porch trim	White	FFM	0.06
9	**Exterior**	**Front porch ceiling**	**White**	**FFV**	**2.31**
10	Exterior	Front porch floor	Green	Wood	0.00
11	Exterior	Front porch floor skirt	Green	Wood	0.00
12	**Exterior**	**Door**	**Black**	**Wood**	**1.58**
13	**Exterior**	**Door casing**	**Black**	**Wood**	**1.02**
14	Exterior	Foundation	Green	Brick	0.00
15	Exterior	Back porch framing	White	Wood	0.53
16	**Exterior**	**Soffit**	**White**	**FFV**	**2.68**
17	**Exterior**	**Fascia**	**White**	**FFV**	**2.62**
18	Interior	Wall	White	Drywall	0.23
19	Interior	Ceiling	White	Drywall	0.00
20	**Interior**	**Wainscoting**	**White**	**Wood**	**1.36**
21	**Interior**	**Door**	**White**	**Wood**	**1.49**
22	Interior	Door casing	White	Wood	0.46
23	**Interior**	**Fireplace**	**White**	**Wood**	**3.51**
24	**Interior**	**Fireplace mantle**	**White**	**Wood**	**1.77**
25	**Interior**	**Base board**	**White**	**Wood**	**3.08**

FIELD DATA SHEET
XRF LBP ANALYSIS

Project Name: COS 575 Farley Avenue ACM/LBP

Sampled By: Tom Oliver

Project Location: 575 Farley Avenue, Spartanburg, SC 29301

Project Manager: Tom Oliver

Project Number: 0119-09

Date: 5/17/2019

Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/m^3)
26	**Interior**	**Window**	**White**	**Wood**	**3.54**
27	**Interior**	**Window casing**	**White**	**Wood**	**4.16**
28	**Interior**	**Book case**	**Grey**	**Wood**	**1.33**
29	Interior	Bath tub	White	Fiberglass	0.00
30	Interior	Wainscoting	Grey	Wood	0.22
31	Interior	Door casing	Grey	Wood	0.80
32	Interior	Window	Grey	Wood	0.45
33	Interior	Window casing	Grey	Wood	0.76
34	Interior	Base board	Grey	Wood	0.00
35	Interior	Wall	Yellow	Drywall	0.00
36	Interior	Door	Grey	Wood	0.77
45	Calibration				1.18
46	Calibration				1.08
47	Calibration				1.15

Bold = LBP FFM = Factory Finish Metal FFM = Factory Finish Vinyl

SECTION III

Laboratory Analytical Results & Chain of Custody

EMSL Analytical, Inc.

10801 Southern Loop Blvd Pineville, NC 28134

Tel/Fax: (704) 525-2205 / (704) 525-2382

http://www.EMSL.com / charlottelab@emsl.com

EMSL Order:	411904153
Customer ID:	AXEM25
Customer PO:	
Project ID:	City of Spartanburg

Attention:	Tom Oliver	**Phone:**	(864) 640-5274
	Apex Environmental Management	**Fax:**	
	7 Winchester Court	**Received Date:**	05/06/2019 8:05 AM
	Mauldin, SC 29662	**Analysis Date:**	05/10/2019 - 05/11/2019
		Collected Date:	05/03/2019

Project: 0119-09 COS 575 Farley Ave. (City of Spartanburg)

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
1-Shingle *411904153-0001*	Roof Shingles (1 Layer) w/ Tar & Felt	Black Fibrous Homogeneous	5% Glass	5% Quartz 20% Ca Carbonate 70% Non-fibrous (Other)	None Detected
1-Tar *411904153-0001A*	Roof Shingles (1 Layer) w/ Tar & Felt	Black Non-Fibrous Homogeneous	1% Cellulose	99% Non-fibrous (Other)	None Detected
1-Felt *411904153-0001B*	Roof Shingles (1 Layer) w/ Tar & Felt	Black Fibrous Homogeneous	40% Cellulose	60% Non-fibrous (Other)	None Detected
2-Shingle *411904153-0002*	Roof Shingles (1 Layer) w/ Tar & Felt	Black Fibrous Homogeneous	5% Glass	8% Quartz 15% Ca Carbonate 72% Non-fibrous (Other)	None Detected
2-Tar *411904153-0002A*	Roof Shingles (1 Layer) w/ Tar & Felt	Black Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
2-Felt *411904153-0002B*	Roof Shingles (1 Layer) w/ Tar & Felt	Black Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
4 *411904153-0003*	Window Glazing	Tan Non-Fibrous Homogeneous		20% Ca Carbonate 80% Non-fibrous (Other)	None Detected
5 *411904153-0004*	Window Glazing	Tan Non-Fibrous Homogeneous		20% Ca Carbonate 80% Non-fibrous (Other)	None Detected
7-Drywall *411904153-0005*	Drywall w/ Joint Compound & Tape Walls & Ceilings	Brown/Gray Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
7-Joint Compound *411904153-0005A*	Drywall w/ Joint Compound & Tape Walls & Ceilings	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
7-Tape *411904153-0005B*	Drywall w/ Joint Compound & Tape Walls & Ceilings	Tan Fibrous Homogeneous	100% Cellulose		None Detected
8-Drywall *411904153-0006*	Drywall w/ Joint Compound & Tape Walls & Ceilings	Brown/Gray Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
8-Joint Compound *411904153-0006A*	Drywall w/ Joint Compound & Tape Walls & Ceilings	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
8-Tape *411904153-0006B*	Drywall w/ Joint Compound & Tape Walls & Ceilings	Tan Fibrous Homogeneous	100% Cellulose		None Detected
9-Drywall *411904153-0007*	Drywall w/ Joint Compound & Tape Walls & Ceilings	Brown/Gray Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
9-Joint Compound *411904153-0007A*	Drywall w/ Joint Compound & Tape Walls & Ceilings	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected

Initial report from: 05/11/2019 14:43:45

EMSL Analytical, Inc.
10801 Southern Loop Blvd Pineville, NC 28134
Tel/Fax: (704) 525-2205 / (704) 525-2382
http://www.EMSL.com / charlottelab@emsl.com

EMSL Order: 411904153
Customer ID: AXEM25
Customer PO:
Project ID: City of Spartanburg

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
9-Tape *411904153-0007B*	Drywall w/ Joint Compound & Tape Walls & Ceilings	Tan Fibrous Homogeneous	99% Cellulose	1% Non-fibrous (Other)	None Detected
10-Drywall *411904153-0008*	Drywall w/ Joint Compound & Tape Walls & Ceilings	Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
10-Joint Compound *411904153-0008A*	Drywall w/ Joint Compound & Tape Walls & Ceilings	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
10-Tape *411904153-0008B*	Drywall w/ Joint Compound & Tape Walls & Ceilings	Tan Fibrous Homogeneous	99% Cellulose	1% Non-fibrous (Other)	None Detected
11-Drywall *411904153-0009*	Drywall w/ Joint Compound & Tape Walls & Ceilings	Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
11-Joint Compound *411904153-0009A*	Drywall w/ Joint Compound & Tape Walls & Ceilings	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
11-Tape *411904153-0009B*	Drywall w/ Joint Compound & Tape Walls & Ceilings	Tan Fibrous Homogeneous	99% Cellulose	1% Non-fibrous (Other)	None Detected
12 *411904153-0010*	Popcorn Ceiling Texture	Tan/White Non-Fibrous Homogeneous		40% Ca Carbonate 5% Mica 55% Non-fibrous (Other)	None Detected
13 *411904153-0011*	Popcorn Ceiling Texture	Tan/White Non-Fibrous Homogeneous		40% Ca Carbonate 5% Mica 55% Non-fibrous (Other)	None Detected
14 *411904153-0012*	Popcorn Ceiling Texture	White Non-Fibrous Homogeneous		40% Ca Carbonate 5% Mica 55% Non-fibrous (Other)	None Detected
15 *411904153-0013*	Popcorn Ceiling Texture	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
16 *411904153-0014*	Popcorn Ceiling Texture	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
17-Flooring *411904153-0015*	Brown Hexagon Pattern Vinyl Floor w/ Brown Mastic	Brown/Gray Fibrous Homogeneous	5% Cellulose	85% Non-fibrous (Other)	10% Chrysotile
17-Mastic *411904153-0015A*	Brown Hexagon Pattern Vinyl Floor w/ Brown Mastic	Brown/White Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
18-Flooring *411904153-0016*	Brown Hexagon Pattern Vinyl Floor w/ Brown Mastic				Positive Stop (Not Analyzed)
18-Mastic *411904153-0016A*	Brown Hexagon Pattern Vinyl Floor w/ Brown Mastic	Brown Non-Fibrous Homogeneous	1% Cellulose	99% Non-fibrous (Other)	None Detected
20-Flooring *411904153-0017*	Tan Paisley Pattern Vinyl Floor w/ Adhesive	Gray/Tan Fibrous Homogeneous	5% Cellulose	85% Non-fibrous (Other)	10% Chrysotile
20-Mastic *411904153-0017A*	Tan Paisley Pattern Vinyl Floor w/ Adhesive	Brown Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
21-Flooring *411904153-0018*	Tan Paisley Pattern Vinyl Floor w/ Adhesive				Positive Stop (Not Analyzed)

Initial report from: 05/11/2019 14:43:45

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EMSL Order: 411904153
Customer ID: AXEM25
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Project ID: City of Spartanburg

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
21-Mastic *411904153-0018A*	Tan Paisley Pattern Vinyl Floor w/ Adhesive	Brown Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
23 *411904153-0019*	Green Streaked Vinyl Floor w/ No Mastic - 1st Layer under Carpet	Tan/Red/Black Fibrous Homogeneous	50% Cellulose	50% Non-fibrous (Other)	None Detected
24 *411904153-0020*	Green Streaked Vinyl Floor w/ No Mastic - 1st Layer under Carpet	Tan/Red Fibrous Homogeneous	50% Cellulose	50% Non-fibrous (Other)	None Detected
26 *411904153-0021*	Brown Pattern Vinyl Floor w/ No Mastic - 2nd Layer under Carpet	Tan/Black Fibrous Homogeneous	50% Cellulose	50% Non-fibrous (Other)	None Detected
27 *411904153-0022*	Brown Pattern Vinyl Floor w/ No Mastic - 2nd Layer under Carpet	Tan/Black Fibrous Homogeneous	50% Cellulose	50% Non-fibrous (Other)	None Detected

Analyst(s)
Katherine Sluder (22)
Lacy Searcy (16)

Lee Plumley, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method"), but augmented with procedures outlined in the 1993 ("final") version of the method. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. All samples received in acceptable condition unless otherwise noted. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL recommends gravimetric reduction for all non-friable organically bound materials prior to analysis. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Pineville, NC NVLAP Lab Code 200841-0, VA 3333 00312

Initial report from: 05/11/2019 14:43:45

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10801 Southern Loop Blvd Pineville, NC 28134
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EMSL Order: 411904153
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Project ID: City of Spartanburg

Attention: Tom Oliver
Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

Phone: (864) 640-5274
Fax:
Received Date: 05/06/2019 8:05 AM
Analysis Date: 05/14/2019
Collected Date: 05/03/2019

Project: 0119-09 COS 575 Farley Ave. (City of Spartanburg)

Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via EPA/600/R-93/116 Section 2.5.5.1

Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
3-Shingle *411904153-0023*	Roof Shingles (1 Layer) w/ Tar & Felt	Black Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
3-Tar *411904153-0024*	Roof Shingles (1 Layer) w/ Tar & Felt	Black Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
3-Felt *411904153-0025*	Roof Shingles (1 Layer) w/ Tar & Felt	Black Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
6 *411904153-0026*	Window Glazing	Tan/White Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
19-Mastic *411904153-0027*	Brown Hexagon Pattern Vinyl Floor w/ Brown Mastic	Brown Non-Fibrous Homogeneous	100.0 Other	None	<0.86% Chrysotile
22-Mastic *411904153-0028*	Tan Paisley Pattern Vinyl Floor w/ Adhesive	Tan Non-Fibrous Homogeneous	100.0 Other	None	<0.81% Chrysotile
25 *411904153-0029*	Green Streaked Vinyl Floor w/ No Mastic - 1st Layer under Carpet	Gray/Black Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
28 *411904153-0030*	Brown Pattern Vinyl Floor w/ No Mastic - 2nd Layer under Carpet	Brown/Black Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected

Analyst(s)

Aaron Hartley (8)

Lee Plumley, Laboratory Manager
or other approved signatory

Samples analyzed by EMSL Analytical, Inc. Pineville, NC

Initial report from: 05/14/2019 12:57:01

OrderID: 411904153

EMSL Analytical, Inc.
10801 Southern Loop Blvd

Pineville, NC 28134
PHONE: (704) 525-2205
FAX: (704) 525-2382

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number *(Lab Use Only)*: 411904153

Company: Apex Environmental Management, Inc.	**EMSL-Bill to:** ☑ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*
Street: 7 Winchester Court	
City: Mauldin **State/Province:** SC	**Zip/Postal Code:** 29662 **Country:** US
Report To (Name): Tom Oliver	**Telephone #:** 864-404-3210
Email Address: toliver@apex-ehs.com	**Fax #:** 864-404-3213 **Purchase Order:**
Project Name/Number: 0119-09 COS 575 Farley Ave	**Please Provide Results:** ☐ Fax ☑ Email ☐ Mail
U.S. State Samples Taken: SC	**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☑ 1 Week ☐ 2 Week

*For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

PLM - Bulk (reporting limit)	TEM – Bulk
☑ PLM EPA 600/R-93/116 (<1%)	☑ TEM EPA NOB – EPA 600/R-93/116 Section 2.5.5.1
☐ PLM EPA NOB (<1%)	☐ NY ELAP Method 198.4 (TEM)
Point Count ☐ 400 (<0.25%) ☐ 1000 (<0.1%)	☐ Chatfield Protocol (semi-quantitative)
Point Count w/Gravimetric ☐ 400 (<0.25%) ☐ 1000 (<0.1%)	☐ TEM % by Mass – EPA 600/R-93/116 Section 2.5.5.2
☐ NIOSH 9002 (<1%)	☐ TEM Qualitative via Filtration Prep Technique
☐ NY ELAP Method 198.1 (friable in NY)	☐ TEM Qualitative via Drop Mount Prep Technique
☐ NY ELAP Method 198.6 NOB (non-friable-NY)	**Other**
☐ OSHA ID-191 Modified	☐
☐ Standard Addition Method	

☑ **Check For Positive Stop – Clearly Identify Homogenous Group** **Date Sampled:** 5-3-19

Samplers Name: Tom Oliver **Samplers Signature:**

Sample #	HA #	Sample Location	Material Description
1		Roof shingles (1 layer) w/ tar	PLM
2		& felt	1
3		1	TEM
4		Window glazing	PLM
5		1	1
6		1	TEM
7		Drywall w/ joint compound	PLM
8		& tape walls & ceilings	1
9		1	1
10		1	1

Client Sample # (s): 1-28 **Total # of Samples:** 28

Relinquished (Client): **Date:** 5-3-19 **Time:** 4:30 PM

Received (Lab): Kyle Nelson **Date:** 5/6/19 **Time:** 8:05AM FX

Comments/Special Instructions:

Positive stop on analysis. If joint compound on drywall is positive, then positive stop on drywall and tape layers. Bill according to Special City of Spartanburg project Pricing & Layering.

7957 1279 6968

OrderID: 411904153

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10801 Southern Loop Blvd

Pineville, NC 28134
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Asbestos Bulk Building Material Chain of Custody

EMSL Order Number *(Lab Use Only)*: 411904153

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	HA #	Sample Location	Material Description
11		Drywall w/ joint compound + tape walls + ceilings	PLM
12		Popcorn ceiling texture	PLM
13		"	"
14		"	"
15		"	"
16		"	"
17		Brown hexagon pattern	PLM
18		vinyl floor w/ brown mastic	1
19		"	TEM
20		Tan paisley pattern vinyl	PLM
21		floor w/ adhesive	1
22		"	TEM
23		Green streaked vinyl floor	PLM
24		w/ no mastic - 2nd layer	1
25		under carpet 1	TEM
26		Brown pattern vinyl floor	PLM
27		w/ no mastic - 2nd layer	1
28		under carpet 1	TEM

*Comments/Special Instructions:

Positive stop on analysis. If joint compound on drywall is positive, then positive stop on drywall and tape layers. Bill according to Special City of Spartanburg project Pricing & Layering.

SECTION IV

Photographic Log


Photo 1 – 575 Farley Avenue in Spartanburg, South Carolina


Photo 2 – Roof shingles with tar & felt on the roof


Photo 3 – 1 chimney with tar – assumed positive


Photo 4 – 2nd chimney with tar – assumed positive


Photo 5 – Wooden window glazing


Photo 6 – Drywall with joint compound & tape throughout

Photo 7 – Popcorn ceiling texture throughout

Photo 8 – Brown hexagon pattern vinyl floor & brown mastic in the front hallway, back right bedroom, kitchen & laundry room

Photo 9 – Tan paisley pattern vinyl floor with adhesive in the bathroom

Photo 10 – Green streaked pattern over brown pattern vinyl floors with no mastics (2 layers) in the middle back room at the end of the front hallway (under carpet)

Photo 11 – Unstable & collapsing flooring in the front right bedroom

SECTION V

SC DHEC Asbestos Inspector License

SCDHEC ISSUED

Asbestos ID Card

Thomas H Oliver

		Expiration Date:
AIRSAMPLER	AS-00202	04/04/19
CONSULTBI	BI-00680	01/18/20