



Asbestos & Lead Based Paint Assessment

City of Spartanburg
800 South Church Street
Spartanburg, South Carolina 29303

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: 0118-14

November 21, 2018





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

Reference: Asbestos and Lead-Based Paint Assessment Services
800 South Church Street
Spartanburg, South Carolina 29303

SERVICES

- Indoor Air Quality
- Mold Remediation
- Asbestos & Lead
- Industrial Hygiene
- Worker Health & Safety
- Mold Consulting
- Moisture Management Plans
- Safety Assessment
- Environmental Site Assessments
- Hazard Communication

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.

A handwritten signature in blue ink, appearing to read 'Tom Oliver', is written over a horizontal line.

Tom Oliver
Director of Operations

Appendices

ASBESTOS AND LEAD BASED PAINT ASSESSMENT

**CITY OF SPARTANBURG
800 SOUTH CHURCH STREET
SPARTANBURG, SOUTH CAROLINA 29303**

APEX PROJECT NO. 0118-14

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SECTION I

Asbestos & Lead Evaluation Report

ASBESTOS EVALUATION REPORT APEX PROJECT NUMBER: 0118-14
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Date:	11/21/2018	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:	800 South Church Street Spartanburg, SC 29303		
Assessor:	Ted Shultz	Date of Assessment:	10/19/2018
Company:	Apex Environmental Management 7 Winchester Court Mauldin, SC 29662	Phone Number:	(864) 404-3210
Purpose of Assessment:	Demolition	Age of Structure:	Approximately 60 years
Building Type:	Residential	Number of Stories:	1
Foundation:	Crawlspace	Approximate Square Footage:	1,500 SF

EXTERIOR BUILDING MATERIALS

- Pitched wooden with multiple types of roof shingles & no felt.
- Cement board siding with felt paper over wooden siding.
- Red brick pattern roll shingle siding.
- Tan brick pattern vinyl floor with no mastic used as exterior siding.
- Wooden doors with no caulk.
- Wooden windows with glazing.
- Metal windows with no caulk or glazing.
- Tar on 2 chimneys. 1 chimney is attached to the front of the house and 1 chimney is on the ground at the back of the house.

INTERIOR BUILDING MATERIALS

- Drywall with joint compound & tape sporadically throughout the house.
- Wooden ceilings, walls & floors.
- Wooden 12" x 12" and 2' x 4' ceiling tiles with no mastics.
- A portion of the floors are unstable and collapsed.
- Large amount of household items & debris throughout the house.

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. Forty-four (44) 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). Twenty (20) 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. 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 1,150 SF of drywall system sporadically throughout the residence.
- Approximately 1,700 SF of exterior cement board siding.
- Approximately 12 LF of tar on 2 chimneys. 1 chimney is attached to the front of the house and the other chimney is on the ground at the back of the house.

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 ($30 \mu\text{g}/\text{m}^3$) during an eight-hour workday and a permissible exposure level of fifty micrograms per cubic meter ($50 \mu\text{g}/\text{m}^3$) for employees.

Currently, SCDHEC defines LBP as paint containing in excess of, or equal to, $1.0 \text{ mg}/\text{cm}^2$. 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:

Interior:

- Brown wooden window systems.

Interior:

- White wooden siding.
- White wooden doors and door frames.
- White wooden cabinets.
- Tan wooden doors and door frames.

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 the South Carolina Department of Health and Environmental Control (SCDHEC) define 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. 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 $0.1 \text{ mg}/\text{cm}^2$ or above to satisfy the OSHA requirements. If a baseline exposure lower than the OSHA Action Level of 30 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) 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 800 South Church Street ACM/LBP

Sampled By: Ted Shultz

Project Location: 800 S. Church Street, Spartanburg, South Carolina 29303

Project Manager: Tom Oliver

Project Number: 0118-14

Date: 10/19/2018

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
1	Kitchen	5 layers of vinyl flooring with no mastic	PLM - NAD	Non-Friable	Good	150 SF
2			TEM - NAD			
3						
4	Front left room off of the kitchen entry door	Tan square pattern vinyl floor with no mastic	PLM - NAD	Non-Friable	Good	55 SF
5			TEM - NAD			
6						
7	Front left room off of the kitchen entry door	Black flooring material with no mastic	PLM - NAD	Friable	Significantly Damaged	115 SF
8			TEM - NAD			
9						
10	Throughout	Drywall with joint compound & tape	PLM - 2% chrysotile	Friable	Good	1,150 SF
11						
12						
13						
14						
15	Dining room under carpet	2 layers of vinyl floor with no mastic	PLM - NAD	Non-Friable	Good	110 SF
16			TEM - NAD			
17						
18	Living room under carpet	2 layers of vinyl floor with no mastic	PLM - NAD	Non-Friable	Good	150 SF
19			TEM - NAD			
20						
21	Exterior siding	Red brick pattern roll shingle siding	PLM - NAD	Non-Friable	Good	1,700 SF
22			TEM - NAD			
23						

**ASBESTOS SURVEY FIELD DATA SHEET
PLM & TEM ANALYSIS**

Project Name: COS 800 South Church Street ACM/LBP

Sampled By: Ted Shultz

Project Location: 800 S. Church Street, Spartanburg, South Carolina 29303

Project Manager: Tom Oliver

Project Number: 0118-14

Date: 10/19/2018

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
24	Exterior Windows	Window glazing	PLM - NAD	Non-Friable	Good	15 EA
25			TEM - NAD			
26						
27	Exterior siding	Cement board siding	15% chrysotile	Non-Friable	Good	1,700 SF
28						
29						
30	Exterior siding	Felt paper under cement board siding	PLM - NAD	Non-Friable	Good	1,700 SF
31			TEM - NAD			
32						
33	Chimney tar (2 Chimney's)	Tar on chimney's (1is attached to the front house & 1 is on the ground at the back of house)	2% chrysotile	Non-Friable	Good	12 LF
34						
35						
36	Roof - left addition	Roll roofing (2 layers) with no felt	PLM - NAD	Non-Friable	Good	675 SF
37			TEM - NAD			
38						
39	Roof - main	Red, green & black roof shingles (3 layers) with no felt	PLM - NAD	Non-Friable	Good	1,200 SF
40			TEM - NAD			
41						
42	Exterior siding on gap in crawlspace	Tan brick pattern roll vinyl floor with no mastic used as exterior siding	PLM - NAD	Non-Friable	Good	100 SF
43			TEM - NAD			
44						

NAD = No Asbestos Detected

LF = Linear Feet

EA = Each

Amos = Amosite

Bold = Positive For Asbestos

SF = Square Feet

Chry = Chrysotile

**FIELD DATA SHEET
LBP ANALYSIS**

Project Name: COS 800 South Church Street ACM/LBP

Sampled By: Ted Shultz

Project Location: 800 South Church Street, Spartanburg, SC 29303

Project Manager: Tom Oliver

Project Number: 0118-14

Date: 11/15/2018

Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/m ³)
1	Standardization				185
2	Calibration				1.11
3	Calibration				1.15
4	Calibration				1.13
5	Exterior	Siding	Tan	Transite	0.00
6	Exterior	Door Frame	Brown	Wood	0.00
7	Exterior	Door Frame	Blue	Wood	0.00
8	Exterior	Door	Brown	Metal	0.00
9	Kitchen	Door	White	Wood	0.00
10	Kitchen	Siding	White	Wood	5.00
11	Bathroom	Door Frame	White	Wood	3.06
12	Kitchen	Door	White	Wood	1.50
13	Kitchen	Door Frame	White	Wood	0.00
14	Kitchen	Wall	White	Drywall	0.00
15	Kitchen	Wall	White	Drywall	Insufficient
16	Kitchen	Cabinet	White	Wood	Insufficient
17	Kitchen	Cabinet	White	Wood	1.00
18	Bathroom Addition	Wall	White	Drywall	0.00
19	Bathroom Addition	Shelf	Tan	Wood	0.00
20	Bathroom Addition	Window Frame	Tan	Wood	0.10
21	Bathroom Addition	Window Sill	Tan	Wood	0.07
22	Dining Room	Wall	White	Wood	0.00
23	Living Room	Wall	Tan	Drywall	0.00
24	Living Room	Door Frame	Tan	Wood	2.63
25	Bedroom	Door	White	Wood	1.79
26	Bedroom	Door Frame	Tan	Wood	2.39

**FIELD DATA SHEET
LBP ANALYSIS**

Project Name: COS 800 South Church Street ACM/LBP

Sampled By: Ted Shultz

Project Location: 800 South Church Street, Spartanburg, SC 29303

Project Manager: Tom Oliver

Project Number: 0118-14

Date: 11/15/2018

Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/m ³)
27	Kitchen	Cabinet	Green	Wood	0.00
28	Exterior	Window	Brown	Wood	3.85
29	Exterior	Awning	Brown	Metal	Insufficient
30	Exterior	Awning	Brown	Metal	1.00
31	Exterior	Siding	Brown	Wood	0.00
32	Exterior	Siding	Brown	Transite	0.00

Bold = LBP

SECTION III

Laboratory Analytical Results



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: 411809918

Customer ID: AXEM25

Customer PO:

Project ID:

Attention: Rebecca Shultz
Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

Phone: (864) 404-3210

Fax:

Received Date: 10/22/2018 8:40 AM

Analysis Date: 10/27/2018

Collected Date:

Project: COS 800 S. Church St.

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1-Flooring 1 <small>411809918-0001</small>	Kitchen - 5 Layer Vinyl Flooring	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
1-Flooring 2 <small>411809918-0001A</small>	Kitchen - 5 Layer Vinyl Flooring	Brown/Black Fibrous Homogeneous	40% Cellulose 4% Synthetic	56% Non-fibrous (Other)	None Detected
1-Flooring 3 <small>411809918-0001B</small>	Kitchen - 5 Layer Vinyl Flooring	Brown/Black Fibrous Homogeneous	40% Cellulose 4% Synthetic	56% Non-fibrous (Other)	None Detected
1-Flooring 4 <small>411809918-0001C</small>	Kitchen - 5 Layer Vinyl Flooring	Brown/Black Fibrous Homogeneous	40% Cellulose 4% Synthetic	56% Non-fibrous (Other)	None Detected
1-Flooring 5 <small>411809918-0001D</small>	Kitchen - 5 Layer Vinyl Flooring	Brown/Black Fibrous Homogeneous	40% Cellulose 4% Synthetic	56% Non-fibrous (Other)	None Detected
2-Flooring 1 <small>411809918-0002</small>	Kitchen - 5 Layer Vinyl Flooring	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
2-Flooring 2 <small>411809918-0002A</small>	Kitchen - 5 Layer Vinyl Flooring	Gray/Tan/Black Fibrous Heterogeneous	30% Cellulose 3% Synthetic	67% Non-fibrous (Other)	None Detected
2-Flooring 3 <small>411809918-0002B</small>	Kitchen - 5 Layer Vinyl Flooring	Gray/Black Non-Fibrous Homogeneous	30% Cellulose 3% Synthetic	67% Non-fibrous (Other)	None Detected
2-Flooring 4 <small>411809918-0002C</small>	Kitchen - 5 Layer Vinyl Flooring	Gray/Tan/White Fibrous Heterogeneous	30% Cellulose 3% Synthetic	67% Non-fibrous (Other)	None Detected
2-Flooring 5 <small>411809918-0002D</small>	Kitchen - 5 Layer Vinyl Flooring	Brown/Black Fibrous Heterogeneous	40% Cellulose 5% Synthetic	55% Non-fibrous (Other)	None Detected
4 <small>411809918-0003</small>	Front Left Room - Tan Square Vinyl Floor	Tan Non-Fibrous Homogeneous	2% Cellulose 4% Glass	25% Ca Carbonate 69% Non-fibrous (Other)	None Detected
5 <small>411809918-0004</small>	Front Left Room - Tan Square Vinyl Floor	Gray/Tan Fibrous Heterogeneous	8% Cellulose	40% Ca Carbonate 52% Non-fibrous (Other)	None Detected
7 <small>411809918-0005</small>	Front Left Room - Black Vinyl Material	Black Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
8 <small>411809918-0006</small>	Front Left Room - Black Vinyl Material	Gray/Black Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
10-Drywall <small>411809918-0007</small>	Throughout - Drywall and JC	Brown/Gray Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
10-Joint Compound <small>411809918-0007A</small>	Throughout - Drywall and JC	Tan Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile

Initial report from: 10/28/2018 13:27:09



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: 411809918
Customer ID: AXEM25
Customer PO:
Project ID:

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
10-Tape <small>411809918-0007B</small>	Throughout - Drywall and JC	Tan Fibrous Homogeneous	100% Cellulose		None Detected
11-Drywall <small>411809918-0008</small>	Throughout - Drywall and JC	Brown/Gray Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
11-Joint Compound <small>411809918-0008A</small>	Throughout - Drywall and JC				Positive Stop (Not Analyzed)
12-Drywall <small>411809918-0009</small>	Throughout - Drywall and JC	Brown/Gray Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
12-Joint Compound <small>411809918-0009A</small>	Throughout - Drywall and JC				Positive Stop (Not Analyzed)
13-Drywall <small>411809918-0010</small>	Throughout - Drywall and JC	Gray Non-Fibrous Homogeneous	10% Cellulose 1% Glass	89% Non-fibrous (Other)	None Detected
13-Joint Compound <small>411809918-0010A</small>	Throughout - Drywall and JC				Positive Stop (Not Analyzed)
13-Tape <small>411809918-0010B</small>	Throughout - Drywall and JC	Gray Fibrous Homogeneous	100% Cellulose		None Detected
14-Drywall <small>411809918-0011</small>	Throughout - Drywall and JC	Gray Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
14-Joint Compound <small>411809918-0011A</small>	Throughout - Drywall and JC				Positive Stop (Not Analyzed)
15-Flooring 1 <small>411809918-0012</small>	Dining Room under Carpet - 2 Layers Vinyl Flooring	Brown/Black Fibrous Homogeneous	40% Cellulose 2% Synthetic	58% Non-fibrous (Other)	None Detected
15-Flooring 2 <small>411809918-0012A</small>	Dining Room under Carpet - 2 Layers Vinyl Flooring	Tan/Black/Blue Fibrous Homogeneous	40% Cellulose 2% Synthetic	5% Ca Carbonate 53% Non-fibrous (Other)	None Detected
16-Flooring 1 <small>411809918-0013</small>	Dining Room under Carpet - 2 Layers Vinyl Flooring	Brown/Black Fibrous Heterogeneous	50% Cellulose 3% Synthetic	47% Non-fibrous (Other)	None Detected
16-Flooring 2 <small>411809918-0013A</small>	Dining Room under Carpet - 2 Layers Vinyl Flooring	Brown/Black Non-Fibrous Homogeneous	30% Cellulose 3% Synthetic	67% Non-fibrous (Other)	None Detected
18-Flooring 1 <small>411809918-0014</small>	Living Room under Carpet - 2 Layers Vinyl Flooring	Black/Beige Fibrous Homogeneous	40% Cellulose 5% Synthetic	55% Non-fibrous (Other)	None Detected
18-Flooring 2 <small>411809918-0014A</small>	Living Room under Carpet - 2 Layers Vinyl Flooring	Brown/Black Fibrous Homogeneous	35% Cellulose 3% Synthetic	62% Non-fibrous (Other)	None Detected
19-Flooring 1 <small>411809918-0015</small>	Living Room under Carpet - 2 Layers Vinyl Flooring	Brown/Black Fibrous Heterogeneous	40% Cellulose 3% Synthetic	57% Non-fibrous (Other)	None Detected
19-Flooring 2 <small>411809918-0015A</small>	Living Room under Carpet - 2 Layers Vinyl Flooring	Brown/Black Fibrous Heterogeneous	40% Cellulose 3% Synthetic	57% Non-fibrous (Other)	None Detected
21 <small>411809918-0016</small>	Exterior - Red Brick Pattern Roll Siding	Red/Black Non-Fibrous Homogeneous	20% Cellulose	6% Quartz 74% Non-fibrous (Other)	None Detected

Initial report from: 10/28/2018 13:27:09



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Project ID:

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
22 <small>411809918-0017</small>	Exterior - Red Brick Pattern Roll Siding	Red/Black Fibrous Heterogeneous	25% Cellulose	8% Quartz 67% Non-fibrous (Other)	None Detected
24 <small>411809918-0018</small>	Exterior - Window Glazing	Beige Non-Fibrous Homogeneous	1% Fibrous (Other)	25% Ca Carbonate 74% Non-fibrous (Other)	None Detected
25 <small>411809918-0019</small>	Exterior - Window Glazing	Beige Non-Fibrous Homogeneous		20% Ca Carbonate 80% Non-fibrous (Other)	None Detected
27 <small>411809918-0020</small>	Exterior - Cement Board Siding	Gray Non-Fibrous Homogeneous		85% Non-fibrous (Other)	15% Chrysotile
28 <small>411809918-0021</small>	Exterior - Cement Board Siding				Positive Stop (Not Analyzed)
29 <small>411809918-0022</small>	Exterior - Cement Board Siding				Positive Stop (Not Analyzed)
30 <small>411809918-0023</small>	Exterior - Felt under Siding	Black Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
31 <small>411809918-0024</small>	Exterior - Felt under Siding	Black Non-Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
33 <small>411809918-0025</small>	Chimney - Chimney Tar	Black Non-Fibrous Homogeneous	15% Cellulose	83% Non-fibrous (Other)	2% Chrysotile
34 <small>411809918-0026</small>	Chimney - Chimney Tar				Positive Stop (Not Analyzed)
36-Shingle 1 <small>411809918-0027</small>	Roof Addition - Roll Roofing	Gray/Black Fibrous Homogeneous	10% Glass	10% Quartz 5% Ca Carbonate 75% Non-fibrous (Other)	None Detected
36-Shingle 2 <small>411809918-0027A</small>	Roof Addition - Roll Roofing	White/Black Fibrous Homogeneous	8% Glass	10% Quartz 6% Ca Carbonate 76% Non-fibrous (Other)	None Detected
37-Shingle 1 <small>411809918-0028</small>	Roof Addition - Roll Roofing	Gray/Black Fibrous Heterogeneous	5% Glass	10% Quartz 10% Ca Carbonate 75% Non-fibrous (Other)	None Detected
37-Shingle 2 <small>411809918-0028A</small>	Roof Addition - Roll Roofing	White/Black Non-Fibrous Homogeneous	5% Glass	10% Quartz 10% Ca Carbonate 75% Non-fibrous (Other)	None Detected
39-Shingle 1 <small>411809918-0029</small>	Main Roof - 3 Shingles & Felt	Gray/Black Fibrous Homogeneous	15% Glass	5% Quartz 15% Ca Carbonate 65% Non-fibrous (Other)	None Detected
39-Shingle 2 <small>411809918-0029A</small>	Main Roof - 3 Shingles & Felt	Black/Green Non-Fibrous Homogeneous	30% Cellulose 3% Synthetic	67% Non-fibrous (Other)	None Detected
39-Shingle 3 <small>411809918-0029B</small>	Main Roof - 3 Shingles & Felt	Red/Black Non-Fibrous Homogeneous	35% Cellulose 5% Synthetic	5% Quartz 55% Non-fibrous (Other)	None Detected
40-Shingle 1 <small>411809918-0030</small>	Main Roof - 3 Shingles & Felt	Gray/Black Fibrous Heterogeneous	5% Glass	10% Quartz 10% Ca Carbonate 75% Non-fibrous (Other)	None Detected
40-Shingle 2 <small>411809918-0030A</small>	Main Roof - 3 Shingles & Felt	Black/Green Fibrous Heterogeneous	20% Cellulose	8% Quartz 72% Non-fibrous (Other)	None Detected

Initial report from: 10/28/2018 13:27:09



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: 411809918
Customer ID: AXEM25
Customer PO:
Project ID:

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
40-Shingle 3 <small>411809918-0030B</small>	Main Roof - 3 Shingles & Felt	Red/Black Fibrous Heterogeneous	5% Cellulose	10% Quartz 10% Ca Carbonate 75% Non-fibrous (Other)	None Detected
42 <small>411809918-0031</small>	Exterior at Crawlspace - Tan Brick Pattern Roll Vinyl	Gray Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
43 <small>411809918-0032</small>	Exterior at Crawlspace - Tan Brick Pattern Roll Vinyl	Gray/Tan Fibrous Heterogeneous	15% Cellulose 2% Glass	83% Non-fibrous (Other)	None Detected

Analyst(s) _____

Aaron Hartley (27)

Eric Loomis (23)

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: 10/28/2018 13:27:09



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: 411809918

Customer ID: AXEM25

Customer PO:

Project ID: City of Spartanburg

Attention: Rebecca Shultz
Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

Phone: (864) 404-3210

Fax:

Received Date: 10/22/2018 8:40 AM

Analysis Date: 10/31/2018

Collected Date:

Project: COS 800 S. Church St. (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-Flooring-1 411809918-0033	Kitchen - 5 Layer Vinyl Flooring	Tan Fibrous Homogeneous	100	None	No Asbestos Detected
3-Flooring-2 411809918-0034	Kitchen - 5 Layer Vinyl Flooring	Brown/Black Fibrous Homogeneous	100	None	No Asbestos Detected
3-Flooring-3 411809918-0035	Kitchen - 5 Layer Vinyl Flooring	Brown/Black Fibrous Homogeneous	100	None	No Asbestos Detected
3-Flooring-4 411809918-0036	Kitchen - 5 Layer Vinyl Flooring	Brown/Black Fibrous Homogeneous	100	None	No Asbestos Detected
3-Flooring-5 411809918-0037	Kitchen - 5 Layer Vinyl Flooring	Brown/Black Fibrous Homogeneous	100	None	No Asbestos Detected
6 411809918-0038	Front Left Room - Tan Square Vinyl Floor	Gray Fibrous Homogeneous	100	None	No Asbestos Detected
9 411809918-0039	Front Left Room - Black Vinyl Material	Black Fibrous Homogeneous	100	None	No Asbestos Detected
17-Flooring 1 411809918-0040	Dining Room under Carpet - 2 Layers Vinyl Flooring	Brown/Black Fibrous Homogeneous	100	None	No Asbestos Detected
17-Flooring 2 411809918-0041	Dining Room under Carpet - 2 Layers Vinyl Flooring	Brown/Black Fibrous Homogeneous	100	None	No Asbestos Detected
20-Flooring 1 411809918-0042	Living Room under Carpet - 2 Layers Vinyl Flooring	Brown/Black Fibrous Homogeneous	100	None	No Asbestos Detected
20-Flooring 2 411809918-0043	Living Room under Carpet - 2 Layers Vinyl Flooring	Brown/Black Fibrous Homogeneous	100	None	No Asbestos Detected
23 411809918-0044	Exterior - Red Brick Pattern Roll Siding	Red/Black Fibrous Homogeneous	100	None	No Asbestos Detected

This laboratory is not responsible for % asbestos in total sample when the residue only is submitted for analysis. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Pineville, NC

Initial report from: 11/01/2018 08:56:32



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: 411809918
Customer ID: AXEM25
Customer PO:
Project ID: City of Spartanburg

Attention: Rebecca Shultz
 Apex Environmental Management
 7 Winchester Court
 Mauldin, SC 29662

Phone: (864) 404-3210
Fax:
Received Date: 10/22/2018 8:40 AM
Analysis Date: 10/31/2018
Collected Date:

Project: COS 800 S. Church St. (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
26 411809918-0045	Exterior - Window Glazing	Gray/White Non-Fibrous Homogeneous	100	None	No Asbestos Detected
32 411809918-0046	Exterior - Felt under Siding	Black Fibrous Homogeneous	100	None	No Asbestos Detected
38-Shingle 1 411809918-0047	Roof Addition - Roll Roofing	Gray/Black Fibrous Homogeneous	100	None	No Asbestos Detected
38-Shingle 2 411809918-0048	Roof Addition - Roll Roofing	White/Black Fibrous Homogeneous	100	None	No Asbestos Detected
41-Shingle 1 411809918-0049	Main Roof - 3 Shingles & Felt	Gray/Black Fibrous Homogeneous	100	None	No Asbestos Detected
41-Shingle 2 411809918-0050	Main Roof - 3 Shingles & Felt	Black/Green Fibrous Homogeneous	100	None	No Asbestos Detected
41-Shingle 3 411809918-0051	Main Roof - 3 Shingles & Felt	Red/Black Fibrous Homogeneous	100	None	No Asbestos Detected
44 411809918-0052	Exterior at Crawl Space - Tan Brick Pattern Roll Vinyl	Tan Fibrous Homogeneous	100	None	No Asbestos Detected

Analyst(s)

Derrick Young (20)

Lee Plumley, Laboratory Manager
 or other approved signatory

This laboratory is not responsible for % asbestos in total sample when the residue only is submitted for analysis. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Pineville, NC

Initial report from: 11/01/2018 08:56:32



Asbestos Bulk Building Material Chain of Custody

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

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

EMSL Order Number (Lab Use Only):

411809918

Company: Apex Environmental Management		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different <small>If Bill to is Different note instructions in Comments**</small>	
Street: 7 Winchester Court		<i>Third Party Billing requires written authorization from third party</i>	
City: Mauldin	State/Province: SC	Zip/Postal Code: 29662	Country: US
Report To (Name): Rebecca Shultz		Telephone #: 864-404-3210	
Email Address: rshultz@apex-ehs.com		Fax #:	Purchase Order:
Project Name/Number: COS 800 S. Church St.		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email <input type="checkbox"/> Mail	
U.S. State Samples Taken: SC		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> 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
<input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%)	<input checked="" type="checkbox"/> TEM EPA NOB - EPA 600/R-93/116 Section 2.5.5.1
<input type="checkbox"/> PLM EPA NOB (<1%)	<input type="checkbox"/> NY ELAP Method 198.4 (TEM)
Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)	<input type="checkbox"/> Chatfield Protocol (semi-quantitative)
Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)	<input type="checkbox"/> TEM % by Mass - EPA 600/R-93/116 Section 2.5.5.2
<input type="checkbox"/> NIOSH 9002 (<1%)	<input type="checkbox"/> TEM Qualitative via Filtration Prep Technique
<input type="checkbox"/> NY ELAP Method 198.1 (friable in NY)	<input type="checkbox"/> TEM Qualitative via Drop Mount Prep Technique
<input type="checkbox"/> NY ELAP Method 198.6 NOB (non-friable-NY)	Other
<input type="checkbox"/> OSHA ID-191 Modified	<input type="checkbox"/>
<input type="checkbox"/> Standard Addition Method	

Check For Positive Stop - Clearly Identify Homogenous Group **Date Sampled:** 10/19/18

Samplers Name: _____ **Samplers Signature:** _____

Sample #	HA #	Sample Location	Material Description
1		Kitchen	5 layer Vinyl Flooring
2			
3			
4		Front left Room	Tan Square Vinyl Floor
5			
6			
7			Black Flooring Material
8			
9			

Client Sample # (s): -	Total # of Samples: 4/4
Relinquished (Client):	Date: 10/19/18 Time: 11:00
Received (Lab):	Date: 10/22/18 Time: 8:40am Fk
Comments/Special Instructions:	
7955 9579 1371	



EMSL ANALYTICAL, INC.
LABORATORY PRODUCTS TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

411809918

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

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

Sample #	HA #	Sample Location	Material Description
10		Throughout	Drywall & JC
11			
12			
13			
14			
15		Dining Rm under Carpet	2 layers Vinyl Flooring
16			
17			
18		Living Rm under Carpet	2 layers Vinyl Flooring
19			
20			
21		Exterior	Red Brick pattern roll
22			siding
23			
24			Window Glazing
25			
26			
27			Cement Board Siding
28			
29			
30			Felt under Siding
31			
32			
*Comments/Special Instructions:			



EMSL ANALYTICAL, INC.
LABORATORY PRODUCTS TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

411 809918

10801 Southern Loop Blvd

Pineville, NC 28134

PHONE: (704) 525-2205

FAX: (704) 525-2382

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

Sample #	HA #	Sample Location	Material Description
33		Chimney	Chimney Tar
34			
35			
36		Roof - Addition	Roll Roofing
37			
38			
39		Main Roof	3 Shingles & Felt
40			
41			
42		Exterior ad Concrete space	Tan Brick pattern
43			roll vinyl
44			

*Comments/Special Instructions:

SECTION IV
Photographic Log



Photo 1 – 800 South Church Street in Spartanburg, South Carolina



Photo 2 – 5 layers of vinyl flooring in the kitchen



Photo 3 – Tan square pattern vinyl floor with no mastic in the front left room off of the kitchen entry door



Photo 4 – Black flooring material with no mastic in the front left room off of the kitchen entry door



Photo 5 – Drywall with joint compound & tape throughout



Photo 6 – 2 layers of vinyl floor under carpet in the dining room



Photo 7 – 2 layers of vinyl floor under carpet in the living room



Photo 8 – Red brick pattern roll shingle exterior siding



Photo 9 – Cement board exterior siding over felt paper



Photo 10 – Tar on chimney on the ground at the back of the house



Photo 11 – Tar on chimney at the front of the house



Photo 12 – Roof roll shingles with no felt on the addition of the house



Photo 13 – Red, green & black roof shingles on the main roof of the house



Photo 14 – Tan brick pattern roll vinyl floor with no mastic used as exterior siding

SECTION V

SC DHEC Asbestos Inspector License

SCDHEC ISSUED

Asbestos ID Card

Tedman K Shultz



**CONSULTBI
AIRSAMPLER**

**BI-00971
AS-00355**

Expiration Date:

01/17/19

02/23/19