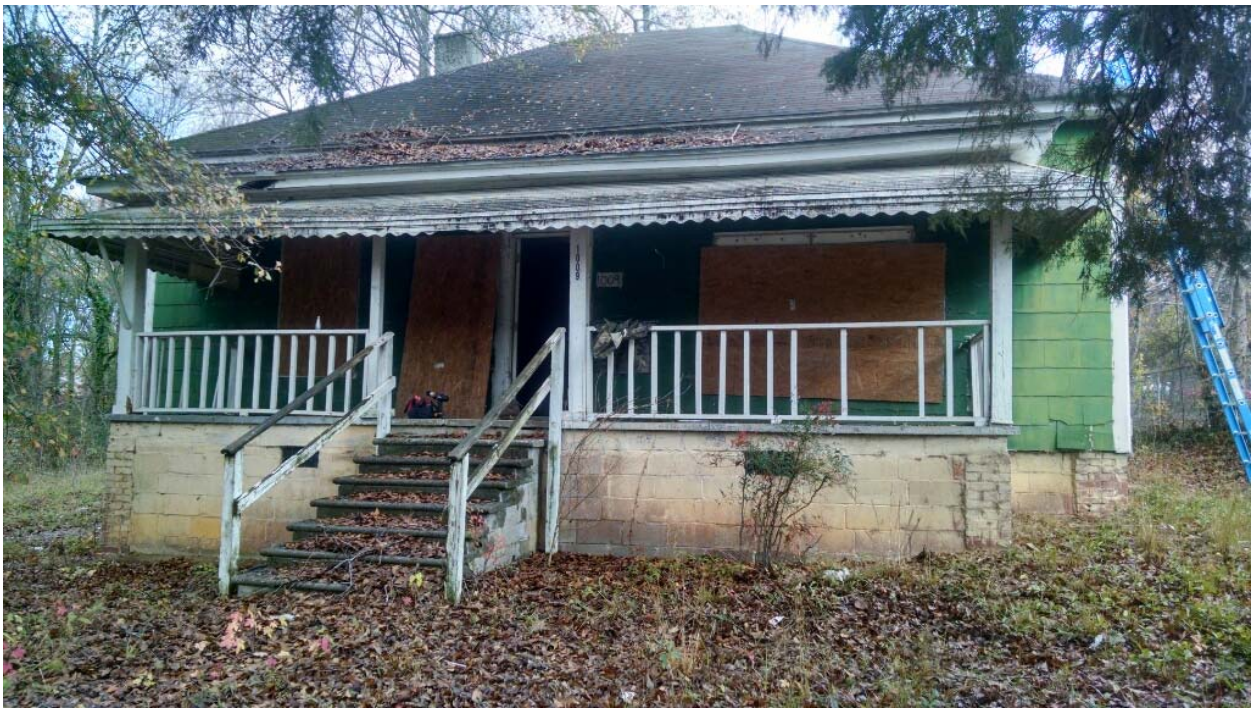

Asbestos & Lead Based Paint Assessment

City of Spartanburg
1009 Carson Avenue
Spartanburg, South Carolina

Prepared for:
The City of Spartanburg
440 South Church St., Suite B
Spartanburg, SC 29306-5234

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

Project Number: 0815-163

January 4, 2017

PEX
Environmental
Management

Environmental Management

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

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Apex Project Number 0815-163

January 4, 2017

Mr. Lynn Coggins
City of Spartanburg
440 South Church Street, Suite B
Spartanburg, SC 29306-5234

Reference: Asbestos and Lead-Based Paint Assessment Services
1009 Carson Avenue
Spartanburg, South Carolina

Dear Mr. Coggins:

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.

Ted Shultz
Project Manager

Tom Oliver
Director of Operations

Appendices

ASBESTOS AND LEAD BASED PAINT ASSESSMENT

CITY OF SPARTANBURG
1009 CARSON AVENUE
SPARTANBURG, SOUTH CAROLINA

APEX PROJECT NO. 0815-163

TABLE OF CONTENTS

SECTION

SECTION I

Asbestos & Lead Evaluation Report

ASBESTOS/LEAD EVALUATION REPORT
APEX PROJECT NUMBER: 0815-163

Date:	January 4, 2017	Page Number:	1 of 4
Client:	City of Spartanburg	Client Contact:	Mr. Lynn Coggins
Client Address:	440 South Church St, Suite B, Spartanburg, SC 29306-5234	Client Phone Number:	(864) 596-2914
Project:	Asbestos and Lead Evaluation		
Property Address:	1009 Carson Avenue Spartanburg, SC		
Assessor:	Ted Shultz	Date of Assessment:	12/7/2016
Company:	Apex Environmental Management 7 Winchester Court Mauldin, SC 29662	Phone Number:	(864) 404-3210
Purpose of Assessment:	Demolition	Age of Structure:	Approximately 50 years
Building Type:	Residential	Number of Stories:	1
Foundation:	Brick and block	Approximate Square Footage	2,100 SF

EXTERIOR BUILDING MATERIALS

- Cement board siding over felt with mastic.
- Wooden windows with caulk and glazing.
- Pitched wooden roof with shingles and felt.
- Some metal storm windows.
- One chimney with tar assumed positive.

INTERIOR BUILDING MATERIALS

- Wooden floors.
- Drywall walls with joint compound over bead board.
- Multiple types and layers of flooring with and without mastic.
- 1’x1’ ceiling tiles.

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 CEI Labs (CEI) as an NVLAP certified laboratory, their accreditation number is 101768-0.
- Transmission electron microscopy (TEM) analysis of non-friable organically bound materials suspected to contain asbestos and testing negatively by PLM analysis.
- Lead inspection by a lead inspector certified by the Environmental Protection Agency and licensed to conduct LBP surveys in South Carolina.
- In situ analysis of suspected lead based paints by X-ray fluorescence (XRF).
- Presenting the results in a report identifying confirmed ACMs and LBPs.

METHODS

Asbestos Containing Materials

In order to determine if the suspect materials observed during the visual survey contained asbestos, representative bulk samples were collected and placed in sealed packages. Twenty-six (26) 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). Fifteen (15) 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 any amount of asbestos. Materials were analyzed to contain less than 1% asbestos and it should be noted that OSHA asbestos regulations will apply. Specific *PLM* and *TEM* tables are 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 4,200 SF of drywall system throughout.

- Approximately 4,900 SF of exterior cement board siding.

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^3. The laboratory analytical results and chain-of-custody are included in the Lead Analysis Reports in Appendix A. The approximate locations of the paint samples collected and analytical results are presented in the Tables included with this report .

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

- Exterior white wooden ceiling on the porch.
- Exterior green cement board siding on the porch.
- Exterior gray wooden ceiling on the back porch.

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

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

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

SECTION II

Asbestos & LBP Data Tables

ASBESTOS SURVEY FIELD DATA SHEET

Project Name: COS 1009 Carson Avenue ACM/LBP

Project Location: 1009 Carson Avenue, Spartanburg, SC

Project Number: 0815-163

Sampled By: Ted Shultz

Project Manager: Ted Shultz

Date: 12/7/2016

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
1	Roof	Roof shingles (1 layer) and felt (1 layer)	PLM - NAD	Non-Friable	Good	2,500 SF
2						
3			TEM - NAD			
4	Windows	Window caulk	PLM - NAD	Non-Friable	Good	5 EA
5						
6			TEM - NAD			
7	Windows	Window glazing	PLM - NAD	Non-Friable	Damaged	7 EA
8						
9			TEM - <1% Chrysotile			
10	Bathroom	Yellow roll vinyl floor with no mastic over tan roll vinyl floor with no mastic with white 12"x12" self stick vinyl flooring & mastic beneath	PLM - NAD	Non-Friable	Good	40 SF
11						
12			TEM - NAD			
13	Kitchen	Multiple layers of vinyl flooring with mastics	PLM - NAD	Non-Friable	Good	150 SF
14						
15			TEM - NAD			
16	**Walls**	**Drywall and joint compound**	**PLM - 2% Chrysotile**	**Friable**	**Good**	**4,200 SF**
17						
18						
19						
20						
21	**Siding**	**Cement board siding with felt**	**PLM - Cement board - 15% Chry**	**Non-Friable**	**Good**	**4,900 SF**
22						
23			TEM - Felt - <1% Chrysotile			

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
24	Ceiling	1'x1' ceiling tile	PLM - NAD	Friable	Good	2,000 SF
25						
26						
Assumed	**Chimney Mastic Assumed Positive**			**Non-Friable**	**Good**	**6 LF**

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

FIELD DATA SHEET
LBP ANALYSIS

Project Name: COS 1009 Carson Avenue ACM/LBP

Project Location: 1009 Carson Avenue, Spartanburg, SC

Project Number: 0815-163

Sampled By: Ted Shultz

Project Manager: Ted Shultz

Date: 12/7/2016

Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/m^3)
1	Standardization				183.00
2	Calibration				1.02
3	Calibration				Insufficient Time
4	Calibration				1.04
5	Calibration				1.08
6	Porch	Porch post	White	Wood	0.10
7	**Porch**	**Ceiling**	**White**	**Wood**	**2.63**
8	**Porch**	**Siding**	**Green**	**Cement board**	**1.00**
9	Porch	Window frame	White	Wood	0.00
10	Porch	Front door	White	Metal	0.00
11	Living room	Wall	White	Drywall	0.00
12	Living room	Door	White	Wood	0.00
13	Dinning room	Base board	White	Wood	0.01
14	Dinning room	Closet	Green-blue	Wood	0.00
15	Dinning room	Door frame	Red	Wood	0.01
16	**Back porch**	**Ceiling**	**Gray**	**Wood**	**2.78**
17	Back porch	Wall	Gray	Wood	0.10
18	Kitchen	Cabinet	Pink	Wood	0.00

Bold = Lead Based Paint

SECTION III

Laboratory Analytical Results

December 14, 2016

Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

CLIENT PROJECT: COS- 1009 Carson Ave; 0815-163
CEI LAB CODE: A16-10305

Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on December 8, 2016. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600 Method.

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

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

Kind Regards,

Tianbao Bai, Ph.D., CIH
Laboratory Director

NVLAP TESTING
NVLAP LAB CODE 101768-0

ASBESTOS ANALYTICAL REPORT
By: Polarized Light Microscopy

Prepared for

Apex Environmental Management

CLIENT PROJECT: COS- 1009 Carson Ave; 0815-163

CEI LAB CODE: A16-10305

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

REPORT DATE: 12/14/16

TOTAL SAMPLES ANALYZED: 16

SAMPLES >1% ASBESTOS: 2

TEL: 866-481-1412

www.ceilabs.com

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS- 1009 Carson Ave; 0815-163 **CEI LAB CODE:** A16-10305

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

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
1	Layer 1	A2279637	Black	Shingle	None Detected
	Layer 2	A2279637	Black	Felt	None Detected
2	Layer 1	A2279638	Black	Shingle	None Detected
	Layer 2	A2279638	Black	Felt	None Detected
3		A2279639		Sample Submitted for TEM Analysis	
4		A2279640	White	Caulk	None Detected
5		A2279641	White	Caulk	None Detected
6		A2279642		Sample Submitted for TEM Analysis	
7		A2279643	White	Glaze	None Detected
8		A2279644	White	Glaze	None Detected
9		A2279645		Sample Submitted for TEM Analysis	
10		A2279646A	Yellow	Yellow Roll Vinyl Floor	None Detected
		A2279646B	Tan	Tan Roll Vinyl Floor	None Detected
		A2279646C	White	12x12 White Self Stick Floor	None Detected
		A2279646D	Clear	Mastic	None Detected
11		A2279647A	Yellow	Yellow Roll Vinyl Floor	None Detected
		A2279647B	Tan	Tan Roll Vinyl Floor	None Detected
		A2279647C	White	12x12 White Self Stick Floor	None Detected
		A2279647D	Clear	Mastic	None Detected
12		A2279648		Sample Submitted for TEM Analysis	
13	Layer 1	A2279649A	Yellow	Yellow Roll Vinyl Floor	None Detected
	Layer 2	A2279649A	Yellow,Black	Mastic	None Detected
		A2279649B	White	White Roll Vinyl Floor	None Detected
	Layer 1	A2279649C	Yellow	Bright Yellow Roll Vinyl Floor	None Detected
	Layer 2	A2279649C	Yellow	Mastic	None Detected
		A2279649D	Tan	Tan Roll Vinyl Floor	None Detected
14	Layer 1	A2279650A	Yellow	Yellow Roll Vinyl Floor	None Detected
	Layer 2	A2279650A	Yellow,Black	Mastic	None Detected

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS- 1009 Carson Ave; 0815-163 **CEI LAB CODE:** A16-10305

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

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
		A2279650B	White	White Roll Vinyl Floor	None Detected
	Layer 1	A2279650C	Yellow	Bright Yellow Roll Vinyl Floor	None Detected
	Layer 2	A2279650C	Yellow	Mastic	None Detected
		A2279650D	Tan	Tan Roll Vinyl Floor	None Detected
15		A2279651		Sample Submitted for TEM Analysis	
16	Layer 1	A2279652	Gray	Drywall	None Detected
	Layer 2	A2279652	Tan	Joint Compound	Chrysotile 2%
17		A2279653		Sample Not Analyzed per COC	
18		A2279654		Sample Not Analyzed per COC	
19		A2279655		Sample Not Analyzed per COC	
20		A2279656		Sample Not Analyzed per COC	
21		A2279657A	Green,Gray	Transite	Chrysotile 15%
		A2279657B	Black	Felt	None Detected
22		A2279658A		Sample Not Analyzed per COC	
		A2279658B	Black	Felt	None Detected
23		A2279659A		Sample Not Analyzed per COC	
		A2279659B		Sample Submitted for TEM Analysis	
24		A2279660	White,Brown	Ceiling Tile	None Detected
25		A2279661	White,Brown	Ceiling Tile	None Detected
26		A2279662	White,Brown	Ceiling Tile	None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

CEI Lab Code: A16-10305
Date Received: 12-08-16
Date Analyzed: 12-13-16
Date Reported: 12-14-16

Project: COS- 1009 Carson Ave; 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID / Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
1	Shingle	Heterogeneous	20%	Fiberglass	30%	Tar	None Detected
Layer 1		Black			30%	Gravel	
A2279637		Fibrous			20%	Binder	
		Bound					
Layer 2	Felt	Heterogeneous	60%	Cellulose	40%	Tar	None Detected
A2279637		Black					
		Fibrous					
		Bound					
2	Shingle	Heterogeneous	20%	Fiberglass	30%	Tar	None Detected
Layer 1		Black			30%	Gravel	
A2279638		Fibrous			20%	Binder	
		Bound					
Layer 2	Felt	Heterogeneous	60%	Cellulose	40%	Tar	None Detected
A2279638		Black					
		Fibrous					
		Bound					
3	Sample Submitted for						
A2279639	TEM Analysis						
4	Caulk	Heterogeneous			90%	Caulk	None Detected
A2279640		White			10%	Paint	
		Non-fibrous					
		Bound					
5	Caulk	Heterogeneous			90%	Caulk	None Detected
A2279641		White			10%	Paint	
		Non-fibrous					
		Bound					
6	Sample Submitted for						
A2279642	TEM Analysis						

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

CEI Lab Code: A16-10305
Date Received: 12-08-16
Date Analyzed: 12-13-16
Date Reported: 12-14-16

Project: COS- 1009 Carson Ave; 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID / Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
7 A2279643	Glaze	Heterogeneous White Fibrous Loosely Bound	5%	Talc	70% 20% 5%	Calc Carb Binder Paint	None Detected
8 A2279644	Glaze	Heterogeneous White Fibrous Loosely Bound	5%	Talc	70% 20% 5%	Calc Carb Binder Paint	None Detected
9 A2279645	Sample Submitted for TEM Analysis						
10 A2279646A	Yellow Roll Vinyl Floor	Heterogeneous Yellow Fibrous Bound	25%	Cellulose	50% 25%	Vinyl Binder	None Detected
A2279646B	Tan Roll Vinyl Floor	Heterogeneous Tan Fibrous Bound	25%	Cellulose	50% 25%	Vinyl Binder	None Detected
A2279646C	12x12 White Self Stick Floor	Heterogeneous White Fibrous Bound	2%	Cellulose	70% 20% 8%	Vinyl Calc Carb Binder	None Detected
A2279646D	Mastic	Heterogeneous Clear Fibrous Bound	2%	Cellulose	98%	Mastic	None Detected
11 A2279647A	Yellow Roll Vinyl Floor	Heterogeneous Yellow Fibrous Bound	25%	Cellulose	50% 25%	Vinyl Binder	None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID / Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
A2279647B	Tan Roll Vinyl Floor	Heterogeneous Tan Fibrous Bound	25% 	Cellulose 	50% 25%	Vinyl Binder	None Detected
A2279647C	12x12 White Self Stick Floor	Heterogeneous White Fibrous Bound	2% 	Cellulose 	70% 20% 8%	Vinyl Calc Carb Binder	None Detected
A2279647D	Mastic	Heterogeneous Clear Fibrous Bound	2% 	Cellulose 	98%	Mastic	None Detected
12 A2279648	Sample Submitted for TEM Analysis						
13 Layer 1 A2279649A	Yellow Roll Vinyl Floor	Heterogeneous Yellow Fibrous Bound	25% 	Cellulose 	50% 25%	Vinyl Binder	None Detected
Layer 2 A2279649A	Mastic	Heterogeneous Yellow,Black Fibrous Bound	5% 	Cellulose 	90% 5%	Mastic Binder	None Detected
A2279649B	White Roll Vinyl Floor	Heterogeneous White Fibrous Bound	25% 	Cellulose 	50% 25%	Vinyl Binder	None Detected
Layer 1 A2279649C	Bright Yellow Roll Vinyl Floor	Heterogeneous Yellow Fibrous Bound	5% 	Fiberglass 	95%	Vinyl	None Detected

ASBESTOS BULK ANALYSIS

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7 Winchester Court
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Project: COS- 1009 Carson Ave; 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID / Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
Layer 2 A2279649C	Mastic	Heterogeneous Yellow Fibrous Bound	2%	Cellulose	98%	Mastic	None Detected
A2279649D	Tan Roll Vinyl Floor	Heterogeneous Tan Fibrous Bound	25%	Cellulose	50% 25%	Vinyl Binder	None Detected
14 Layer 1 A2279650A	Yellow Roll Vinyl Floor	Heterogeneous Yellow Fibrous Bound	25%	Cellulose	50% 25%	Vinyl Binder	None Detected
Layer 2 A2279650A	Mastic	Heterogeneous Yellow,Black Fibrous Bound	5%	Cellulose	90% 5%	Mastic Binder	None Detected
A2279650B	White Roll Vinyl Floor	Heterogeneous White Fibrous Bound	25%	Cellulose	50% 25%	Vinyl Binder	None Detected
Layer 1 A2279650C	Bright Yellow Roll Vinyl Floor	Heterogeneous Yellow Fibrous Bound	5%	Fiberglass	95%	Vinyl	None Detected
Layer 2 A2279650C	Mastic	Heterogeneous Yellow Fibrous Bound	2%	Cellulose	98%	Mastic	None Detected

ASBESTOS BULK ANALYSIS

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Project: COS- 1009 Carson Ave; 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID / Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
A2279650D	Tan Roll Vinyl Floor	Heterogeneous Tan Fibrous Bound	25%	Cellulose	50% 25%	Vinyl Binder	None Detected
15 A2279651	Sample Submitted for TEM Analysis						
16 Layer 1 A2279652	Drywall	Heterogeneous Gray Fibrous Loosely Bound	10%	Cellulose	60% 30%	Gypsum Binder	None Detected
Layer 2 A2279652	Joint Compound	Heterogeneous Tan Fibrous Loosely Bound			70% 20% 8%	Calc Carb Binder Paint	**2% Chrysotile**
17 A2279653	Sample Not Analyzed per COC						
18 A2279654	Sample Not Analyzed per COC						
19 A2279655	Sample Not Analyzed per COC						
20 A2279656	Sample Not Analyzed per COC						
21 A2279657A	Transite	Heterogeneous Green,Gray Fibrous Bound			60% 20% 5%	Binder Calc Carb Paint	**15% Chrysotile**
A2279657B	Felt	Heterogeneous Black Fibrous Bound	60%	Cellulose	40%	Tar	None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

CEI Lab Code: A16-10305
Date Received: 12-08-16
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Project: COS- 1009 Carson Ave; 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID / Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
22 A2279658A	Sample Not Analyzed per COC						
A2279658B	Felt	Heterogeneous Black Fibrous Bound	60%	Cellulose	40%	Tar	None Detected
23 A2279659A	Sample Not Analyzed per COC						
A2279659B	Sample Submitted for TEM Analysis						
24 A2279660	Ceiling Tile	Heterogeneous White,Brown Fibrous Loosely Bound	95%	Cellulose	5%	Paint	None Detected
25 A2279661	Ceiling Tile	Heterogeneous White,Brown Fibrous Loosely Bound	95%	Cellulose	5%	Paint	None Detected
26 A2279662	Ceiling Tile	Heterogeneous White,Brown Fibrous Loosely Bound	95%	Cellulose	5%	Paint	None Detected

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

LIMIT OF DETECTION: <1% by visual estimation

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.

This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by CEI Labs, Inc. CEI Labs 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. 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: Sarah Talley

Sarah Talley

APPROVED BY:

Tianbao Bai, Ph.D., CIH
Laboratory Director

NVLAP TESTING
NVLAP LAB CODE 101768-0

(26) A16-10.305
A2279637-
A2279662

CEI LABS

107 New Edition Court, Cary, NC 27511
Tel: 866-481-1412; Fax: 919-481-1442

CHAIN OF CUSTODY

LAB USE ONLY:
CEI Lab Code:
CEI Lab I.D. Range:

COMPANY CONTACT INFORMATION	
Company: Apex Environmental Management	Client #:
Address: 7 Winchester Court	Job Contact: Ted Shultz
Mauldin, SC 29662	Email: tshultz@apex-ehs.com
	Tel: 864-404-3210
Project Name: COS - 1009 Carson Ave	Fax:
Project ID #: 0815-163	P.O. #:

ASBESTOS	METHOD	4 HR*	8 HR*	24 HR	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600	☐	☐	☐	☐	☐	☒
TEM BULK	CHATFIELD		☐	☐	☐	☐	☒
PLM POINT COUNT (400)	EPA 600	☐	☐	☐	☐	☐	☐
PLM POINT COUNT (1000)	EPA 600	☐	☐	☐	☐	☐	☐
PLM GRAVIMETRIC	EPA 600		☐	☐	☐	☐	☐
PLM GRAV w POINT COUNT	EPA 600		☐	☐	☐	☐	☐
OTHER:		☐	☐	☐	☐	☐	☐

POSITIVE STOP ANALYSIS	☒
SOUTH CAROLINA SAMPLES	☒

TEM INSTRUCTIONS	
BEGIN TEM ANALYSIS AFTER NEGATIVE PLM	☒
ANALYZE TEM SAMPLES SIMULTANEOUSLY WITH PLM	☐

REMARKS: If needed, combine samples from the same group to achieve sufficient weight for TEM analysis.

☑ Accept Samples
☐ Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
5:00 pm 12-7-16	~~11/28/2016~~	AA	12 8 16
			9 8:00

*Call to confirm RUSH analysis.

Samples will be disposed of 30 days after analysis

A 16-10.305

CEI LABS

SAMPLING FORM

COMPANY CONTACT INFORMATION	
Company: Apex Env. Mgmt.	Job Contact: Ted Shultz
Project Name: COS - 1009 Carson Ave	
Project ID #: 0815-163	Tel: 803-348-4921

SAMPLE ID#	DESCRIPTION / LOCATION	TEST	
1 Roof	1 shingle	PLM ☐	TEM ☐
2 "	1 felt "	PLM ☐	TEM ☐
3 "	"	PLM ☐	TEM ☐
4 windows	caulk	PLM ☐	TEM ☐
5 "	"	PLM ☐	TEM ☐
6 "	"	PLM ☐	TEM ☐
7 windows	glaze	PLM ☐	TEM ☐
8 "	"	PLM ☐	TEM ☐
9 "	"	PLM ☐	TEM ☐
10 Bath rm	yellow roll vinyl flr	PLM ☐	TEM ☐
11 "	tan roll vinyl flr	PLM ☐	TEM ☐
12 "	12x12 wht self stick flr	PLM ☐	TEM ☐
13 Kitchen	yellow roll vinyl flr	PLM ☐	TEM ☐
14 "	wht roll vinyl flr	PLM ☐	TEM ☐
15 "	Bright yellow viny roll flr	PLM ☐	TEM ☐
	tan roll vinyl flr	PLM ☐	TEM ☐
16 walls	dry wall + joint	PLM ☐	TEM ☐
17 "	compound	PLM ☐	TEM ☐
18 "	"	PLM ☐	TEM ☐
19 "	"	PLM ☐	TEM ☐
20 "	"	PLM ☐	TEM ☐
21 Siding	Transite + felt	PLM ☐	TEM ☐
22 "	"	PLM ☐	TEM ☐
23 "	"	PLM ☐	TEM ☐
24 Ceiling	1x1 ceiling tile	PLM ☐	TEM ☐
25 "	"	PLM ☐	TEM ☐
26 "	"	PLM ☐	TEM ☐
		PLM ☐	TEM ☐
		PLM ☐	TEM ☐
		PLM ☐	TEM ☐

December 20, 2016

Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

CLIENT PROJECT: COS- 1009 Carson Ave.; 0815-163
CEI LAB CODE: T16-1940

Dear Customer:

Enclosed are asbestos analysis results for TEM bulk samples received at our laboratory on December 14, 2016. The samples were analyzed for asbestos using transmission electron microscopy (TEM) per Chatfield Method.

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

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

Kind Regards,

Tianbao Bai, Ph.D., CIH
Laboratory Director

ASBESTOS ANALYTICAL REPORT
By: Transmission Electron Microscopy

Prepared for

Apex Environmental Management

CLIENT PROJECT: COS- 1009 Carson Ave.; 0815-163

CEI LAB CODE: T16-1940

TEST METHOD: Bulk Chatfield
EPA 600 / R93 / 116

REPORT DATE: 12/20/16

TEL: 866-481-1412

www.ceilabs.com

ASBESTOS BULK ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

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

CEI Lab Code: T16-1940
Date Received: 12-14-16
Date Analyzed: 12-19-16
Date Reported: 12-20-16

Project: COS- 1009 Carson Ave.; 0815-163

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 T56253	Shingle	01.159	18.6	13.6	67.8	**None Detected**
3 T56254	Felt	0.133	96.2	3	.8	**None Detected**
6 T56255	Caulk	0.388	19.3	75.5	5.2	**None Detected**
9 T56256	Glaze	0.414	12.6	76.6	10.8	**<1% Chrysotile**
12 T56257	Yellow Roll Vinyl Floor	0.154	84.4	9.7	5.9	**None Detected**
12 T56258	Tan Roll Vinyl Floor	0.175	56.6	28	15.4	**None Detected**
12 T56259	12X12 White Self Stick Floor	0.212	38.2	59.4	2.4	**None Detected**
12 T56260	Clear Mastic	0.128	91.4	3.1	5.5	**None Detected**
15 T56261	Yellow Roll Vinyl Floor	0.154	70.8	7.8	21.4	**None Detected**
15 T56262	Yellow, Black Mastic	0.372	54.6	20.2	25.2	**None Detected**
15 T56263	White Roll Vinyl Floor	0.244	51.6	43.9	4.5	**None Detected**
15 T56264	Bright Yellow Roll Vinyl Floor	0.153	82.4	17	.6	**None Detected**

ASBESTOS BULK ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

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

Project: COS- 1009 Carson Ave.; 0815-163

CEI Lab Code: T16-1940
Date Received: 12-14-16
Date Analyzed: 12-19-16
Date Reported: 12-20-16

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 %
15 T56265	Yellow Mastic	0.091	73.6	6.6	19.8	**None Detected**
15 T56266	Tan Roll Vinyl Floor	0.162	55.6	20.4	24	**None Detected**
23 T56267	Felt	0.632	87.7	2.8	9.5	**<1% Chrysotile**

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

ANALYST: Jennifer Turner

Jennifer Turner

APPROVED BY:

Tianbao Bai, Ph.D., CIH
Laboratory Director

T16-1940
TS6253-267
(5)

(26) A16-10.305
A2279637-
A2279666

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107 New Edition Court, Cary, NC 27511
Tel: 866-481-1412; Fax: 919-481-1442

CHAIN OF CUSTODY

LAB USE ONLY:
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ASBESTOS	METHOD	4 HR*	8 HR*	24 HR	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600	☐	☐	☐	☐	☐	☒
TEM BULK	CHATFIELD		☐	☐	☐	☐	☒
PLM POINT COUNT (400)	EPA 600	☐	☐	☐	☐	☐	☐
PLM POINT COUNT (1000)	EPA 600	☐	☐	☐	☐	☐	☐
PLM GRAVIMETRIC	EPA 600		☐	☐	☐	☐	☐
PLM GRAV w POINT COUNT	EPA 600		☐	☐	☐	☐	☐
OTHER:		☐	☐	☐	☐	☐	☐

POSITIVE STOP ANALYSIS	☒
SOUTH CAROLINA SAMPLES	☒

TEM INSTRUCTIONS	
BEGIN TEM ANALYSIS AFTER NEGATIVE PLM	☒
ANALYZE TEM SAMPLES SIMULTANEOUSLY WITH PLM	☐

REMARKS: If needed, combine samples from the same group to achieve sufficient weight for TEM analysis.

☑ Accept Samples
☐ Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
5:00 pm 12-7-16	~~11/28/2016~~	AA	12 8 16
Sarah Talley	12-14-16 8:11am		9 8:00

*Call to confirm RUSH analysis.

Samples will be disposed of 30 days after analysis

A 16-10.305

CEI LABS

SAMPLING FORM

TIC-1840

COMPANY CONTACT INFORMATION	
Company: Apex Env. Mgmt.	Job Contact: Ted Shultz
Project Name: COS - 1009 Carson Ave	
Project ID #: 0815-163	Tel: 803-348-4921

SAMPLE ID#	DESCRIPTION / LOCATION	TEST	
1 Roof	1 shingle	PLM ☐	TEM ☐
2 |	1 felt |	PLM ☐	TEM ☐
3 |	|	PLM ☐	TEM ☒
4 windows	caulk	PLM ☐	TEM ☐
5 |	|	PLM ☐	TEM ☐
6 |	|	PLM ☐	TEM ☒
7 windows	glaze	PLM ☐	TEM ☐
8 |	|	PLM ☐	TEM ☐
9 |	|	PLM ☐	TEM ☒
10 Bath rm	yellow roll vinyl flr	PLM ☐	TEM ☐
11 |	tan roll vinyl flr	PLM ☐	TEM ☐
12 |	12x12 wht self stick flr	PLM ☐	TEM ☒
13 Kitchen	yellow roll vinyl flr	PLM ☒	TEM ☐
14 |	wht roll vinyl flr	PLM ☒	TEM ☐
15 |	Bright yellow viny roll flr	PLM ☒	TEM ☒
	tan roll vinyl flr	PLM ☐	TEM ☒
16 walls	drywall + joint	PLM ☐	TEM ☐
17 |	compound |	PLM ☐	TEM ☐
18 |	|	PLM ☐	TEM ☐
19 |	|	PLM ☐	TEM ☐
20 |	|	PLM ☐	TEM ☐
21 Siding	Transite + felt	PLM ☐	TEM ☐
22 |	|	PLM ☐	TEM ☐
23 |	|	PLM ☐	TEM ☐
24 Ceiling	1x1 ceiling tile	PLM ☐	TEM ☐
25 |	|	PLM ☐	TEM ☐
26 |	|	PLM ☐	TEM ☐
		PLM ☐	TEM ☐
		PLM ☐	TEM ☐
		PLM ☐	TEM ☐

SECTION IV

Photographic Log

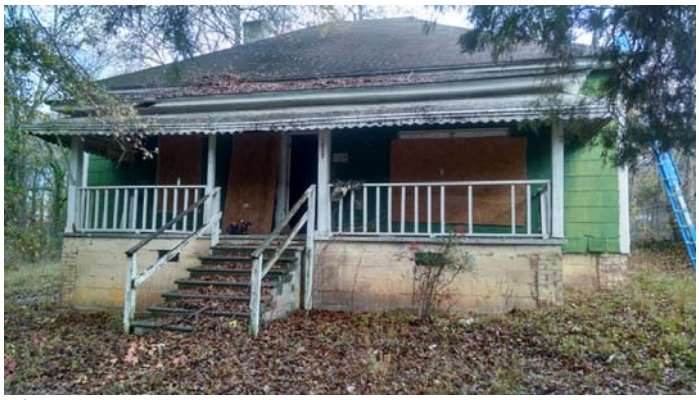

Photo 1 – 1009 Carson Avenue.

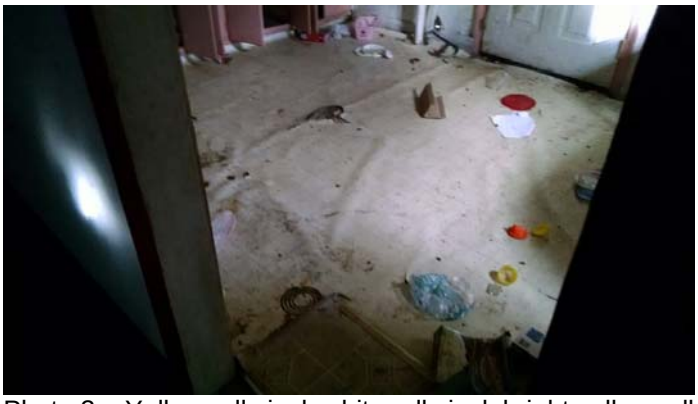

Photo 2 – Yellow roll vinyl, white roll vinyl, bright yellow roll vinyl, and tan roll vinyl in the kitchen.

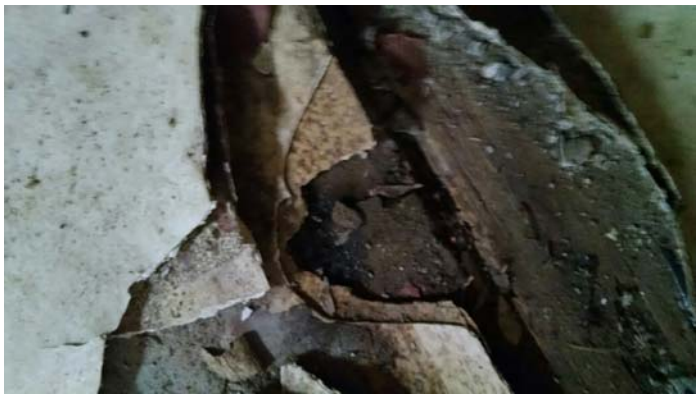

Photo 3 – Yellow roll vinyl, white roll vinyl, bright yellow roll vinyl, and tan roll vinyl in the kitchen.

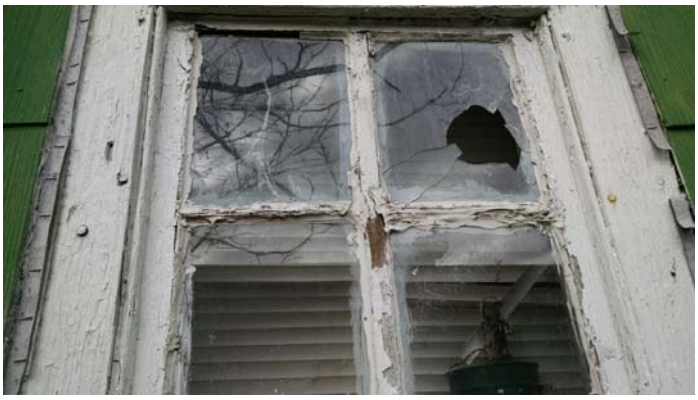

Photo 4 – Window caulk and glazing on exterior windows.

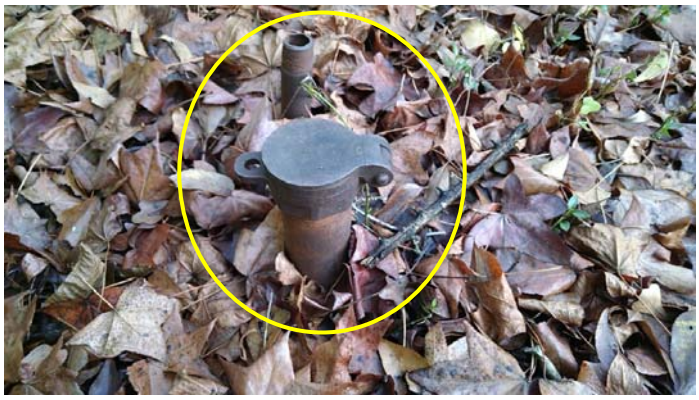

Photo 5 – Underground fuel-tank stub-out in side yard.

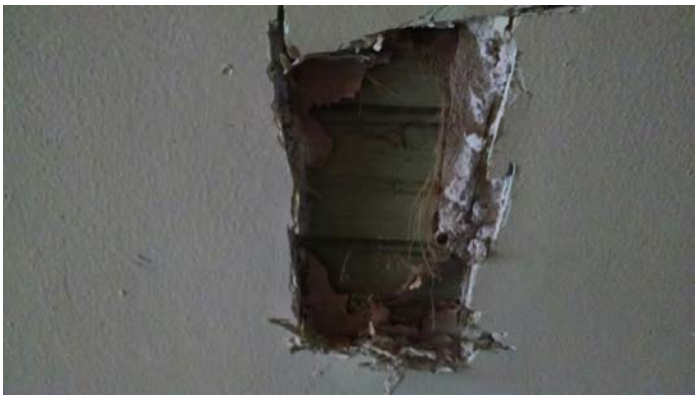

Photo 6 – Drywall walls with joint compound.

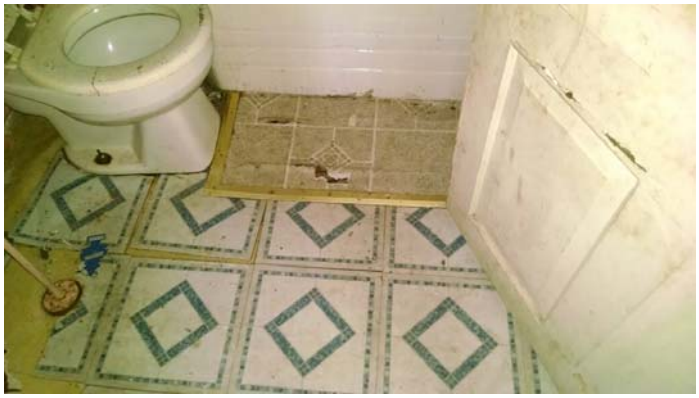

Photo 7 – Bathroom flooring yellow roll vinyl, tan roll vinyl, white 12”x12” self-stick vinyl flooring.

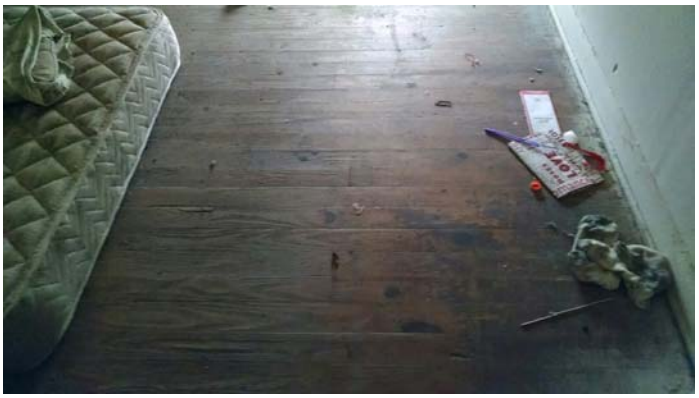

Photo 8 – Hardwood floors.

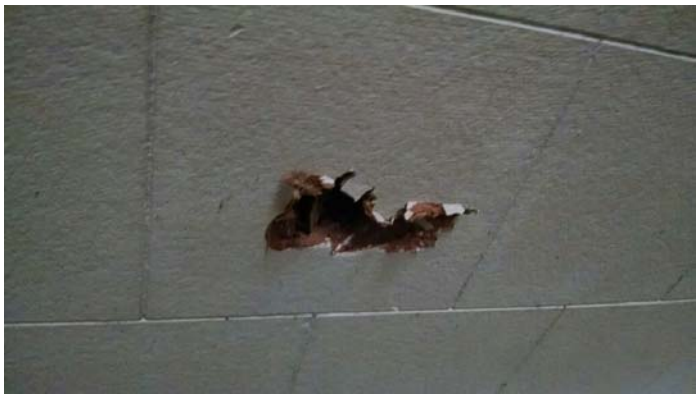

Photo 9 – 1’x1’ ceiling tiles.

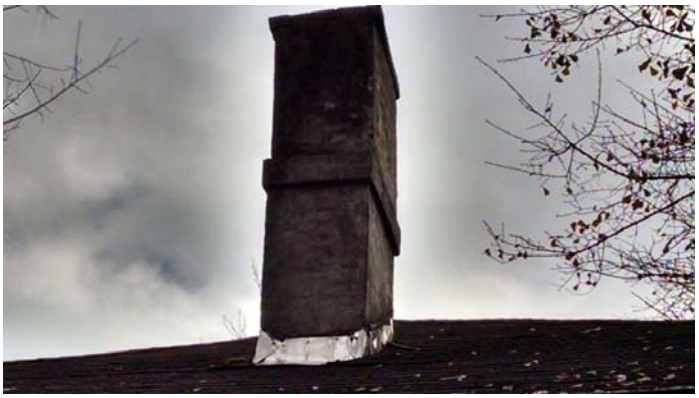

Photo 10 – One chimney with tar assumed.

Photo 11 – Cement board siding with felt paper.

SECTION V

SC DHEC Asbestos Inspector License

North Carolina
Asbestos Accreditation

EXPIRATION			
02-28-2017			
DOB	**SEX**	**HT**	**WT**
03-16-1972	M	5'10"	270
CLASS		**#**	**EXP**
AIR MONITOR		80864	02-17
INSPECTOR		12900	01-17

Tedman K Shultz
201 Cannon Circle
Greenville, SC 29607

110723

SCDHEC ISSUED
Asbestos ID Card

Tedman K Shultz

Expiration Date

AIRSAMPLER	**AS-00355**	**02/02/17**
CONSULTBI	**BI-00971**	**01/20/17**