



Asbestos & Lead Based Paint Assessment

City of Spartanburg
592 Farley 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





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

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- Environmental Site Assessments
- Hazard Communication

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
592 Farley 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
592 FARLEY AVENUE
SPARTANBURG, SOUTH CAROLINA**

APEX PROJECT NO. 0815-163

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SECTION I

Asbestos & Lead Evaluation Report

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

| | | | |
|------------------------|--|-----------------------------|------------------------|
| Date: | 1/4/2017 | 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: | 592 Farley Avenue Spartanburg, SC | | |
| Assessor: | Ted Shultz | Date of Assessment: | 12/3/2016 |
| 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 | Approximate Square Footage: | 1,375 SF |

EXTERIOR BUILDING MATERIALS

- Cement board siding with felt.
- Wooden windows with glazing.
- Pitched wooden roof with shingles and no felt. Roof patch exists.
- Exterior shed with shingles and felt.
- Metal storm window.
- One chimney with tar assumed positive.

INTERIOR BUILDING MATERIALS

- Carpet over wooden floors.
- Drywall with mastic and tar paper.
- Unfinished drywall.
- Multiple types and layers of flooring with and without mastic.
- Plaster with finish throughout.
- 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. Forty-one (41) 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). Twenty-four (24) 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 3,800 SF of exterior cement board siding and felt.

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, $1 \text{ mg}/\text{cm}^3$. 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 windows.
- White wooden door frames.

Interior

- White plaster walls.
- White wooden 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 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 $0.1 \text{ mg}/\text{cm}^2$ 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

Project Name: COS 592 Farley Avenue ACM/LBP

Sampled By: Ted Shultz

Project Location: 592 Farley Avenue, Spartanburg, SC

Project Manager: Ted Shultz

Project Number: 0815-163

Date: 12/3/2016

| Sample No. | Location | Sample Description | Analytical Results | Friable/Non Friable | Condition | Quantity |
|------------|-----------------------|--|----------------------------------|---------------------|-----------|----------|
| 1 | Roof | Roof shingles (2 layers) and no felt | PLM - NAD | Non-Friable | Good | 1,600 SF |
| 2 | | | TEM - NAD | | | |
| 3 | | | TEM - NAD | | | |
| 4 | Shed roof | Roof shingles (2 layers) and felt | PLM - NAD | Non-Friable | Good | 250 SF |
| 5 | | | TEM - NAD | | | |
| 6 | | | TEM - NAD | | | |
| 7 | Roof patch on house | 1 rolled shingle | PLM - NAD | Non-Friable | Good | 80 SF |
| 8 | | | TEM - NAD | | | |
| 9 | | | TEM - NAD | | | |
| 10 | Hall outside bathroom | Grey 9x9 tile with felt and mastic under wooden sub flooring | PLM - NAD | Non-Friable | Good | 60 SF |
| 11 | | | TEM - NAD | | | |
| 12 | | | TEM - NAD | | | |
| 13 | Hall outside kitchen | Grey rolled vinyl flooring with mastic | PLM - NAD | Non-Friable | Good | 100 SF |
| 14 | | | TEM - NAD | | | |
| 15 | | | TEM - NAD | | | |
| 16 | Bathroom | Tan roll vinyl floor over 9"x9" green floor tile with tarpaper with 9"x9" yellow floor tile and tarpaper beneath | PLM - NAD | Non-Friable | Good | 100 SF |
| 17 | | | TEM - NAD | | | |
| 18 | | | TEM - NAD | | | |
| 19 | Bedroom | 9"x9" tan floor tile & mastic over 9"x9" brown floor tile with mastic and tar paper | PLM - NAD | Non-Friable | Good | 150 SF |
| 20 | | | TEM - Black tar paper - <1% Chry | | | |
| 21 | | | TEM - Black tar paper - <1% Chry | | | |
| 22 | Exterior siding | Cement board siding with felt | PLM - Cement board - 15% Chry | Non-Friable | Good | 3,800 SF |
| 23 | | | PLM - Felt - 2% Chry | | | |
| 24 | | | PLM - Felt - 2% Chry | | | |

ASBESTOS SURVEY FIELD DATA SHEET

Project Name: COS 592 Farley Avenue ACM/LBP

Sampled By: Ted Shultz

Project Location: 592 Farley Avenue, Spartanburg, SC

Project Manager: Ted Shultz

Project Number: 0815-163

Date: 12/3/2016

| Sample No. | Location | Sample Description | Analytical Results | Friable/Non Friable | Condition | Quantity |
|----------------|--|--|-------------------------------|---------------------|-------------|-------------|
| 25 | Exterior windows | Window glazing | PLM - NAD | Non-Friable | Damaged | 12 EA |
| 26 | | | TEM - NAD | | | |
| 27 | | | | | | |
| 28 | Kitchen | Drywall with mastic and tarpaper (no joint compound) | PLM - NAD | Friable | Good | 500 SF |
| 29 | | | | | | |
| 30 | | | TEM - NAD (mastic & tarpaper) | | | |
| 31 | First bedroom on the left and hallway | Drywall with no joint compound | PLM - NAD | Friable | Good | 200 SF |
| 32 | | | | | | |
| 33 | | | | | | |
| 34 | Living room | 1'x1' ceiling tiles with composite | PLM - NAD | Friable | Good | 1,000 SF |
| 35 | | | | | | |
| 36 | | | | | | |
| 37 | Walls and ceilings | Plaster with finish | PLM - NAD | Friable | Good | 3,800 SF |
| 38 | | | | | | |
| 39 | | | | | | |
| 40 | | | | | | |
| 41 | | | | | | |
| Assumed | Chimney Mastic Assumed Positive | | | Non-Friable | Good | 6 LF |

NAD = No Asbestos Detected

LF = Linear Feet

EA = Each

Bold = Positive For Asbestos

SF = Square Feet

Chry = Chrysotile

**FIELD DATA SHEET
LBP ANALYSIS**

Project Name: COS 592 Farley Avenue ACM/LBP

Sampled By: Ted Shultz

Project Location: 592 Farley Avenue, Spartanburg, SC

Project Manager: Ted Shultz

Project Number: 0815-163

Date: 12/8/2016

| Sample No. | Sample Location | Component | Color | Substrate | Analytical Result (mg/m ³) |
|------------|--------------------|-------------------------|--------------|----------------|--|
| 34 | Outside | Siding | Pink | Cement board | 0.03 |
| 35 | Outside | Window frame | White | Wood | 0.00 |
| 36 | Outside | Window | White | Wood | 2.31 |
| 37 | Outside | Studs | White | Brick | 0.09 |
| 38 | Outside | Front door frame | White | Wood | 1.76 |
| 39 | Living room | Wall | White | Plaster | 1.00 |
| 40 | Living room | Door frame | White | Wood | 0.42 |
| 41 | Hall | Window frame | White | Wood | 0.18 |
| 42 | Bathroom | Door frame | White | Wood | 1.86 |
| 43 | Bathroom | Window frame | White | Wood | 0.05 |
| 44 | Kitchen | Wall | Tan | Drywall | 0.14 |
| 45 | Kitchen | Cabinets | White | Wood | 0.00 |
| 46 | Rear porch door | Door | White | Wood | 0.00 |
| 47 | Hall | Ceiling | White | Drywall | 0.00 |

Bold = Lead Based Paint

SECTION III

Laboratory Analytical Results



December 12, 2016

Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

CLIENT PROJECT: 592 Farley Ave; COS 0815-163
CEI LAB CODE: B16-10078

Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on December 6, 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,

A handwritten signature in black ink, appearing to read "Tianbao Bai".

Tianbao Bai, Ph.D., CIH
Laboratory Director





ASBESTOS ANALYTICAL REPORT
By: Polarized Light Microscopy

Prepared for

Apex Environmental Management

CLIENT PROJECT: 592 Farley Ave; COS 0815-163

CEI LAB CODE: B16-10078

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

REPORT DATE: 12/12/16

TOTAL SAMPLES ANALYZED: 31

SAMPLES >1% ASBESTOS: 2

TEL: 866-481-1412

www.ceilabs.com



Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: 592 Farley Ave; COS 0815-163

CEI LAB CODE: B16-10078

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

| Client ID | Layer | Lab ID | Color | Sample Description | ASBESTOS % |
|-----------|---------|----------|-------|-----------------------------------|---------------|
| 1 | Layer 1 | B228356 | Black | Shingle | None Detected |
| | Layer 2 | B228356 | Black | Shingle | None Detected |
| 2 | Layer 1 | B228357 | Black | Shingle | None Detected |
| | Layer 2 | B228357 | Black | Shingle | None Detected |
| 3 | | B228358 | | Sample Submitted for TEM Analysis | |
| 4 | Layer 1 | B228359A | Black | Shingle | None Detected |
| | Layer 2 | B228359A | Black | Shingle | None Detected |
| | | B228359B | Black | Felt | None Detected |
| 5 | Layer 1 | B228360A | Black | Shingle | None Detected |
| | Layer 2 | B228360A | Black | Shingle | None Detected |
| | | B228360B | Black | Felt | None Detected |
| 6 | | B228361 | | Sample Submitted for TEM Analysis | |
| 7 | | B228362 | Black | Rolled Shingle | None Detected |
| 8 | | B228363 | Black | Rolled Shingle | None Detected |
| 9 | | B228364 | | Sample Submitted for TEM Analysis | |
| 10 | | B228365A | Gray | Tile | None Detected |
| | Layer 1 | B228365B | Tan | Mastic | None Detected |
| | Layer 2 | B228365B | Black | Felt | None Detected |
| 11 | | B228366A | Gray | Tile | None Detected |
| | Layer 1 | B228366B | Tan | Mastic | None Detected |
| | Layer 2 | B228366B | Black | Felt | None Detected |
| 12 | | B228367 | | Sample Submitted for TEM Analysis | |
| 13 | Layer 1 | B228368 | Gray | Rolled Vinyl Floor | None Detected |
| | Layer 2 | B228368 | Beige | Mastic | None Detected |
| 14 | Layer 1 | B228369 | Gray | Rolled Vinyl Floor | None Detected |
| | Layer 2 | B228369 | Beige | Mastic | None Detected |
| 15 | | B228370 | | Sample Submitted for TEM Analysis | |



Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: 592 Farley Ave; COS 0815-163

CEI LAB CODE: B16-10078

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

| Client ID | Layer | Lab ID | Color | Sample Description | ASBESTOS % |
|-----------|---------|----------|------------|-----------------------------------|-----------------------------------|
| 16 | Layer 1 | B228371A | Tan | Roll Vinyl Floor | None Detected |
| | Layer 1 | B228371B | Green | Tile | None Detected |
| | Layer 2 | B228371B | Black | Tarpaper | None Detected |
| | Layer 1 | B228371C | Yellow | Tile | None Detected |
| | Layer 2 | B228371C | Black | Tarpaper | None Detected |
| | 17 | Layer 1 | B228372A | Tan | Roll Vinyl Floor |
| Layer 1 | | B228372B | Green | Tile | None Detected |
| Layer 2 | | B228372B | Black | Tarpaper | None Detected |
| Layer 1 | | B228372C | Yellow | Tile | None Detected |
| Layer 2 | | B228372C | Black | Tarpaper | None Detected |
| 18 | | | B228373 | | Sample Submitted for TEM Analysis |
| 19 | | B228374A | Tan | Floor Tile | None Detected |
| | | B228374B | Black | Mastic | None Detected |
| | | B228374C | Brown | Floor Tile | None Detected |
| | Layer 1 | B228374D | Black | Mastic | None Detected |
| | Layer 2 | B228374D | Black | Tarpaper | None Detected |
| | 20 | | B228375A | Tan | Floor Tile |
| | | B228375B | Black | Mastic | None Detected |
| | | B228375C | Brown | Floor Tile | None Detected |
| Layer 1 | | B228375D | Black | Mastic | None Detected |
| Layer 2 | | B228375D | Black | Tarpaper | None Detected |
| 21 | | | B228376 | | Sample Submitted for TEM Analysis |
| 22 | Layer 1 | B228377 | Gray,Beige | Transite | Chrysotile 15% |
| | Layer 2 | B228377 | Black | Felt | Chrysotile 2% |
| 23 | | B228378 | | Sample Not Analyzed per COC | |
| 24 | | B228379 | | Sample Not Analyzed per COC | |
| 25 | | B228380 | White,Tan | Glazing | None Detected |
| 26 | | B228381 | White,Tan | Glazing | None Detected |
| 27 | | B228382 | | Sample Submitted for TEM Analysis | |



Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: 592 Farley Ave; COS 0815-163

CEI LAB CODE: B16-10078

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

| Client ID | Layer | Lab ID | Color | Sample Description | ASBESTOS % |
|-----------|---------|----------|-------------|-----------------------------------|---------------|
| 28 | | B228383A | Off-white | Drywall | None Detected |
| | Layer 1 | B228383B | Brown | Mastic | None Detected |
| | Layer 2 | B228383B | Black | Tarpaper | None Detected |
| 29 | | B228384A | Off-white | Drywall | None Detected |
| | Layer 1 | B228384B | Brown | Mastic | None Detected |
| | Layer 2 | B228384B | Black | Tarpaper | None Detected |
| 30 | | B228385A | Off-white | Drywall | None Detected |
| | | B228385B | | Sample Submitted for TEM Analysis | |
| 31 | | B228386 | Off-white | Drywall | None Detected |
| 32 | | B228387 | Off-white | Drywall | None Detected |
| 33 | | B228388 | Off-white | Drywall | None Detected |
| 34 | | B228389 | White,Brown | Ceiling Tile | None Detected |
| 35 | | B228390 | White,Brown | Ceiling Tile | None Detected |
| 36 | | B228391 | White,Brown | Ceiling Tile | None Detected |
| 37 | Layer 1 | B228392 | White | Plaster Skim Coat | None Detected |
| | Layer 2 | B228392 | Off-white | Plaster Base Coat | None Detected |
| 38 | Layer 1 | B228393 | White | Plaster Skim Coat | None Detected |
| | Layer 2 | B228393 | Off-white | Plaster Base Coat | None Detected |
| 39 | Layer 1 | B228394 | White | Plaster Skim Coat | None Detected |
| | Layer 2 | B228394 | Off-white | Plaster Base Coat | None Detected |
| 40 | Layer 1 | B228395 | White | Plaster Skim Coat | None Detected |
| | Layer 2 | B228395 | Off-white | Plaster Base Coat | None Detected |
| 41 | Layer 1 | B228396 | White | Plaster Skim Coat | None Detected |
| | Layer 2 | B228396 | Off-white | Plaster Base Coat | None Detected |



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

CEI Lab Code: B16-10078
Date Received: 12-06-16
Date Analyzed: 12-12-16
Date Reported: 12-12-16

Project: 592 Farley Ave; COS 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID Lab ID | Lab Description | Lab Attributes | NON-ASBESTOS COMPONENTS | | | | ASBESTOS % |
|--------------------------|-----------------------------------|--|-------------------------|------------|-------------|--------|---------------|
| | | | Fibrous | | Non-Fibrous | | |
| 1 Layer 1 B228356 | Shingle | Heterogeneous Black Fibrous Bound | 25% | Fiberglass | 70% | Tar | None Detected |
| | | | | | 5% | Gravel | |
| Layer 2 B228356 | Shingle | Heterogeneous Black Fibrous Bound | 25% | Fiberglass | 70% | Tar | None Detected |
| | | | | | 5% | Gravel | |
| 2 Layer 1 B228357 | Shingle | Heterogeneous Black Fibrous Bound | 25% | Fiberglass | 70% | Tar | None Detected |
| | | | | | 5% | Gravel | |
| Layer 2 B228357 | Shingle | Heterogeneous Black Fibrous Bound | 25% | Fiberglass | 70% | Tar | None Detected |
| | | | | | 5% | Gravel | |
| 3 B228358 | Sample Submitted for TEM Analysis | | | | | | |
| 4 Layer 1 B228359A | Shingle | Heterogeneous Black Fibrous Bound | 25% | Fiberglass | 70% | Tar | None Detected |
| | | | | | 5% | Gravel | |
| Layer 2 B228359A | Shingle | Heterogeneous Black Fibrous Bound | 25% | Fiberglass | 70% | Tar | None Detected |
| | | | | | 5% | Gravel | |
| B228359B | Felt | Heterogeneous Black Fibrous Bound | 75% | Cellulose | 25% | Tar | None Detected |



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

CEI Lab Code: B16-10078
Date Received: 12-06-16
Date Analyzed: 12-12-16
Date Reported: 12-12-16

Project: 592 Farley Ave; COS 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID Lab ID | Lab Description | Lab Attributes | NON-ASBESTOS COMPONENTS | | | | ASBESTOS % |
|---------------------------------|-----------------------------------|---------------------------|-------------------------|------------|-------------|-----------|---------------|
| | | | Fibrous | | Non-Fibrous | | |
| 5 Layer 1 B228360A | Shingle | Heterogeneous | 25% | Fiberglass | 70% | Tar | None Detected |
| | | Black Fibrous Bound | | | 5% | Gravel | |
| Layer 2 B228360A | Shingle | Heterogeneous | 25% | Fiberglass | 70% | Tar | None Detected |
| | | Black Fibrous Bound | | | 5% | Gravel | |
| B228360B | Felt | Heterogeneous | 75% | Cellulose | 25% | Tar | None Detected |
| | | Black Fibrous Bound | | | | | |
| 6 B228361 | Sample Submitted for TEM Analysis | | | | | | |
| 7 B228362 | Rolled Shingle | Heterogeneous | 15% | Fiberglass | 80% | Tar | None Detected |
| | | Black Fibrous Bound | | | 5% | Silicates | |
| 8 B228363 | Rolled Shingle | Heterogeneous | 15% | Fiberglass | 80% | Tar | None Detected |
| | | Black Fibrous Bound | | | 5% | Silicates | |
| 9 B228364 | Sample Submitted for TEM Analysis | | | | | | |
| 10 B228365A | Tile | Heterogeneous | <1% | Cellulose | 80% | Vinyl | None Detected |
| | | Gray Fibrous Bound | <1% | Talc | 15% | Binder | |
| | | | | | 5% | Silicates | |



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Apex Environmental Management
 7 Winchester Court
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CEI Lab Code: B16-10078
Date Received: 12-06-16
Date Analyzed: 12-12-16
Date Reported: 12-12-16

Project: 592 Farley Ave; COS 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID Lab ID | Lab Description | Lab Attributes | NON-ASBESTOS COMPONENTS | | | | ASBESTOS % |
|---------------------------------|-----------------------------------|--|-------------------------|-------------------------|------------------|---|---------------|
| | | | Fibrous | Cellulose | Non-Fibrous | | |
| Layer 1 B228365B | Mastic | Heterogeneous Tan Fibrous Bound | <1% | Cellulose | 90% | Mastic Binder Non-Fibrous Debris | None Detected |
| Layer 2 B228365B | Felt | Heterogeneous Black Fibrous Bound | 75% | Cellulose | 25% | Tar | None Detected |
| 11 B228366A | Tile | Heterogeneous Gray Fibrous Bound | <1% | Cellulose Talc | 80% 15% 5% | Vinyl Binder Silicates | None Detected |
| Layer 1 B228366B | Mastic | Heterogeneous Tan Fibrous Bound | <1% | Cellulose | 90% | Mastic Binder Non-Fibrous Debris | None Detected |
| Layer 2 B228366B | Felt | Heterogeneous Black Fibrous Bound | 75% | Cellulose | 25% | Tar | None Detected |
| 12 B228367 | Sample Submitted for TEM Analysis | | | | | | |
| 13 Layer 1 B228368 | Rolled Vinyl Floor | Heterogeneous Gray Fibrous Bound | 20% 5% | Cellulose Fiberglass | 50% 25% | Vinyl Binder | None Detected |
| Layer 2 B228368 | Mastic | Heterogeneous Beige Fibrous Bound | <1% | Cellulose | 90% | Mastic Binder Non-Fibrous Debris | None Detected |



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

CEI Lab Code: B16-10078
Date Received: 12-06-16
Date Analyzed: 12-12-16
Date Reported: 12-12-16

Project: 592 Farley Ave; COS 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID Lab ID | Lab Description | Lab Attributes | NON-ASBESTOS COMPONENTS | | | | ASBESTOS % |
|----------------------------------|-----------------------------------|----------------------------|-------------------------|------------|-------------|-----------------------|---------------|
| | | | Fibrous | | Non-Fibrous | | |
| 14 Layer 1 B228369 | Rolled Vinyl Floor | Heterogeneous | 20% | Cellulose | 50% | Vinyl | None Detected |
| | | Gray Fibrous Bound | 5% | Fiberglass | 25% | Binder | |
| Layer 2 B228369 | Mastic | Heterogeneous | <1% | Cellulose | 90% | Mastic | None Detected |
| | | Beige Fibrous Bound | | | 10% | Binder | |
| | | | | | <1% | Non-Fibrous Debris | |
| 15 B228370 | Sample Submitted for TEM Analysis | | | | | | |
| 16 Layer 1 B228371A | Roll Vinyl Floor | Heterogeneous | 5% | Cellulose | 50% | Vinyl | None Detected |
| | | Tan Fibrous Bound | 5% | Fiberglass | 40% | Foam | |
| Layer 1 B228371B | Tile | Heterogeneous | 10% | Cellulose | 75% | Vinyl | None Detected |
| | | Green Fibrous Bound | | | 10% | Binder | |
| | | | | | 5% | Silicates | |
| Layer 2 B228371B | Tarpaper | Heterogeneous | 75% | Cellulose | 25% | Tar | None Detected |
| | | Black Fibrous Bound | | | | | |
| Layer 1 B228371C | Tile | Heterogeneous | 10% | Cellulose | 75% | Vinyl | None Detected |
| | | Yellow Fibrous Bound | | | 10% | Binder | |
| | | | | | 5% | Silicates | |
| Layer 2 B228371C | Tarpaper | Heterogeneous | 75% | Cellulose | 25% | Tar | None Detected |
| | | Black Fibrous Bound | | | | | |



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

CEI Lab Code: B16-10078
Date Received: 12-06-16
Date Analyzed: 12-12-16
Date Reported: 12-12-16

Project: 592 Farley Ave; COS 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID Lab ID | Lab Description | Lab Attributes | NON-ASBESTOS COMPONENTS | | | | ASBESTOS % |
|---------------------------|-----------------------------------|-------------------|-------------------------|------------|-------------|-------------|---------------|
| | | | Fibrous | | Non-Fibrous | | |
| 17 Layer 1 B228372A | Roll Vinyl Floor | Heterogeneous | 5% | Cellulose | 50% | Vinyl | None Detected |
| | | Tan | 5% | Fiberglass | 40% | Foam | |
| | | Fibrous Bound | | | | | |
| Layer 1 B228372B | Tile | Heterogeneous | 10% | Cellulose | 75% | Vinyl | None Detected |
| | | Green | | | 10% | Binder | |
| | | Fibrous Bound | | | 5% | Silicates | |
| Layer 2 B228372B | Tarpaper | Heterogeneous | 75% | Cellulose | 25% | Tar | None Detected |
| | | Black | | | | | |
| | | Fibrous Bound | | | | | |
| Layer 1 B228372C | Tile | Heterogeneous | 10% | Cellulose | 75% | Vinyl | None Detected |
| | | Yellow | | | 10% | Binder | |
| | | Fibrous Bound | | | 5% | Silicates | |
| Layer 2 B228372C | Tarpaper | Heterogeneous | 75% | Cellulose | 25% | Tar | None Detected |
| | | Black | | | | | |
| | | Fibrous Bound | | | | | |
| 18 B228373 | Sample Submitted for TEM Analysis | | | | | | |
| 19 B228374A | Floor Tile | Heterogeneous | <1% | Cellulose | 80% | Vinyl | None Detected |
| | | Tan | <1% | Talc | 15% | Binder | |
| | | Fibrous Bound | | | 5% | Silicates | |
| B228374B | Mastic | Heterogeneous | 5% | Cellulose | 95% | Mastic | None Detected |
| | | Black | | | <1% | Non-Fibrous | |
| | | Fibrous Bound | | | | Debris | |



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

CEI Lab Code: B16-10078
Date Received: 12-06-16
Date Analyzed: 12-12-16
Date Reported: 12-12-16

Project: 592 Farley Ave; COS 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID Lab ID | Lab Description | Lab Attributes | NON-ASBESTOS COMPONENTS | | | | ASBESTOS % |
|-----------------------|--------------------|--|-------------------------|-------------------|------------------|---------------------------------|---------------|
| | | | Fibrous | | Non-Fibrous | | |
| B228374C | Floor Tile | Heterogeneous Brown Fibrous Bound | <1% <1% | Cellulose Talc | 80% 15% 5% | Vinyl Binder Silicates | None Detected |
| Layer 1 B228374D | Mastic | Heterogeneous Black Fibrous Bound | 5% | Cellulose | 95% <1% | Mastic Non-Fibrous Debris | None Detected |
| Layer 2 B228374D | Tarpaper | Heterogeneous Black Fibrous Bound | 75% | Cellulose | 25% | Tar | None Detected |
| 20 B228375A | Floor Tile | Heterogeneous Tan Fibrous Bound | <1% <1% | Cellulose Talc | 80% 15% 5% | Vinyl Binder Silicates | None Detected |
| B228375B | Mastic | Heterogeneous Black Fibrous Bound | 5% | Cellulose | 95% <1% | Mastic Non-Fibrous Debris | None Detected |
| B228375C | Floor Tile | Heterogeneous Brown Fibrous Bound | <1% <1% | Cellulose Talc | 80% 15% 5% | Vinyl Binder Silicates | None Detected |
| Layer 1 B228375D | Mastic | Heterogeneous Black Fibrous Bound | 5% | Cellulose | 95% <1% | Mastic Non-Fibrous Debris | None Detected |



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

CEI Lab Code: B16-10078
Date Received: 12-06-16
Date Analyzed: 12-12-16
Date Reported: 12-12-16

Project: 592 Farley Ave; COS 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID Lab ID | Lab Description | Lab Attributes | NON-ASBESTOS COMPONENTS | | | | ASBESTOS % |
|---|-----------------------------------|---|-------------------------|-----------|-------------|-----------|-----------------------|
| | | | Fibrous | | Non-Fibrous | | |
| Layer 2 B228375D | Tarpaper | Heterogeneous Black Fibrous Bound | 75% | Cellulose | 25% | Tar | None Detected |
| 21 B228376 | Sample Submitted for TEM Analysis | | | | | | |
| 22 Layer 1 B228377 | Transite | Heterogeneous Gray,Beige Fibrous Tightly Bound | 75% | Binder | 10% | Silicates | 15% Chrysotile |
| Layer 2 B228377 | Felt | Heterogeneous Black Fibrous Bound | 73% | Cellulose | 25% | Tar | 2% Chrysotile |
| Lab Notes: Chrysotile found in felt likely contamination from transite. | | | | | | | |
| 23 B228378 | Sample Not Analyzed per COC | | | | | | |
| 24 B228379 | Sample Not Analyzed per COC | | | | | | |
| 25 B228380 | Glazing | Heterogeneous White,Tan Fibrous Bound | <1% | Cellulose | 85% | Calc Carb | None Detected |
| 26 B228381 | Glazing | Heterogeneous White,Tan Fibrous Bound | <1% | Cellulose | 85% | Calc Carb | None Detected |
| 27 B228382 | Sample Submitted for TEM Analysis | | | | | | |



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

CEI Lab Code: B16-10078
Date Received: 12-06-16
Date Analyzed: 12-12-16
Date Reported: 12-12-16

Project: 592 Farley Ave; COS 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID Lab ID | Lab Description | Lab Attributes | NON-ASBESTOS COMPONENTS | | | | ASBESTOS % |
|-----------------------|-----------------------------------|-------------------|-------------------------|-----------|-------------|-----------|---------------|
| | | | Fibrous | | Non-Fibrous | | |
| 28 B228383A | Drywall | Heterogeneous | 15% | Cellulose | 75% | Gypsum | None Detected |
| | | Off-white | | | 10% | Silicates | |
| | | Fibrous Bound | | | | | |
| Layer 1 B228383B | Mastic | Heterogeneous | 5% | Cellulose | 90% | Mastic | None Detected |
| | | Brown | | | 5% | Binder | |
| | | Fibrous Bound | | | | | |
| Layer 2 B228383B | Tarpaper | Heterogeneous | 70% | Cellulose | 25% | Tar | None Detected |
| | | Black | | | 5% | Paint | |
| | | Fibrous Bound | | | | | |
| 29 B228384A | Drywall | Heterogeneous | 15% | Cellulose | 75% | Gypsum | None Detected |
| | | Off-white | | | 10% | Silicates | |
| | | Fibrous Bound | | | | | |
| Layer 1 B228384B | Mastic | Heterogeneous | 5% | Cellulose | 90% | Mastic | None Detected |
| | | Brown | | | 5% | Binder | |
| | | Fibrous Bound | | | | | |
| Layer 2 B228384B | Tarpaper | Heterogeneous | 70% | Cellulose | 25% | Tar | None Detected |
| | | Black | | | 5% | Paint | |
| | | Fibrous Bound | | | | | |
| 30 B228385A | Drywall | Heterogeneous | 15% | Cellulose | 75% | Gypsum | None Detected |
| | | Off-white | | | 10% | Silicates | |
| | | Fibrous Bound | | | | | |
| B228385B | Sample Submitted for TEM Analysis | | | | | | |



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

CEI Lab Code: B16-10078
Date Received: 12-06-16
Date Analyzed: 12-12-16
Date Reported: 12-12-16

Project: 592 Farley Ave; COS 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID Lab ID | Lab Description | Lab Attributes | NON-ASBESTOS COMPONENTS | | | | ASBESTOS % |
|---------------------------------|--------------------|--|-------------------------|-----------|-------------|--------------------------------------|---------------|
| | | | Fibrous | | Non-Fibrous | | |
| 31 B228386 | Drywall | Heterogeneous Off-white Fibrous Bound | 15% | Cellulose | 75% | Gypsum 10% Silicates <1% Paint | None Detected |
| 32 B228387 | Drywall | Heterogeneous Off-white Fibrous Bound | 15% | Cellulose | 75% | Gypsum 10% Silicates <1% Paint | None Detected |
| 33 B228388 | Drywall | Heterogeneous Off-white Fibrous Bound | 15% | Cellulose | 75% | Gypsum 10% Silicates <1% Paint | None Detected |
| 34 B228389 | Ceiling Tile | Heterogeneous White,Brown Fibrous Bound | 95% | Cellulose | 5% | Binder <1% Paint | None Detected |
| 35 B228390 | Ceiling Tile | Heterogeneous White,Brown Fibrous Bound | 95% | Cellulose | 5% | Binder <1% Paint | None Detected |
| 36 B228391 | Ceiling Tile | Heterogeneous White,Brown Fibrous Bound | 95% | Cellulose | 5% | Binder <1% Paint | None Detected |
| 37 Layer 1 B228392 | Plaster Skim Coat | Heterogeneous White Non-fibrous Bound | | | 85% | Binder 10% Silicates 5% Paint | None Detected |



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

CEI Lab Code: B16-10078
Date Received: 12-06-16
Date Analyzed: 12-12-16
Date Reported: 12-12-16

Project: 592 Farley Ave; COS 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID Lab ID | Lab Description | Lab Attributes | NON-ASBESTOS COMPONENTS | | | | ASBESTOS % |
|---------------------------------|--------------------|--|-------------------------|-----------|-------------|-------------|---------------|
| | | | Fibrous | | Non-Fibrous | | |
| Layer 2 B228392 | Plaster Base Coat | Heterogeneous Off-white Fibrous Bound | <1% | Cellulose | 40% | Binder | None Detected |
| | | | | | 55% | Silicates | |
| | | | | | 5% | Vermiculite | |
| 38 Layer 1 B228393 | Plaster Skim Coat | Heterogeneous White Non-fibrous Bound | | | 85% | Binder | None Detected |
| | | | | | 10% | Silicates | |
| | | | | | 5% | Paint | |
| Layer 2 B228393 | Plaster Base Coat | Heterogeneous Off-white Fibrous Bound | <1% | Cellulose | 40% | Binder | None Detected |
| | | | | | 55% | Silicates | |
| | | | | | 5% | Vermiculite | |
| 39 Layer 1 B228394 | Plaster Skim Coat | Heterogeneous White Non-fibrous Bound | | | 85% | Binder | None Detected |
| | | | | | 10% | Silicates | |
| | | | | | 5% | Paint | |
| Layer 2 B228394 | Plaster Base Coat | Heterogeneous Off-white Fibrous Bound | <1% | Cellulose | 40% | Binder | None Detected |
| | | | | | 55% | Silicates | |
| | | | | | 5% | Vermiculite | |
| 40 Layer 1 B228395 | Plaster Skim Coat | Heterogeneous White Non-fibrous Bound | | | 85% | Binder | None Detected |
| | | | | | 10% | Silicates | |
| | | | | | 5% | Paint | |
| Layer 2 B228395 | Plaster Base Coat | Heterogeneous Off-white Fibrous Bound | <1% | Cellulose | 40% | Binder | None Detected |
| | | | | | 55% | Silicates | |
| | | | | | 5% | Vermiculite | |



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

CEI Lab Code: B16-10078
Date Received: 12-06-16
Date Analyzed: 12-12-16
Date Reported: 12-12-16

Project: 592 Farley Ave; COS 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID Lab ID | Lab Description | Lab Attributes | NON-ASBESTOS COMPONENTS | | ASBESTOS % |
|--------------------------|--------------------|-------------------|-------------------------|-------------|---------------|
| | | | Fibrous | Non-Fibrous | |
| 41 Layer 1 B228396 | Plaster Skim Coat | Heterogeneous | 85% | Binder | None Detected |
| | | White | 10% | Silicates | |
| | | Non-fibrous | 5% | Paint | |
| | | Bound | | | |
| Layer 2 B228396 | Plaster Base Coat | Heterogeneous | <1% | Cellulose | None Detected |
| | | Off-white | 40% | Binder | |
| | | Fibrous | 55% | Silicates | |
| | | Bound | 5% | Vermiculite | |



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

CHAIN OF CUSTODY

| |
|--|
| LAB USE ONLY: |
| CEI Lab Code: <u>B16-10078 (4)</u> |
| CEI Lab I.D. Range: <u>B228356-B228396</u> |

| COMPANY CONTACT INFORMATION | |
|--|-------------------------------------|
| Company: Apex Environmental Management | Client #: |
| Address: 7 Winchester Court | Job Contact: <u>Ted Shultz</u> |
| Mauldin, SC 29662 | Email: <u>tshultz2@apex-ehs.com</u> |
| | Tel: 864-404-3210 |
| Project Name: <u>5 COS 0815-163</u> | Fax: |
| Project ID #: <u>592 Farley Ave</u> | P.O. #: |

| ASBESTOS | METHOD | 4 HR* | 8 HR* | 24 HR | 2 DAY | 3 DAY | 5 DAY |
|------------------------|-----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|
| PLM BULK | EPA 600 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| TEM BULK | CHATFIELD | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| PLM POINT COUNT (400) | EPA 600 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| PLM POINT COUNT (1000) | EPA 600 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| PLM GRAVIMETRIC | EPA 600 | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| PLM GRAV w POINT COUNT | EPA 600 | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| OTHER: | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | |
|------------------------|-------------------------------------|
| POSITIVE STOP ANALYSIS | <input checked="" type="checkbox"/> |
| SOUTH CAROLINA SAMPLES | <input checked="" type="checkbox"/> |

| TEM INSTRUCTIONS | |
|---|-------------------------------------|
| BEGIN TEM ANALYSIS AFTER NEGATIVE PLM | <input checked="" type="checkbox"/> |
| ANALYZE TEM SAMPLES SIMULTANEOUSLY WITH PLM | <input type="checkbox"/> |

| | | | |
|--|----------------------------------|---|----------------------|
| REMARKS: If needed, combine samples from the same group to achieve sufficient weight for TEM analysis. | | <input checked="" type="checkbox"/> Accept Samples <input type="checkbox"/> Reject Samples | |
| Relinquished By: | Date/Time | Received By: | Date/Time |
| | <u>11/28/2016 12:5-16 5:00pm</u> | <u>AR</u> | <u>12/16/16 9:40</u> |

*Call to confirm RUSH analysis. Samples will be disposed of 30 days after analysis



SAMPLING FORM

B16-10078

| COMPANY CONTACT INFORMATION | |
|----------------------------------|-------------------------|
| Company: Apex Env. Mgmt. | Job Contact: Ted Shultz |
| Project Name: 205 592 Farley Ave | |
| Project ID #: 0815-163 | Tel: 803-348-4921 |

| SAMPLE ID# | DESCRIPTION / LOCATION | TEST | |
|------------|------------------------------------|-------------------------------------|-------------------------------------|
| | | PLM | TEM |
| 1 | Roof 2 shingles | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2 | no felt | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3 | | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4 | Storage 2 shingles | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 5 | Shed Roof 1 felt | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 6 | | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 7 | Roof Patch 1 rolled shingle | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 8 | | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9 | | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 | Hall outside grey 9x9 tile w/felt | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 11 | bath rm + mastic | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 12 | | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 | Hall outside grey rolled vinyl flr | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 14 | Kitchen | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 15 | | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 16 | Bath rm tan roll vinyl flr | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 17 | 9x9 green tile | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 18 | 9x9 yellow tile | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 19 | 2nd Bedrm 9x9 tan flr tile | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 20 | on Rt 9x9 brown flr tile | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 21 | | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 22 | exterior Transite w/ felt | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 23 | siding | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 24 | | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 25 | windows glazing | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 26 | | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 27 | | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 28 | kitchen dry wall w/ mastic | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 29 | no J.C. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 30 | | <input type="checkbox"/> | <input checked="" type="checkbox"/> |



December 19, 2016

Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

CLIENT PROJECT: COS- 592 Farley Ave.; 0815-163
CEI LAB CODE: T16-1932

Dear Customer:

Enclosed are asbestos analysis results for TEM bulk samples received at our laboratory on December 12, 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,

A handwritten signature in black ink, appearing to read "Tianbao Bai".

Tianbao Bai, Ph.D., CIH
Laboratory Director



ASBESTOS ANALYTICAL REPORT
By: Transmission Electron Microscopy

Prepared for

Apex Environmental Management

CLIENT PROJECT: COS- 592 Farley Ave.; 0815-163

CEI LAB CODE: T16-1932

TEST METHOD: Bulk Chatfield
EPA 600 / R93 / 116

REPORT DATE: 12/19/16

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: T16-1932
Date Received: 12-12-16
Date Analyzed: 12-16-16
Date Reported: 12-19-16

Project: COS- 592 Farley 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 T56180 | Black Shingle | 0.532 | 20.7 | 18.6 | 60.7 | None Detected |
| 3 T56181 | Black Shingle | 0.602 | 22.1 | 23.3 | 54.6 | None Detected |
| 6 T56182 | Black Shingle | 0.609 | 28.4 | 19.5 | 52.1 | None Detected |
| 6 T56183 | Black Shingle | 0.585 | 29.4 | 15.9 | 54.7 | None Detected |
| 6 T56184 | Black Felt | 0.484 | 97.9 | 1.7 | .4 | None Detected |
| 9 T56185 | Black Rolled Vinyl Flooring | 0.546 | 41.9 | 50 | 8.1 | None Detected |
| 12 T56186 | Gray Tile | 0.24 | 31.7 | 10 | 58.3 | None Detected |
| 12 T56187 | Tan Mastic | 0.108 | 46.3 | 12 | 41.7 | None Detected |
| 12 T56188 | Black Mastic | 0.183 | 56.3 | 8.2 | 35.5 | None Detected |
| 15 T56189 | Gray Rolled Vinyl Floor | 0.319 | 47.3 | 50.8 | 1.9 | None Detected |
| 15 T56190 | Beige Mastic | 0.432 | 38.7 | 43.3 | 18 | None Detected |
| 18 T56191 | Tan Roll Vinyl Floor | 0.25 | 75.6 | 18 | 6.4 | None Detected |



ASBESTOS BULK ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

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

CEI Lab Code: T16-1932
Date Received: 12-12-16
Date Analyzed: 12-16-16
Date Reported: 12-19-16

Project: COS- 592 Farley 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 % |
|---------------------|-------------------------|-------------------------|--------------------------|-------------------------------|---------------------------------|------------------|
| 18 T56192 | Green Tile | 0.284 | 34.5 | 33.8 | 31.7 | None Detected |
| 18 T56193 | Black Tarpaper | 0.103 | 66 | 14.6 | 19.4 | None Detected |
| 18 T56194 | Yellow Tile | 0.486 | 35.6 | 31.9 | 32.5 | None Detected |
| 18 T56195 | Black Tarpaper | 0.15 | 74.7 | 9.3 | 16 | None Detected |
| 21 T56196 | Tan Floor Tile | 0.464 | 81.7 | 5.8 | 12.5 | None Detected |
| 21 T56197 | Black Mastic | 0.089 | 83.1 | 12.4 | 4.5 | None Detected |
| 21 T56198 | Brown Floor Tile | 0.391 | 33.8 | 12.3 | 53.9 | None Detected |
| 21 T56199 | Black Mastic | 0.097 | 91.8 | 6.2 | 2 | None Detected |
| 21 T56200 | Black Tarpaper | 0.111 | 93.7 | 4.5 | 1.8 | <1% Chrysotile |
| 27 T56201 | White, Tan Glazing | 0.432 | 27.3 | 57.6 | 15.1 | None Detected |
| 30 T56202 | Brown Mastic | 0.432 | 55.6 | 15.5 | 28.9 | None Detected |
| 30 T56203 | Black Tarpaper | 0.335 | 55.5 | 12.2 | 32.3 | None Detected |



LEGEND: None

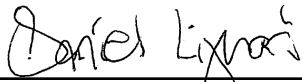
METHOD: CHATFIELD & EPA/600/R-93/116

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

REGULATORY LIMIT: >1% by weight

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ANALYST:


Daniel Liguori

APPROVED BY:


Tianbao Bai, Ph.D., CIH
Laboratory Director



TIG-1932
TSG180-203

CHAIN OF CUSTODY

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

(24)

| |
|-------------------------------------|
| LAB USE ONLY: |
| CEI Lab Code: B16-10078 (40) |
| CEI Lab I.D. Range: B228356-B228396 |

COMPANY CONTACT INFORMATION

| | |
|--|------------------------------|
| Company: Apex Environmental Management | Client #: |
| Address: 7 Winchester Court | Job Contact: Ted Shultz |
| Mauldin, SC 29662 | Email: tshultz2@apex-ehs.com |
| Project Name: COS 0815-163 | Tel: 864-404-3210 |
| Project ID #: 592 Farley Ave | Fax: |
| | P.O. #: |

| ASBESTOS | METHOD | 4 HR* | 8 HR* | 24 HR | 2 DAY | 3 DAY | 5 DAY |
|------------------------|-----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|
| PLM BULK | EPA 600 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| TEM BULK | CHATFIELD | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| PLM POINT COUNT (400) | EPA 600 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| PLM POINT COUNT (1000) | EPA 600 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| PLM GRAVIMETRIC | EPA 600 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| PLM GRAV w POINT COUNT | EPA 600 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| OTHER: | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | |
|------------------------|-------------------------------------|
| POSITIVE STOP ANALYSIS | <input checked="" type="checkbox"/> |
| SOUTH CAROLINA SAMPLES | <input checked="" type="checkbox"/> |

| TEM INSTRUCTIONS | |
|---|-------------------------------------|
| BEGIN TEM ANALYSIS AFTER NEGATIVE PLM | <input checked="" type="checkbox"/> |
| ANALYZE TEM SAMPLES SIMULTANEOUSLY WITH PLM | <input type="checkbox"/> |

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 |
|--------------------|-------------------------------|--------------|-----------|
| <i>[Signature]</i> | 11/28/2016 12:5-16 5:40 PM | AR | 12/16/16 |
| <i>[Signature]</i> | 12/12/16 | | 9:40 |

Call to confirm RUSH analysis.

12:45 PM

Samples will be disposed of 30 days after analysis



SAMPLING FORM

T16-1932

B16-10078

COMPANY CONTACT INFORMATION

| | |
|----------------------------------|-------------------------|
| Company: Apex Env. Mgmt. | Job Contact: Ted Shultz |
| Project Name: 205 592 Farley Ave | |
| Project ID #: 0815-163 | Tel: 803-348-4921 |

| SAMPLE ID# | DESCRIPTION / LOCATION | TEST | |
|------------|------------------------------------|-------------------------------------|-------------------------------------|
| | | PLM | TEM |
| 1 | Roof 2 shingles | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2 | 1 no felt | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3 | 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4 | Storage 2 shingles | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 5 | Shed Roof 1 felt | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 6 | 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 7 | Roof patch 1 rolled shingle | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 8 | 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9 | 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 | Hall outside grey 9x9 tile w/felt | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 11 | bath rm + mastic | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 12 | 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 | Hall outside grey rolled vinyl flr | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 14 | Kitchen | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 15 | 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 16 | Bath rm tan roll vinyl flr | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 17 | 1 9x9 green tile | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 18 | 1 9x9 yellow tile | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 19 | 2nd Bedrm 9x9 tan flr tile | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 20 | on Rt 1 9x9 brown flr tile | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 21 | 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 22 | exterior Transite w/ felt | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 23 | siding | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 24 | 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 25 | windows glazing | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 26 | 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 27 | 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 28 | Kitchen drywall w/ mastic | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 29 | 1 no J.C. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 30 | 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

SECTION IV
Photographic Log



Photo 1 – 592 Farley Avenue with two layers of shingles and no felt on the roof.



Photo 2 – 1'x1' ceiling tile in the living room.



Photo 3 – Flooring under layer of sub-floor at kitchen entrance.



Photo 4 – Cement board siding with felt behind.



Photo 5 – 9"x9" floor tile and mastic in bedroom.



Photo 6 – Exterior window glazing.



Photo 7 – Exterior shed with two layers of shingles and one layer of felt.



Photo 8 – Grey roll vinyl flooring in the hall outside of the kitchen.



Photo 9 – Flooring and mastic under carpet and layer of subfloor between living room and hall outside bathroom.



Photo 10 – Flooring and mastic under carpet and layer of subfloor between living room and hall outside bathroom.



Photo 11 – Kitchen drywall with mastic.



Photo 12 – Tan roll vinyl over 9"x9" green and yellow pattern flooring in the bathroom

SECTION V

SC DHEC Asbestos Inspector License

**North Carolina
Asbestos Accreditation**



Tedman K Shultz
201 Cannon Circle
Greenville, SC 29607

110723

| 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 | |

SCDHEC ISSUED
Asbestos ID Card

Tedman K Shultz

Expiration Date



AIR SAMPLER AS-00355 02/02/17
CONSULT BI-00971 01/20/17