



Asbestos & Lead Based Paint Assessment

City of Spartanburg
457 Bethlehem Street
Spartanburg, South Carolina 29306

Prepared for:

The City of Spartanburg
440 South Church St., Suite B
Spartanburg, SC 29306

Prepared by:

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

Project Number: 0118-14

September 6, 2018





Apex Project Number 0118-14

September 6, 2018

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

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

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

SERVICES

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

Dear Mr. Tillerson:

Apex Environmental Management, Inc. (Apex) is pleased to provide the results of our assessment services for the referenced property.

This report and the associated attachments summarize our evaluation of the conditions observed at the project site. The findings presented by Apex are based upon sampling performed in the subject building. There is a chance that undetected ACM may exist in the building between walls or in other areas that would only be exposed during demolition or structural renovations. Should material be discovered that could potentially contain asbestos during the demolition process, additional samples of the material should be collected by a licensed asbestos inspector and submitted to an accredited laboratory for analytical interpretation. Our recommendations are based on the guidelines presented in EPA and/or OSHA regulations.

Please note that this document is not a specification for asbestos removal. It does not contain means and methods for abatement. Quantities are estimates and contractors must verify amounts prior to bidding or removal. If you are planning an abatement project, please contact Apex to discuss the requirements. Use of this document without the express written consent of Apex is at the sole risk of the user and or/abatement contractor.

The conclusions and/or recommendations contained in this report are based on our understanding of the applicable standards at the time this report was prepared. No warranty, expressed or implied, is made. If you have any questions please feel free to contact us at (864) 404-3210.

Respectfully submitted,
APEX ENVIRONMENTAL MANAGEMENT, INC.

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

Tom Oliver
Director of Operations

Appendices

ASBESTOS AND LEAD BASED PAINT ASSESSMENT

**CITY OF SPARTANBURG
457 BETHLEHEM STREET
SPARTANBURG, SOUTH CAROLINA 29306**

APEX PROJECT NO. 0118-14

TABLE OF CONTENTS

SECTION

- I Asbestos & Lead Evaluation Report
- II Asbestos & LBP Data Tables
- III Laboratory Analytical Results
- IV Photographic Log
- V SC DHEC Asbestos Inspector License

SECTION I

Asbestos & Lead Evaluation Report

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

| | | | |
|------------------------|--|-----------------------------|------------------------|
| Date: | 9/6/2018 | Page Number: | 1 of 4 |
| Client: | City of Spartanburg | Client Contact: | Mr. Jeff Tillerson |
| Client Address: | 440 South Church Street Suite B Spartanburg, SC 29306 | Client Phone Number: | (864) 596-2911 |
| Project: | Asbestos Evaluation and Lead Based Paint Assessment | | |
| Property Address: | 457 Bethlehem Street Spartanburg, SC 29306 | | |
| Assessor: | Tom Oliver | Date of Assessment: | 8/16//2018 |
| Company: | Apex Environmental Management 7 Winchester Court Mauldin, SC 29662 | Phone Number: | (864) 404-3210 |
| Purpose of Assessment: | Demolition | Age of Structure: | Approximately 80 years |
| Building Type: | Residential | Number of Stories: | 1 |
| Foundation: | CMU Block Crawlspace | Approximate Square Footage: | 2,250 SF |

EXTERIOR BUILDING MATERIALS

- Pitched wooden roof with shingles & felt.
- Wooden shake shingle siding.
- Wooden windows with glazing.
- Wooden doors with no caulk.
- Black mastic/tar on 3 chimneys & 2 roof penetrations – assumed positive.
- Black mastic/tar on roof flashing – assumed positive.

INTERIOR BUILDING MATERIALS

- Plaster with finish walls & ceilings.
- Multiple types & layers of vinyl flooring with and without mastics.
- Wooden floors.

SCOPE OF THE SURVEY

The objectives of the asbestos and lead assessment included the following:

- Identification of suspect asbestos-containing material (ACM) and lead based paints (LBP) in readily observable locations. Limited demolition of building finishes was conducted.
- Asbestos survey with sample collection by a South Carolina accredited inspector.
- Suspect ACM analysis by polarized light microscopy (PLM) utilizing Eurofins CEI Labs, Inc. (CEI) as an NVLAP certified laboratory, their accreditation number is 101768-0.
- Transmission electron microscopy (TEM) analysis of non-friable organically bound materials suspected to contain asbestos and testing negatively by PLM analysis.
- Lead inspection by a lead inspector certified by the Environmental Protection Agency and licensed to conduct LBP surveys in South Carolina.
- In situ analysis of suspected lead based paints by X-ray fluorescence (XRF).
- Presenting the results in a report identifying confirmed ACMs and LBPs.

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-five (25) 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). Eleven (11) samples were analyzed using TEM.

Lead-Based Paint

Lead painted surfaces were analyzed in place using X-ray fluorescence. Painted surfaces were selected based on color of topcoat, underlying layers and substrate on which it was painted

RESULTS

Asbestos Results

The EPA defines an asbestos-containing material (ACM) as a material containing more than 1% asbestos. OSHA defines ACM as a material containing detectable amounts of asbestos. It should be noted that materials were identified to contain less than 1% asbestos and OSHA Construction Industry Asbestos Standards (29 CFR 1926.1101) will apply if those materials are disturbed during renovation or demolition activities. A specific *PLM and TEM Data Table* is located in Appendix II of this report and identifies positive materials and designates approximate quantities.

Suspect asbestos containing materials that were identified to be asbestos containing include:

- Approximately 20 wooden windows with glazing.
- Approximately 13 SF of 9" x 9" off-white floor tiles in the bathroom.
- Approximately 180 SF of brown roll vinyl floor in the right rear bedroom.
- Approximately 165 SF of tan roll vinyl floor in the kitchen – 2nd layer.
- Approximately 20 LF of mastic/tar on 3 chimneys and 2 roof penetrations – assumed positive.
- Approximately 40 LF of mastic/tar on roof flashing.

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/m³) during an eight-hour workday and a permissible exposure level of fifty micrograms per cubic meter (50 µg/m³) for employees.

Currently, SCDHEC defines LBP as paint containing in excess of, or equal to, 1.0 mg/cm². The laboratory analytical results and chain-of-custody are included in the Lead Analysis Reports in Appendix II. The approximate locations of the paint samples collected and analytical results are presented in the *LBP Data Table* included with this report.

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

Exterior

- White wooden door frames.
- White wooden windows and window frames.
- White wooden front porch ceiling and header boards.
- White concrete chimney.
- White wooden back porch columns.

Interior

- Green, grey, blue and pink plaster walls and ceilings.
- Pink wooden doors and door frames.
- Pink wooden base boards.
- White porcelain toilet and sink.

RECOMMENDATIONS AND DISCUSSION

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.

Please note that this document is not a specification for asbestos removal. It does not contain means and methods for asbestos abatement. If you are planning an asbestos 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. Quantities provided in this report are estimated. Contractors must verify material amounts prior to bidding or removal.

This report summarizes our evaluation of the conditions observed at the site. The findings prepared by Apex are based upon testing performed in the building space. Additional ACM may exist (undetected) in other areas due to their inaccessibility or due to the limited nature of our testing. Our assessment procedures and recommendations are based on the guidelines presented in EPA, State of South Carolina or OSHA asbestos regulations.

Lead-Based Paint

Currently the South Carolina Department of Health and Environmental Control (SCDHEC) define LBP as paint containing greater than 1.0 milligram per square centimeter (mg/cm^2) lead or in excess of, or equal to, 0.5 percent lead. Building materials identified as being painted with LBP should be segregated from the other building materials and recycled or disposed of in a municipal lined landfill. The removed wastes would need to be containerized and further tested by Toxic Characteristic Leaching procedures (TCLP) to determine if the waste is classified as hazardous. The remaining building materials that are not painted with LBP may be disposed of in a construction and demolition landfill. However, the landfills should be contacted to determine their specific disposal requirements.

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

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

SECTION II

Asbestos & LBP Data Tables

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

Project Name: COS 457 Bethlehem Street ACM/LBP

Sampled By: Tom Oliver

Project Location: Bethlehem Street, Spartanburg, SC 29306

Project Manager: Tom Oliver

Project Number: 0118-14

Date: 8/16/2018

| Sample No. | Location | Sample Description | Analytical Results | Friable/Non Friable | Condition | Quantity |
|------------|-------------------------|--|--|---------------------|-----------|----------|
| 1 | Roof | Roof shingles (2 layers) & felt (1 layer) | PLM - NAD | Non-Friable | Damaged | 3,400 SF |
| 2 | | | | | | |
| 3 | | | TEM - NAD | | | |
| 4 | Wooden windows | Window glazing | PLM - 2% chrysotile | Non-Friable | Good | 20 EA |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | Throughout | Plaster with finish | PLM - NAD | Friable | Good | 6,250 SF |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | Right bedroom & hallway | 9" x 9" green/black checker pattern floor tile with mastic & felt | PLM - NAD | Non-Friable | Good | 300 SF |
| 15 | | | | | | |
| 16 | | | TEM - NAD | | | |
| 17 | Bathroom | 9" x 9" green & off-white checker pattern floor tiles with mastic & felt | PLM - NAD (green FT, mastics & felt); 3% chrysotile (off-white FT) | Non-Friable | Good | 25 SF |
| 18 | | | | | | |
| 19 | | | TEM - NAD (green FT, black mastic & felt); <1% chrysotile (tan mastic) | | | |

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

Project Name: COS 457 Bethlehem Street ACM/LBP

Sampled By: Tom Oliver

Project Location: Bethlehem Street, Spartanburg, SC 29306

Project Manager: Tom Oliver

Project Number: 0118-14

Date: 8/16/2018

| Sample No. | Location | Sample Description | Analytical Results | Friable/Non Friable | Condition | Quantity |
|------------|---|--|--|---------------------|-----------|----------|
| 20 | Right rear bedroom | Brown roll vinyl floor with no mastic | PLM - 5% chrysotile | Non-Friable | Good | 180 SF |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | Kitchen & pantry (2 layers in kitchen; top layer in only in pantry) | Yellow square pattern roll vinyl with no mastic over tan roll vinyl floor with no mastic | PLM - NAD (yellow square pattern vinyl floor); 3% chrysotile (tan vinyl floor) | Non-Friable | Good | 165 SF |
| 24 | | | TEM - NAD (yellow square pattern vinyl floor) | | | |
| 25 | | | | | | |
| Assumed | Roof/flashing | Tar of roof flashing | Assumed | Non-Friable | Good | 50 LF |
| Assumed | Roof/chimneys | Mastic/tar on 3 chimneys & 2 roof penetrations | Assumed | Non-Friable | Good | 20 LF |

NAD = No Asbestos Detected

LF = Linear Feet

EA = Each

Amos = Amosite

Bold = Positive For Asbestos

SF = Square Feet

Chry = Chrysotile

FIELD DATA SHEET LBP ANALYSIS

Project Name: COS 457 Bethlehem Street ACM/LBP

Sampled By: Tom Oliver

Project Location: 457 Bethlehem Street, Spartanburg, SC 29306

Project Manager: Tom Oliver

Project Number: 0118-14

Date: 8/16/2018

| Sample No. | Sample Location | Component | Color | Substrate | Analytical Result (mg/m ³) |
|------------|-----------------------------|---------------------|--------------|-----------------|--|
| 66 | Exterior front porch | Siding | Brown | Wood | 0.03 |
| 67 | Exterior front porch | Door frame | White | Wood | 1.00 |
| 68 | Exterior front porch | Door | White | Wood | 0.68 |
| 69 | Exterior front porch | Screen door | White | Wood | 0.00 |
| 70 | Exterior front porch | Window | White | Wood | 4.41 |
| 71 | Exterior front porch | Window frame | White | Wood | 3.85 |
| 72 | Exterior front porch | Ceiling | White | Wood | 4.25 |
| 73 | Exterior front porch | Floor | Grey | Concrete | 0.02 |
| 74 | Exterior front porch | Column | White | Wood | 0.00 |
| 75 | Exterior front porch | Header | White | Wood | 2.37 |
| 76 | Exterior front porch | Soffit | White | Wood | 0.38 |
| 77 | Exterior | Chimney | White | Concrete | 1.00 |
| 78 | Exterior back porch | Column | White | Wood | 4.59 |
| 79 | Interior | Door | White | Wood | 0.06 |
| 80 | Interior | Door frame | White | Wood | 0.05 |
| 81 | Interior | Window | White | Wood | 0.28 |
| 82 | Interior | Window frame | White | Wood | 0.13 |
| 83 | Interior | Window | Green | Wood | 0.11 |
| 84 | Interior | Window frame | Green | Wood | 0.09 |
| 85 | Interior | Base board | Green | Wood | 0.07 |
| 86 | Interior | Base board | White | Wood | 0.12 |
| 87 | Interior | Chimney | White | Brick | 0.13 |
| 88 | Interior | Fireplace mantle | White | Wood | 0.14 |
| 89 | Interior | Base board | Brown | Wood | 0.12 |

**FIELD DATA SHEET
LBP ANALYSIS**

Project Name: COS 457 Bethlehem Street ACM/LBP

Sampled By: Tom Oliver

Project Location: 457 Bethlehem Street, Spartanburg, SC 29306

Project Manager: Tom Oliver

Project Number: 0118-14

Date: 8/16/2018

| Sample No. | Sample Location | Component | Color | Substrate | Analytical Result (mg/m ³) |
|------------|-----------------|--------------------|--------------|------------------|--|
| 90 | Interior | Wall | Green | Plaster | 1.00 |
| 91 | Interior | Ceiling | Grey | Plaster | 1.00 |
| 92 | Interior | Wall | White | Plaster | 0.12 |
| 93 | Interior | Wall panel | Brown | Wood | 0.10 |
| 94 | Interior | Fireplace | Blue | Brick | 0.12 |
| 95 | Interior | Fireplace mantle | Blue | Wood | 0.12 |
| 96 | Interior | Wall | Blue | Plaster | 1.00 |
| 97 | Interior | Base board | Blue | Wood | 0.17 |
| 98 | Interior | Door | Green | Wood | 0.16 |
| 99 | Interior | Door | Blue | Wood | 0.11 |
| 100 | Interior | Door frame | Green | Wood | 0.09 |
| 101 | Interior | Door frame | Blue | Wood | 0.17 |
| 102 | Interior | Wall | Pink | Plaster | 1.10 |
| 103 | Interior | Door | Pink | Wood | 4.11 |
| 104 | Interior | Door frame | Pink | Wood | 4.28 |
| 105 | Interior | Base board | Pink | Wood | 3.48 |
| 106 | Interior | Window | Blue | Wood | 0.13 |
| 107 | Interior | Window frame | Blue | Wood | 0.11 |
| 108 | Interior | Cabinets | White | Wood | 0.00 |
| 109 | Interior | Toilet/sink | White | Porcelain | 3.84 |

Bold = LBP

SECTION III

Laboratory Analytical Results

August 27, 2018

Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

CLIENT PROJECT: COS 457 Bethlehem St.; COS 0118-14
CEI LAB CODE: A189271

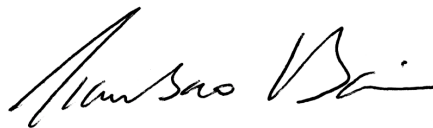
Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on August 20, 2018. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600 Method.

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

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

Kind Regards,



Tianbao Bai, Ph.D., CIH
Laboratory Director



CEI

ASBESTOS ANALYTICAL REPORT

By: Polarized Light Microscopy

Prepared for

Apex Environmental Management

CLIENT PROJECT: COS 457 Bethlehem St.; COS 0118-14

LAB CODE: A189271

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

REPORT DATE: 08/27/18

TOTAL SAMPLES ANALYZED: 18

SAMPLES >1% ASBESTOS: 4

PROJECT: COS 457 Bethlehem St.; COS 0118-14

LAB CODE: A189271

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

| Client ID | Layer | Lab ID | Color | Sample Description | ASBESTOS % |
|-----------|---------|---------|-----------------|-----------------------------------|----------------------|
| 1 | Layer 1 | A85003A | Black,White | Shingle | None Detected |
| | Layer 2 | A85003A | Black,Off-white | Shingle | None Detected |
| | | A85003B | Black | Felt | None Detected |
| 2 | Layer 1 | A85004A | Black,White | Shingle | None Detected |
| | Layer 2 | A85004A | Black,Off-white | Shingle | None Detected |
| | | A85004B | Black | Felt | None Detected |
| 3 | Layer 1 | A85005A | | Sample Submitted for TEM Analysis | |
| | Layer 2 | A85005A | | Sample Submitted for TEM Analysis | |
| | | A85005B | | Sample Submitted for TEM Analysis | |
| 4 | | A85006 | White,Beige | Window Glazing | None Detected |
| 5 | | A85007 | Beige | Window Glazing | Chrysotile 2% |
| 6 | | A85008 | | Sample Not Analyzed per COC | |
| 7 | Layer 1 | A85009 | White | Walls & Ceiling Plaster Skim Coat | None Detected |
| | Layer 2 | A85009 | Gray | Walls & Ceiling Plaster Base Coat | None Detected |
| 8 | Layer 1 | A85010 | White | Walls & Ceiling Plaster Skim Coat | None Detected |
| | Layer 2 | A85010 | Gray | Walls & Ceiling Plaster Base Coat | None Detected |
| 9 | Layer 1 | A85011 | White | Walls & Ceiling Plaster Skim Coat | None Detected |
| | Layer 2 | A85011 | Gray | Walls & Ceiling Plaster Base Coat | None Detected |
| 10 | Layer 1 | A85012 | White | Walls & Ceiling Plaster Skim Coat | None Detected |
| | Layer 2 | A85012 | Gray | Walls & Ceiling Plaster Base Coat | None Detected |
| 11 | Layer 1 | A85013 | White | Walls & Ceiling Plaster Skim Coat | None Detected |



CEI

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS 457 Bethlehem St.; COS 0118-14

LAB CODE: A189271

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

| Client ID | Layer | Lab ID | Color | Sample Description | ASBESTOS % |
|-----------|---------|---------|-----------|-----------------------------------|----------------------|
| | Layer 2 | A85013 | Gray | Walls & Ceiling Plaster Base Coat | None Detected |
| 12 | Layer 1 | A85014 | White | Walls & Ceiling Plaster Skim Coat | None Detected |
| | Layer 2 | A85014 | Gray | Walls & Ceiling Plaster Base Coat | None Detected |
| 13 | Layer 1 | A85015 | White | Walls & Ceiling Plaster Skim Coat | None Detected |
| | Layer 2 | A85015 | Gray | Walls & Ceiling Plaster Base Coat | None Detected |
| 14 | | A85016A | Green | Floor Tile | None Detected |
| | Layer 1 | A85016B | Tan | Mastic | None Detected |
| | Layer 2 | A85016B | Black | Felt Underlayment | None Detected |
| 15 | | A85017A | Green | Floor Tile | None Detected |
| | Layer 1 | A85017B | Tan | Mastic | None Detected |
| | Layer 2 | A85017B | Black | Felt Underlayment | None Detected |
| 16 | | A85018A | | Sample Submitted for TEM Analysis | |
| | | A85018B | | Sample Submitted for TEM Analysis | |
| 17 | | A85019A | Green | Floor Tile | None Detected |
| | | A85019B | Tan | Mastic | None Detected |
| | | A85019C | Off-white | Floor Tile | Chrysotile 3% |
| | Layer 1 | A85019D | Black | Mastic | None Detected |
| | Layer 2 | A85019D | Black | Felt Underlayment | None Detected |
| 18 | | A85020A | Green | Floor Tile | None Detected |
| | | A85020B | Tan | Mastic | None Detected |
| | | A85020C | | Sample Not Analyzed per COC | |
| | | A85020D | Black | Mastic | None Detected |
| 19 | | A85021A | | Sample Submitted for TEM Analysis | |
| | | A85021B | | Sample Submitted for TEM Analysis | |

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS 457 Bethlehem St.; COS 0118-14

LAB CODE: A189271

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

| Client ID | Layer | Lab ID | Color | Sample Description | ASBESTOS % |
|-----------|-------|---------|--------|-----------------------------------|----------------------|
| | | A85021C | | Sample Not Analyzed per COC | |
| | | A85021D | | Sample Submitted for TEM Analysis | |
| 20 | | A85022 | Brown | Roll Flooring | Chrysotile 5% |
| 21 | | A85023 | | Sample Not Analyzed per COC | |
| 22 | | A85024 | | Sample Not Analyzed per COC | |
| 23 | | A85025A | Yellow | Flooring | None Detected |
| | | A85025B | Tan | Flooring | Chrysotile 3% |
| 24 | | A85026A | Yellow | Flooring | None Detected |
| | | A85026B | | Sample Not Analyzed per COC | |
| 25 | | A85027A | | Sample Submitted for TEM Analysis | |
| | | A85027B | | Sample Not Analyzed per COC | |

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A189271
Date Received: 08-20-18
Date Analyzed: 08-27-18
Date Reported: 08-27-18

Project: COS 457 Bethlehem St.; COS 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID Lab ID | Lab Description | Lab Attributes | NON-ASBESTOS COMPONENTS | | | | ASBESTOS % |
|-------------------------|-----------------------------------|--|-------------------------|-----------|-------------|--------|---------------|
| | | | Fibrous | Cellulose | Non-Fibrous | Tar | |
| 1 Layer 1 A85003A | Shingle | Heterogeneous Black,White Fibrous Bound | 15% | Cellulose | 65% | Tar | None Detected |
| | | | | | 20% | Gravel | |
| | | | | | | | |
| Layer 2 A85003A | Shingle | Heterogeneous Black,Off-white Fibrous Bound | 15% | Cellulose | 65% | Tar | None Detected |
| | | | | | 20% | Gravel | |
| | | | | | | | |
| A85003B | Felt | Heterogeneous Black Fibrous Bound | 80% | Cellulose | 20% | Tar | None Detected |
| 2 Layer 1 A85004A | Shingle | Heterogeneous Black,White Fibrous Bound | 15% | Cellulose | 65% | Tar | None Detected |
| | | | | | 20% | Gravel | |
| | | | | | | | |
| Layer 2 A85004A | Shingle | Heterogeneous Black,Off-white Fibrous Bound | 15% | Cellulose | 65% | Tar | None Detected |
| | | | | | 20% | Gravel | |
| | | | | | | | |
| A85004B | Felt | Heterogeneous Black Fibrous Bound | 80% | Cellulose | 20% | Tar | None Detected |
| 3 Layer 1 A85005A | Sample Submitted for TEM Analysis | | | | | | |
| Layer 2 A85005A | Sample Submitted for TEM Analysis | | | | | | |
| A85005B | Sample Submitted for TEM Analysis | | | | | | |

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A189271
Date Received: 08-20-18
Date Analyzed: 08-27-18
Date Reported: 08-27-18

Project: COS 457 Bethlehem St.; COS 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID Lab ID | Lab Description | Lab Attributes | NON-ASBESTOS COMPONENTS | | | | ASBESTOS % |
|-------------------------------|--------------------------------------|-------------------|-------------------------|-----------|-------------|-----------|----------------------|
| | | | Fibrous | | Non-Fibrous | | |
| 4 A85006 | Window Glazing | Heterogeneous | <1% | Cellulose | 3% | Paint | None Detected |
| | | White,Beige | | | 65% | Silicates | |
| | | Fibrous | | | 32% | Calc Carb | |
| | | Bound | | | | | |
| 5 A85007 | Window Glazing | Heterogeneous | <1% | Cellulose | 3% | Paint | 2% Chrysotile |
| | | Beige | | | 65% | Silicates | |
| | | Fibrous | | | 30% | Calc Carb | |
| | | Bound | | | | | |
| 6 A85008 | Sample Not Analyzed per COC | | | | | | |
| 7 Layer 1 A85009 | Walls & Ceiling Plaster Skim Coat | Heterogeneous | <1% | Cellulose | 2% | Paint | None Detected |
| | | White | | | 75% | Silicates | |
| | | Fibrous | | | 23% | Binder | |
| | | Bound | | | | | |
| Layer 2 A85009 | Walls & Ceiling Plaster Base Coat | Heterogeneous | <1% | Hair | 75% | Silicates | None Detected |
| | | Gray | | | 25% | Binder | |
| | | Fibrous | | | | | |
| | | Bound | | | | | |
| 8 Layer 1 A85010 | Walls & Ceiling Plaster Skim Coat | Heterogeneous | <1% | Cellulose | 2% | Paint | None Detected |
| | | White | | | 75% | Silicates | |
| | | Fibrous | | | 23% | Binder | |
| | | Bound | | | | | |
| Layer 2 A85010 | Walls & Ceiling Plaster Base Coat | Heterogeneous | <1% | Hair | 75% | Silicates | None Detected |
| | | Gray | | | 25% | Binder | |
| | | Fibrous | | | | | |
| | | Bound | | | | | |
| 9 Layer 1 A85011 | Walls & Ceiling Plaster Skim Coat | Heterogeneous | <1% | Cellulose | 2% | Paint | None Detected |
| | | White | | | 75% | Silicates | |
| | | Fibrous | | | 23% | Binder | |
| | | Bound | | | | | |

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A189271
Date Received: 08-20-18
Date Analyzed: 08-27-18
Date Reported: 08-27-18

Project: COS 457 Bethlehem St.; COS 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID | Lab | Lab | NON-ASBESTOS COMPONENTS | | | | ASBESTOS |
|--------------------------------|--------------------------------------|--|-------------------------|-----------|-------------|-----------|---------------|
| Lab ID | Description | Attributes | Fibrous | | Non-Fibrous | | % |
| Layer 2 A85011 | Walls & Ceiling Plaster Base Coat | Heterogeneous Gray Fibrous Bound | <1% | Hair | 75% | Silicates | None Detected |
| | | | 25% | | Binder | | |
| 10 Layer 1 A85012 | Walls & Ceiling Plaster Skim Coat | Heterogeneous White Fibrous Bound | <1% | Cellulose | 2% | Paint | None Detected |
| | | | | | 75% | Silicates | |
| | | | | | 23% | Binder | |
| Layer 2 A85012 | Walls & Ceiling Plaster Base Coat | Heterogeneous Gray Fibrous Bound | <1% | Hair | 75% | Silicates | None Detected |
| | | | | | 25% | Binder | |
| 11 Layer 1 A85013 | Walls & Ceiling Plaster Skim Coat | Heterogeneous White Fibrous Bound | <1% | Cellulose | 2% | Paint | None Detected |
| | | | | | 75% | Silicates | |
| | | | | | 23% | Binder | |
| Layer 2 A85013 | Walls & Ceiling Plaster Base Coat | Heterogeneous Gray Fibrous Bound | <1% | Hair | 75% | Silicates | None Detected |
| | | | | | 25% | Binder | |
| 12 Layer 1 A85014 | Walls & Ceiling Plaster Skim Coat | Heterogeneous White Fibrous Bound | <1% | Cellulose | 2% | Paint | None Detected |
| | | | | | 75% | Silicates | |
| | | | | | 23% | Binder | |
| Layer 2 A85014 | Walls & Ceiling Plaster Base Coat | Heterogeneous Gray Fibrous Bound | <1% | Hair | 75% | Silicates | None Detected |
| | | | | | 25% | Binder | |

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A189271
Date Received: 08-20-18
Date Analyzed: 08-27-18
Date Reported: 08-27-18

Project: COS 457 Bethlehem St.; COS 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID | Lab | Lab | NON-ASBESTOS COMPONENTS | | | | ASBESTOS |
|--------------------------------|-------------------------|---------------------------|-------------------------|-----------|------|-----------|---------------|
| Lab ID | Description | Attributes | Fibrous | | | | % |
| 13 Layer 1 A85015 | Walls & Ceiling Plaster | Heterogeneous | <1% | Cellulose | 2% | Paint | None Detected |
| | Skim Coat | White Fibrous Bound | | | 75% | Silicates | |
| Layer 2 A85015 | Walls & Ceiling Plaster | Heterogeneous | <1% | Hair | 75% | Silicates | None Detected |
| | Base Coat | Gray Fibrous Bound | | | 25% | Binder | |
| 14 A85016A | Floor Tile | Heterogeneous | 10% | Cellulose | 90% | Vinyl | None Detected |
| | | Green Fibrous Bound | | | | | |
| Layer 1 A85016B | Mastic | Heterogeneous | <1% | Cellulose | 100% | Mastic | None Detected |
| | | Tan Fibrous Bound | | | | | |
| Layer 2 A85016B | Felt Underlayment | Heterogeneous | 75% | Cellulose | 25% | Tar | None Detected |
| | | Black Fibrous Bound | | | | | |
| 15 A85017A | Floor Tile | Heterogeneous | 10% | Cellulose | 90% | Vinyl | None Detected |
| | | Green Fibrous Bound | | | | | |
| Layer 1 A85017B | Mastic | Heterogeneous | <1% | Cellulose | 100% | Mastic | None Detected |
| | | Tan Fibrous Bound | | | | | |

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A189271
Date Received: 08-20-18
Date Analyzed: 08-27-18
Date Reported: 08-27-18

Project: COS 457 Bethlehem St.; COS 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID Lab ID | Lab Description | Lab Attributes | NON-ASBESTOS COMPONENTS | | | | ASBESTOS % |
|----------------------|--------------------------------------|--|-------------------------|-----------|-------------|--------|----------------------|
| | | | Fibrous | | Non-Fibrous | | |
| Layer 2 A85017B | Felt Underlayment | Heterogeneous Black Fibrous Bound | 75% | Cellulose | 25% | Tar | None Detected |
| 16 A85018A | Sample Submitted for TEM Analysis | | | | | | |
| A85018B | Sample Submitted for TEM Analysis | | | | | | |
| 17 A85019A | Floor Tile | Heterogeneous Green Fibrous Bound | 10% | Cellulose | 90% | Vinyl | None Detected |
| A85019B | Mastic | Heterogeneous Tan Fibrous Bound | <1% | Cellulose | 100% | Mastic | None Detected |
| A85019C | Floor Tile | Heterogeneous Off-white Fibrous Bound | | | 62% | Vinyl | 3% Chrysotile |
| | | | | | 35% | Binder | |
| Layer 1 A85019D | Mastic | Heterogeneous Black Fibrous Bound | <1% | Cellulose | 100% | Mastic | None Detected |
| Layer 2 A85019D | Felt Underlayment | 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

Lab Code: A189271
Date Received: 08-20-18
Date Analyzed: 08-27-18
Date Reported: 08-27-18

Project: COS 457 Bethlehem St.; COS 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID Lab ID | Lab Description | Lab Attributes | NON-ASBESTOS COMPONENTS | | | | ASBESTOS % |
|----------------------|-----------------------------------|--|-------------------------|-----------|-------------|------------------|----------------------|
| | | | Fibrous | | Non-Fibrous | | |
| 18 A85020A | Floor Tile | Heterogeneous Green Fibrous Bound | 10% | Cellulose | 90% | Vinyl | None Detected |
| A85020B | Mastic | Heterogeneous Tan Fibrous Bound | <1% | Cellulose | 100% | Mastic | None Detected |
| A85020C | Sample Not Analyzed per COC | | | | | | |
| A85020D | Mastic | Heterogeneous Black Fibrous Bound | <1% | Cellulose | 100% | Mastic | None Detected |
| 19 A85021A | Sample Submitted for TEM Analysis | | | | | | |
| A85021B | Sample Submitted for TEM Analysis | | | | | | |
| A85021C | Sample Not Analyzed per COC | | | | | | |
| A85021D | Sample Submitted for TEM Analysis | | | | | | |
| 20 A85022 | Roll Flooring | Heterogeneous Brown Fibrous Bound | 25% | Cellulose | 50% | Vinyl 20% Tar | 5% Chrysotile |
| 21 A85023 | Sample Not Analyzed per COC | | | | | | |
| 22 A85024 | Sample Not Analyzed per COC | | | | | | |

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A189271
Date Received: 08-20-18
Date Analyzed: 08-27-18
Date Reported: 08-27-18

Project: COS 457 Bethlehem St.; COS 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID Lab ID | Lab Description | Lab Attributes | NON-ASBESTOS COMPONENTS | | | | ASBESTOS % |
|----------------------|-----------------------------------|---|-------------------------|-----------|------------------|-----------------------|----------------------|
| | | | Fibrous | Cellulose | Non-Fibrous | | |
| 23 A85025A | Flooring | Heterogeneous Yellow Fibrous Bound | 25% | Cellulose | 75% | Vinyl | None Detected |
| A85025B | Flooring | Heterogeneous Tan Fibrous Bound | 25% | Cellulose | 50% 20% 2% | Vinyl Tar Paint | 3% Chrysotile |
| 24 A85026A | Flooring | Heterogeneous Yellow Fibrous Bound | 25% | Cellulose | 75% | Vinyl | None Detected |
| A85026B | Sample Not Analyzed per COC | | | | | | |
| 25 A85027A | Sample Submitted for TEM Analysis | | | | | | |
| A85027B | Sample Not Analyzed per COC | | | | | | |

LEGEND: Non-Anth = Non-Asbestiform Anthophyllite
Non-Trem = Non-Asbestiform Tremolite
Calc Carb = Calcium Carbonate

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

REPORTING LIMIT: <1% by visual estimation

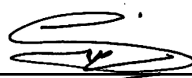
REPORTING LIMIT FOR POINT COUNTS: 0.25% by 400 Points or 0.1% by 1,000 Points

REGULATORY LIMIT: >1% by weight

Due to the limitations of the EPA 600 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation. Estimated measurement of uncertainty is available on request.

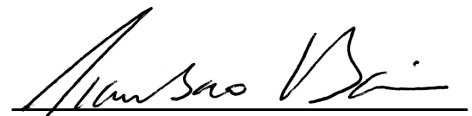
This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins CEI. Eurofins CEI makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. Samples were received in acceptable condition unless otherwise noted. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.

ANALYST:



Saithya Paikal

APPROVED BY:



Tianbao Bai, Ph.D., CIH
Laboratory Director



730 SE Maynard Road, Cary, NC 27511
 Tel: 866-481-1412; Fax: 919-481-1442

ASBESTOS CHAIN OF CUSTODY

| | |
|---------------------|---------------|
| LAB USE ONLY: | |
| CEI Lab Code: | A189271 (25) |
| CEI Lab I.D. Range: | A88003-A88027 |

| COMPANY INFORMATION | PROJECT INFORMATION |
|--|------------------------------------|
| CEI CLIENT #: | Job Contact: Tom Oliver |
| Company: Apex Environmental Management, Inc. | Email / Tel: tolover@apex-ehs.com |
| Address: 7 Winchester Ct. Mauldin, South Carolina 29662 | Project Name: COS 457 Bethlehem St |
| Email: | Project ID#: COS 0118-14 |
| Tel: (864) 404-3210 Fax: | PO #: |
| | STATE SAMPLES COLLECTED IN: SC |

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

| ASBESTOS | METHOD | TURN AROUND TIME | | | | | |
|------------------------|-------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|
| | | 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"/> |
| 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 GRAV w POINT COUNT | EPA 600 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| PLM BULK | CARB 435 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| PCM AIR | NIOSH 7400 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM AIR | EPA AHERA | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM AIR | NIOSH 7402 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM AIR | ISO 10312 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM AIR | ASTM 6281-09 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM BULK | CHATFIELD | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| TEM DUST WIPE | ASTM D6480-05 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM DUST MICROVAC | ASTM D5755-09 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM SOIL | ASTM D7521-13 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM VERMICULITE | CINCINNATI METHOD | <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"/> |

| | | | |
|---------------------------------|----------------|---|--------------|
| REMARKS / SPECIAL INSTRUCTIONS: | | <input checked="" type="checkbox"/> Accept Samples <input type="checkbox"/> Reject Samples | |
| Relinquished By: | Date/Time | Received By: | Date/Time |
| <i>[Signature]</i> | 8-17-18 3:10pm | <i>[Signature]</i> | 8/20 @ 10:00 |

Samples will be disposed of 30 days after analysis

ASBESTOS SAMPLING FORM



| COMPANY CONTACT INFORMATION | |
|---|---------------------------------|
| Company: <i>Apex Env. Mgt.</i> | Job Contact: <i>Tom. Oliver</i> |
| Project Name: <i>COS 457 Bethlehem St</i> | |
| Project ID #: <i>COS 0118-14</i> | Tel: |

| SAMPLE ID# | DESCRIPTION / LOCATION | VOLUME/ AREA | TEST | | | |
|------------|------------------------|-----------------|------|-------------------------------------|-----|-------------------------------------|
| | | | PLM | <input type="checkbox"/> | TEM | <input type="checkbox"/> |
| 1 | roof / 2 shingles | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 2 | 1 felt | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 3 | | | PLM | <input type="checkbox"/> | TEM | <input checked="" type="checkbox"/> |
| 4 | windows/ | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 5 | glaze | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 6 | | | PLM | <input type="checkbox"/> | TEM | <input checked="" type="checkbox"/> |
| 7 | walls & ceilings/ | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 8 | | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 9 | plaster | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 10 | | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 11 | | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 12 | | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 13 | | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 14 | Rt Bedroom & Hall/ | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 15 | 9x9 Green & 9x9 | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 16 | Black tile & mastic | | PLM | <input type="checkbox"/> | TEM | <input checked="" type="checkbox"/> |
| 17 | Bathrm/ 9x9 Green | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 18 | 9x9 Black | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 19 | floor tile & mastic | | PLM | <input type="checkbox"/> | TEM | <input checked="" type="checkbox"/> |
| 20 | Rt rear bedroom/ | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 21 | Brown roll flooring | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 22 | | | PLM | <input type="checkbox"/> | TEM | <input checked="" type="checkbox"/> |
| 23 | Kitchen & pantry/ | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 24 | 2 layers flooring | | PLM | <input checked="" type="checkbox"/> | TEM | <input type="checkbox"/> |
| 25 | | | PLM | <input type="checkbox"/> | TEM | <input checked="" type="checkbox"/> |
| | | | PLM | <input type="checkbox"/> | TEM | <input type="checkbox"/> |
| | | | PLM | <input type="checkbox"/> | TEM | <input type="checkbox"/> |
| | | | PLM | <input type="checkbox"/> | TEM | <input type="checkbox"/> |

August 31, 2018

Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

CLIENT PROJECT: COS 457 Bethlehem St; COS 0118-14
LAB CODE: T181976

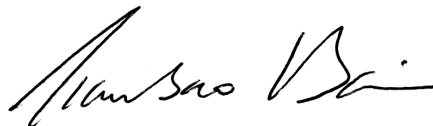
Dear Customer:

Enclosed are asbestos analysis results for TEM bulk samples received at our laboratory on August 27, 2018. The samples were analyzed for asbestos using transmission electron microscopy (TEM) per Chatfield Method.

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

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

Kind Regards,



Tianbao Bai, Ph.D., CIH
Laboratory Director



CEI

ASBESTOS ANALYTICAL REPORT
By: Transmission Electron Microscopy

Prepared for

Apex Environmental Management

CLIENT PROJECT: COS 457 Bethlehem St; COS 0118-14

LAB CODE: T181976

TEST METHOD: Bulk Chatfield
EPA 600 / R93 / 116

REPORT DATE: 08/31/18



CEI

ASBESTOS BULK ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

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

Lab Code: T181976
Date Received: 08-27-18
Date Analyzed: 08-31-18
Date Reported: 08-31-18

Project: COS 457 Bethlehem St; COS 0118-14

TEM BULK CHATFIELD / EPA 600 / R93 / 116

| Client ID Lab ID | Material Description | Sample Weight (g) | Organic Material % | Acid Soluble Material % | Acid Insoluble Material % | Asbestos % |
|---------------------|--------------------------|-------------------------|--------------------------|-------------------------------|---------------------------------|------------------|
| 3 T83613 | Black, White Shingle | 0.376 | 51.3 | 5.6 | 43.1 | None Detected |
| 3 T83614 | Black, Off-white Shingle | 0.565 | 18.1 | 30.4 | 51.5 | None Detected |
| 3 T83615 | Black Felt | 01.119 | 98.1 | 1.1 | .8 | None Detected |
| 16 T83616 | Green Floor Tile | 0.517 | 36.8 | 16.1 | 47.1 | None Detected |
| 16 T83617 | Tan Mastic | 0.197 | 59.4 | 9.6 | 31 | None Detected |
| 16 T83618 | Black Felt Underlayment | 0.349 | 96.6 | 2.6 | .8 | None Detected |
| 19 T83619 | Green Floor Tile | 0.369 | 37.4 | 17.3 | 45.3 | None Detected |
| 19 T83620 | Tan Mastic | 0.197 | 40.6 | 14.2 | 45.2 | <1% Chrysotile |
| 19 T83621 | Black Mastic | 0.174 | 87.4 | 6.3 | 6.3 | None Detected |
| 19 T83622 | Black Felt Underlayment | 0.313 | 91.7 | 3.5 | 4.8 | None Detected |
| 25 T83623 | Yellow Flooring | 0.334 | 88 | 7.8 | 4.2 | None Detected |

LEGEND: None

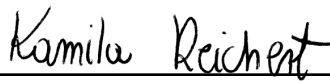
METHOD: CHATFIELD & EPA/600/R-93/116

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

REGULATORY LIMIT: >1% by weight

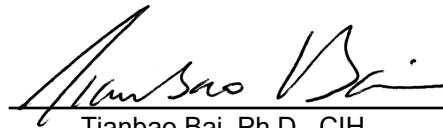
This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins CEI. Eurofins CEI makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. Estimated measurement of uncertainty is available on request. Samples were received in acceptable condition unless otherwise noted.

ANALYST:



Kamila Reichert

APPROVED BY:



Tianbao Bai, Ph.D., CIH
Laboratory Director



730 SE Maynard Road, Cary, NC 27511
 Tel: 866-481-1412; Fax: 919-481-1442

T81976
 T83613 .623

11

ASBESTOS CHAIN OF CUSTODY

LAB USE ONLY:
 CEI Lab Code: **A189271** (25)
 CEI Lab I.D. Range: **A85003-A85027**

| COMPANY INFORMATION | | PROJECT INFORMATION | |
|---------------------|--|-----------------------------|-----------------------------|
| CEI CLIENT #: | | Job Contact: | <i>Tom Oliver</i> |
| Company: | Apex Environmental Management, Inc. | Email / Tel: | <i>toliver@apex-ehs.com</i> |
| Address: | 7 Winchester Ct Mauldin, South Carolina 29662 | Project Name: | <i>COS 457 Bethlehem St</i> |
| Email: | | Project ID#: | <i>COS 0118-14</i> |
| Tel: (864) 404-3210 | Fax: | PO #: | |
| | | STATE SAMPLES COLLECTED IN: | <i>SC</i> |

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

| ASBESTOS | METHOD | TURN AROUND TIME | | | | | |
|------------------------|-------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|
| | | 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"/> |
| 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 GRAV w POINT COUNT | EPA 600 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| PLM BULK | CARB 435 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| PCM AIR | NIOSH 7400 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM AIR | EPA AHERA | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM AIR | NIOSH 7402 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM AIR | ISO 10312 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM AIR | ASTM 6281-09 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM BULK | CHATFIELD | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| TEM DUST WIPE | ASTM D6480-05 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM DUST MICROVAC | ASTM D5755-09 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM SOIL | ASTM D7521-13 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM VERMICULITE | CINCINNATI METHOD | <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"/> |

REMARKS / SPECIAL INSTRUCTIONS:

Accept Samples
 Reject Samples

| Relinquished By: | Date/Time | Received By: | Date/Time |
|--------------------|-----------------------|--------------|---------------------|
| <i>[Signature]</i> | <i>8-17-18 3:10pm</i> | <i>CS</i> | <i>8/20 @ 10:00</i> |

Samples will be disposed of 30 days after analysis

Page 1 of 2

SP
 08/27/18
 10:01am

ASBESTOS SAMPLING FORM



781976

| COMPANY CONTACT INFORMATION | |
|---|--------------------------------|
| Company: <u>Apex Env. Mgt.</u> | Job Contact: <u>Tom Oliver</u> |
| Project Name: <u>CoS 457 Bethlehem St</u> | |
| Project ID #: <u>CoS 0118-14</u> | Tel: _____ |

| SAMPLE ID# | DESCRIPTION / LOCATION | VOLUME / AREA | TEST | |
|------------|------------------------|---------------|---|---|
| 1 | roof / 2 shingles | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 2 | 1 felt | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 3 | | | PLM <input type="checkbox"/> | TEM <input checked="" type="checkbox"/> |
| 4 | windows/ | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 5 | glaze | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 6 | | | PLM <input type="checkbox"/> | TEM <input checked="" type="checkbox"/> |
| 7 | walls & ceilings/ | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 8 | | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 9 | plaster | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 10 | | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 11 | | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 12 | | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 13 | | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 14 | Rt Bedroom & Hall/ | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 15 | 9x9 Green & 9x9 | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 16 | Black tile & mastic | | PLM <input type="checkbox"/> | TEM <input checked="" type="checkbox"/> |
| 17 | Bath rm/ 9x9 Green | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 18 | 9x9 Black | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 19 | floor tile & mastic | | PLM <input type="checkbox"/> | TEM <input checked="" type="checkbox"/> |
| 20 | Rt rear bedroom/ | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 21 | Brown roll flooring | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 22 | | | PLM <input type="checkbox"/> | TEM <input checked="" type="checkbox"/> |
| 23 | Kitchen & pantry/ | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 24 | 2 layers flooring | | PLM <input checked="" type="checkbox"/> | TEM <input type="checkbox"/> |
| 25 | | | PLM <input type="checkbox"/> | TEM <input checked="" type="checkbox"/> |
| | | | PLM <input type="checkbox"/> | TEM <input type="checkbox"/> |
| | | | PLM <input type="checkbox"/> | TEM <input type="checkbox"/> |
| | | | PLM <input type="checkbox"/> | TEM <input type="checkbox"/> |

SECTION IV
Photographic Log



Photo 1 – 457 Bethlehem Street in Spartanburg, South Carolina



Photo 2 – Roof shingles & felt



Photo 3 – Chimney assumed positive



Photo 4 – Chimney assumed positive



Photo 5 – Chimney assumed positive



Photo 6 – Roof tar on flashing assumed positive



Photo 7 – 9" x 9" green/black checker pattern floor tile with mastic & felt in the right bedroom & hallway



Photo 8 – Wooden window glazing



Photo 9 – 9" x 9" green & off-white checker pattern floor tiles with mastic & felt in the bathroom



Photo 10 – Yellow square pattern roll vinyl with no mastic in the kitchen & pantry – top layer



Photo 11– Tan roll vinyl floor with no mastic in the kitchen & pantry – bottom layer

SECTION V

SC DHEC Asbestos Inspector License

SCDHEC ISSUED
Asbestos ID Card

Thomas H Oliver



CONSULTBI BI-00680
AIRSAMPLER AS-00202

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

This card is nontransferable and considered invalid if loaned or given to another person for identification. This card will also be invalid if altered or defaced. This card is property of SCDHEC. It must be returned to the department if the holder's accreditation is revoked or if this card is invalidated. Any person performing regulated asbestos activities without current accreditation shall be subject to legal sanction. This card must be returned upon expiration and/or issuance of a new card.

YOU MUST HAVE THIS IDENTIFICATION CARD WITH YOU ON THE JOB.

For information of corrections contact: SCDHEC – Asbestos Section
2600 Bull Street
Columbia, SC 29201
(803) 898-4289