



PRE-DEMOLITION ASBESTOS INSPECTION REPORT

F&R PROJECT NUMBER: 65U-0005

Regarding:

Forensics Storage Building
100 South Spring Street
Spartanburg, South Carolina

Prepared for:

Mr. David Cook
City of Spartanburg
145 W. Broad Street
Spartanburg, SC 29306

Prepared by:

Froehling & Robertson Inc.
18 Woods Lake Road
Greenville, South Carolina 29607
(864) 271-2840

Date of Inspection: April 7, 2016

Date of Report: April 21, 2016



SIGNATURE PAGE

INSPECTOR(S) NAME(S)	SIGNATURE	SC LICENSE No.	EXP. DATE
Kenneth A. Lauber		BI-00618	12/07/2016
Thomas Tripp		BI-00814	04/05/2017

REPORT PREPARED BY:

Kenneth A. Lauber, P.G.
Environmental Group Manager

REVIEWED BY:

Jesse Phillips
Senior Environmental Professional



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1.0 EXECUTIVE SUMMARY

1.1 Asbestos and Inspection

Froehling & Robertson (F&R) conducted a pre-demolition asbestos inspection for the City of Spartanburg, (the **Client**) at (Forensics Storage) 100 South Spring Street in Spartanburg, South Carolina on April 7, 2016. The purpose of the inspection was to sample suspect building materials for asbestos content prior to Demolition of the structure. A limited evaluation of lead in paint was also conducted at the request of the **Client**.

Kenneth A. Lauber and Thomas Tripp, who hold South Carolina Asbestos Inspector License Numbers BI-00618 and BI-00814 respectively, conducted the inspection activities at the project site on April 7, 2016.

Samples were shipped via overnight delivery under Chain of Custody to EMSL Analytical, Inc. (EMSL) in Charlotte, North Carolina (PLM & TEM) for analysis. EMSL is accredited by the American Industrial Hygiene Association under their NVLAP quality control program for bulk asbestos analysis (Certificate 200841-0).

1.2 Report Preparation

This report was prepared by Kenneth Lauber to detail the findings of the inspection after analyses of the bulk asbestos and paint chip samples were conducted by EMSL.

1.3 Building Description

Based on information provided by the **Client**, the subject site is located at 100 South Spring Street. It consists of a two-story commercial structure with approximately 3,000 total square feet of interior space. The construction date of the building is reported to be circa 1921 with a small addition added in the 1960s. Based on Client information, and the F&R site reconnaissance of the structure, the building consists of brick structure with some wood framing built on a slab on grade foundation with a flat built up roof (BUR) and a cement stucco/plaster on metal lathe and brick exterior. The Interior finishes consisted primarily of wood paneling, drywall with joint compound, plaster ceilings, and painted brick walls. Flooring was concrete.

1.4 Suspect Asbestos Containing Building Material Description

Suspect asbestos containing materials in the area of proposed demolition at the property included drywall and joint compound, roof flashing, built-up roofing and plaster walls (interior and exterior).



Suspect ACM	Location	Approximate SF	Friable/Non-Friable	Condition	Number of samples
Drywall/Joint compound	Stairwell ceiling	200 SF	F	Good	3
Plaster Ceiling	Interior	1,000 SF	F	Good	3
Plaster Wall	Exterior	5,000 SF	F	Good	7
Roof Flashing	Roof Parapets	2000 SF	NF	Good	6
Built Up Roof	Roof Fields	4,000 SF	NF	Good	6
Roof Decking	Base of BUR	3,000 SF	NF	Good	3

2.0 GENERAL BACKGROUND INFORMATION

2.1 Asbestos Background & Regulatory Information

The term “asbestos” refers to a group of naturally-occurring, fibrous minerals that are commercially mined throughout the world, primarily in Canada, Russia, and South Africa. Asbestos has been used in hundreds of products. Collectively, these products are referred to as asbestos-containing materials (ACMs). Asbestos gained wide use because it is plentiful, readily available, low in cost, and because of its unique properties - it does not burn, is strong, conducts heat and electricity poorly, and is resistant to chemical corrosion. As an insulator, asbestos received wide spread use for thermal insulation and condensation control. Asbestos is added to a variety of building materials to enhance strength. It is found in concrete and concrete-like products. Asbestos cement products are used as siding and roofing shingles, wallboard, as corrugated or flat sheets for roofing and partition walls, and as piping. Asbestos has also been added to asphalt, vinyl, and other materials to make products like roofing cements, felts and shingles, exterior siding materials, floor tiles, joint compounds, and mastics/adhesives. Asbestos also proved valuable as a component of acoustical plaster. This material was troweled on or sprayed onto ceilings or walls. As a decorative product, frequently referred to as textured ceiling or wall paint, asbestos was also mixed with other materials and sprayed on to walls and ceilings to produce a soft textured appearance. Asbestos is still mined commercially and used in many common products, including brake shoes, roofing materials, and flooring products. It is important to realize that commercially available products containing asbestos can still be purchased. It is a common misconception that asbestos is no longer used.



The three most commonly encountered types of asbestos are sometimes referred to by their predominant color: Chrysotile (white) is by far the most frequently used asbestos mineral, constituting approximately 95% of all commercial and industrial applications. Chrysotile fibers are long and flexible and can be spun or woven into cloth. Amosite (brown) and Crocidolite (blue) are used in approximately 4-5% of asbestos-containing products. Both types generally consist of shorter, more rigid fiber bundles that are highly resistant to heat, electricity, and chemicals. Three other types of asbestos – anthophyllite, tremolite, and actinolite – are only rarely used for commercial purposes, but they occasionally occur in small quantities (naturally) along with other raw materials.

The U.S. Environmental Protection Agency promulgated the National Emission Standards for Hazardous Air Pollutants (NESHAP) [40 CFR Part 61], which addresses the application, removal, and disposal of asbestos-containing materials (ACM). Under NESHAP the following categories are defined for asbestos-containing materials:

Friable - When dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

Nonfriable - When dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Category I Nonfriable ACM - Packings, gaskets, resilient floor coverings, and asphalt roofing products containing more than 1% asbestos.

Category II Nonfriable ACM – Any material, excluding Category I Nonfriable ACM, containing more than 1% asbestos.

Regulated Asbestos Containing Material (RACM) – One of the following:

1. Friable ACM
2. Category I Nonfriable ACM that has become friable.
3. Category I Nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading.
4. Category II Nonfriable ACM that has a high probability of becoming, or has become, friable by the forces expected to act on the material in the course of demolition or renovation operations.

Under NESHAP, the following actions are required:

1. Prior to the commencement of demolition or renovation activities, the building owner must have the affected facility or part of the facility where the demolition or renovation activities will occur inspected for the presence of asbestos by a state licensed asbestos inspector.



2. A state licensed asbestos abatement contractor must then remove all RACM from the facility, before any demolition or renovation activity begins, that would break up, dislodge, or similarly disturb the material or preclude access for subsequent removal.
3. RACM need not be removed if:
 - a) It is Category I nonfriable ACM that is not in damaged or significantly damaged condition.
 - b) It is on a facility component that is encased in concrete or other similar material and is adequately wet whenever exposed.
 - c) It was not accessible for testing and was therefore not discovered until after demolition began and because of the demolition the material cannot be safely removed.
 - d) It is Category II nonfriable ACM and the probability is low that the material will become crumbled, pulverized, or reduced to powder during demolition.

The Occupational Safety and Health Administration (OSHA) has established three sets of regulatory standards pertaining to asbestos exposure:

29 CFR 1910.1001	General Industry
29 CFR 1926.1101	Construction Industry
29 CFR 1910.134	Respiratory Protection

(note – CFR stands for Code of Federal Regulations)

The construction industry standard covers activities involving asbestos demolition, removal, alteration, repair, maintenance, installation, cleanup, transportation, disposal, and storage. The general industry standard covers other activities where asbestos exposure is possible.

Addressed under the OSHA standards are building owner/employer responsibilities regarding the identification of identified or presumed asbestos containing materials (PACM), notification to tenants/employees of the presence of asbestos, employee training, and work procedures.

3.0 PROCEDURES

3.1 Asbestos Sample Collection

F&R personnel collected a total of twenty-four (24) bulk samples of suspect asbestos containing materials (ACM) from the structure as shown in the attached photo log and sample location map (Appendix I).

At least three (3) samples of each suspect material were collected and analyzed using a positive stop protocol. If one of the three samples tested positive, then the remaining samples were not analyzed.



Due to layering of materials, forty-two (42) analyses were conducted using Polarized Light Microscopy (PLM) by EPA Method 600/R-93/116 by the laboratory and in accordance with South Carolina DHEC regulations.

Four (4) samples of non-friable organically bound (NOB) materials were designated for analysis by Transmission Electron Microscopy (TEM) according to method EPA/600/R-93/116 Section 2.5.5.1 in accordance with South Carolina DHEC regulations. NOB materials must be analyzed via TEM when found to contain no asbestos by the PLM analysis method.

A site figure showing the location of the positive samples is attached in Appendix I. Analytical results and chain of custody documents from the PLM and TEM analysis are found in Appendix II.

3.2 Lead Paint Chip Sample Collection

F&R personnel collected a total of two (2) paint chip samples from the structure. The samples were collected from the interior walls of the garage area and analyzed by Flame Atomic Absorption Spectrometry (AAS) by EPA method SW 846 3050B/7000B.

4.0 FINDINGS AND RECOMMENDATIONS

4.1 Asbestos Containing Materials

Two of the forty-two (42) PLM analyses from the samples collected during the inspection were determined to contain asbestos.

The positive samples represented the roof flashing on the roof parapet walls. None of the four (4) samples of non-friable organically bound (NOB) materials analyzed by Transmission Electron Microscopy (TEM) were determined to contain asbestos greater than 1%.

4.2 Lead in Paint

Both of the paint chip samples collected from the interior walls of the garage area were found to contain more than 0.5% lead by weight, which is a regulated material under a variety of federal laws and is identified as “lead-based paint”.

The analytical results and chain of custody form for the LBP analysis is found in Appendix II.



5.0 LIMITATIONS

This report has been prepared for the exclusive use of the City of Spartanburg. This report has been prepared in accordance with generally accepted environmental practices. No other warranty, expressed or implied, is made. Our observations are based upon conditions readily visible at the time of our site visit. We have not verified the completeness or accuracy of the information provided by others.

During the site visit, accessible areas within the proposed demolition areas were visually surveyed for the presence of suspect asbestos containing materials (ACM). Inaccessible areas were not surveyed; therefore, some areas of ACM may not have been identified. Areas inspected were those designated by the scope of services. As with any similar survey of this nature, actual conditions exist only at the precise locations from which bulk samples were collected. Certain inferences are based on the results of this sampling and related testing to form a professional opinion of conditions in areas beyond those from which the samples were collected. No other warranty, expressed or implied, is made.

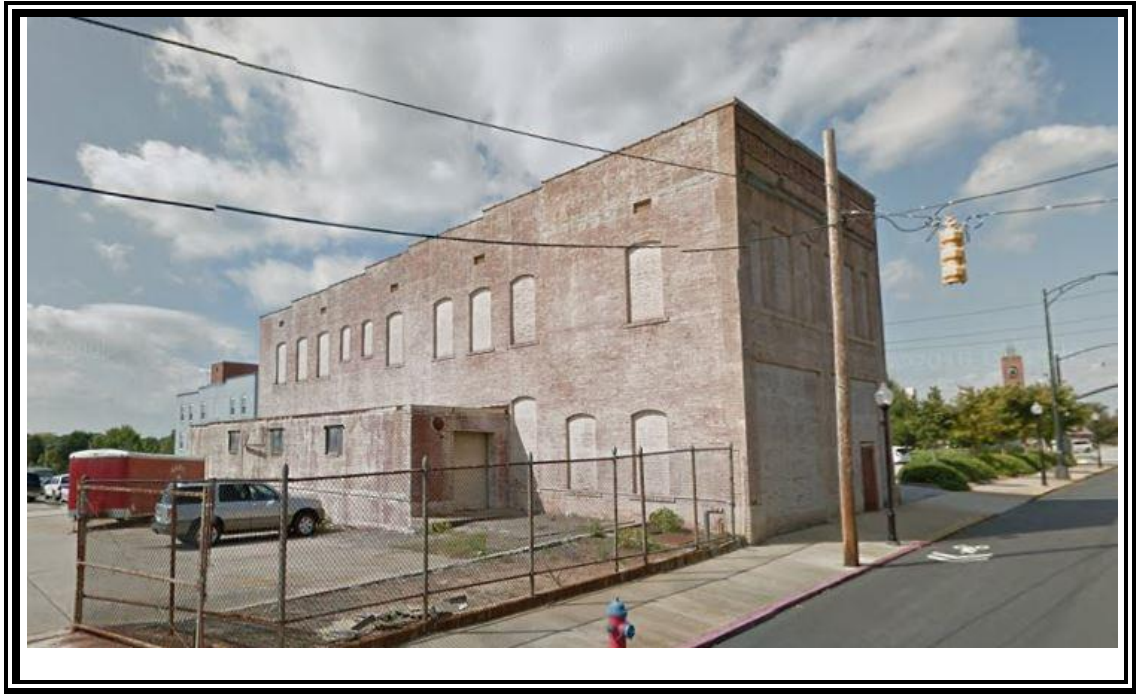
F&R, by virtue of providing the services described in this report, does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies any conditions at the site that may present a potential danger to public health, safety, or the environment. It is the client's responsibility to notify the appropriate local, state, or federal public agencies as required by law, or otherwise to disclose, in a timely manner, any information that may be necessary to prevent any danger to public health, safety, or the environment. The contents of this report should not be construed in any way as a recommendation to purchase, sell, or further develop the project site.



APPENDIX I

PHOTO LOG
AND
SAMPLE LOCATION MAPS

100 South Spring Street – Spartanburg, SC
Asbestos Inspection – Field Date – April 7, 2016



1. View of the front exterior.



2. View of plaster exterior on rear.



3. View of plaster ceiling.



4. View of drywall in stairwell.



5. View of roof deck on east side of the building.



6. View of roof flashing on main roof.



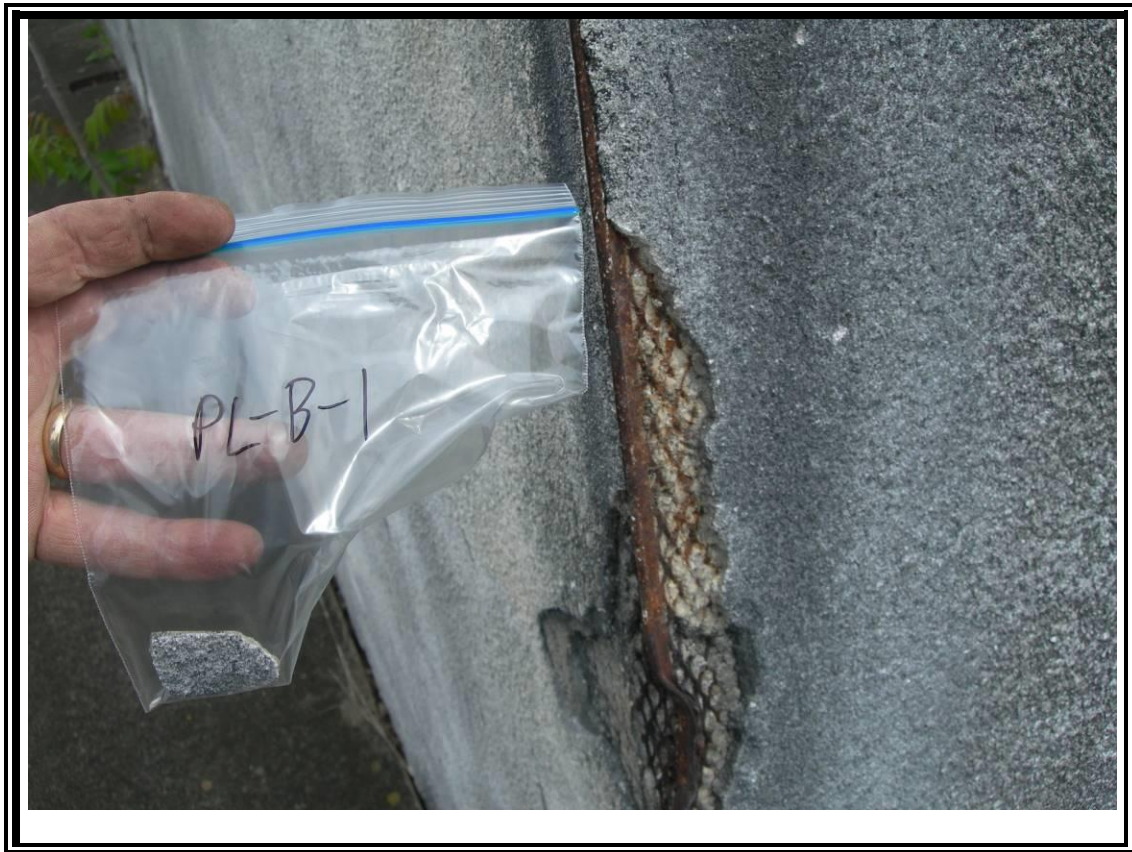
7. View of built up roofing on the main roof.



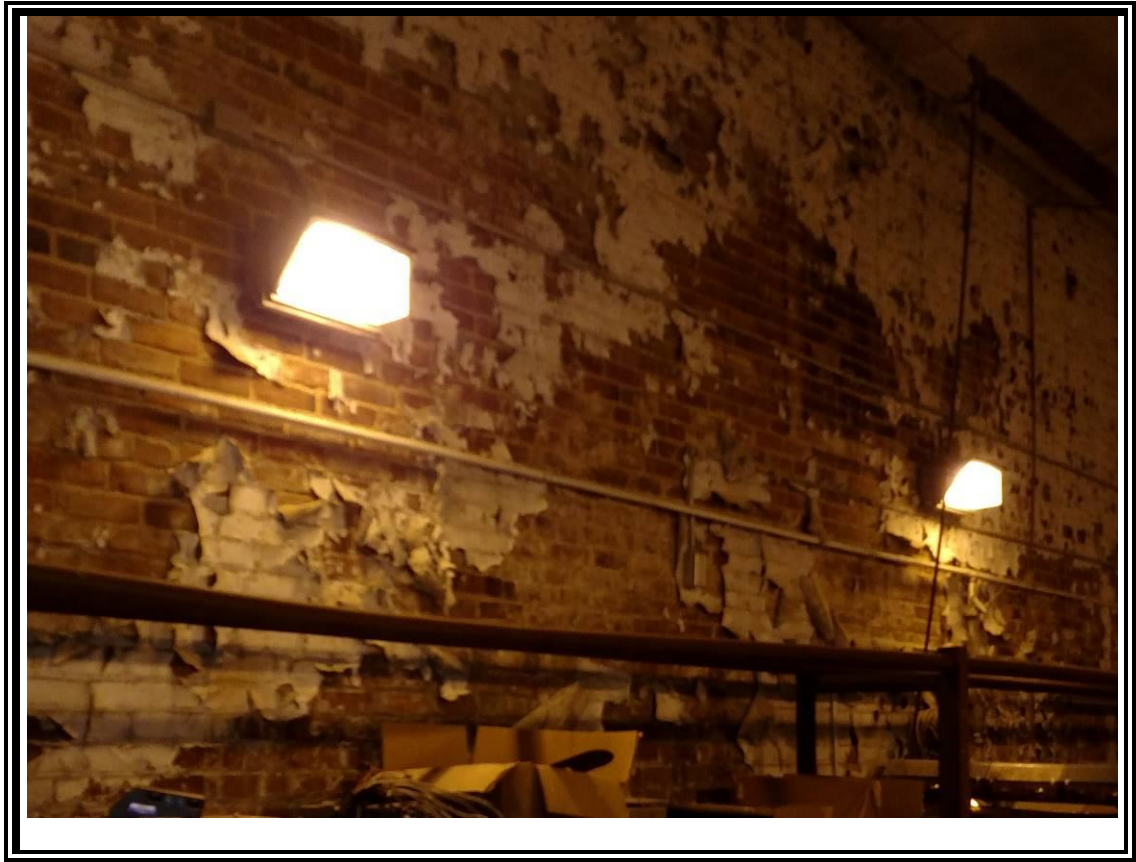
8. View of roof flashing on east side roof.



9. View of built up roofing on east side roof.



10. View of exterior plaster.

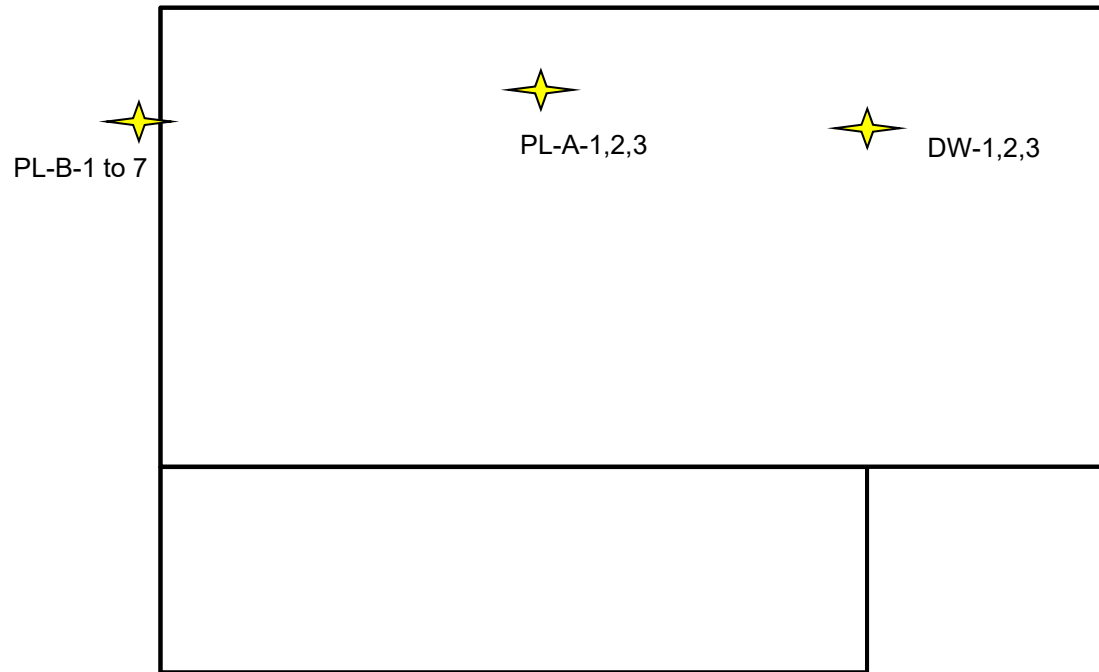


11. View of interior white paint.




12. View of interior gray paint.

Asbestos Samples



DW-1 – Drywall & J.C.
PL-A – Plaster Ceiling
PL-B – Plaster Exterior

 >1% Asbestos


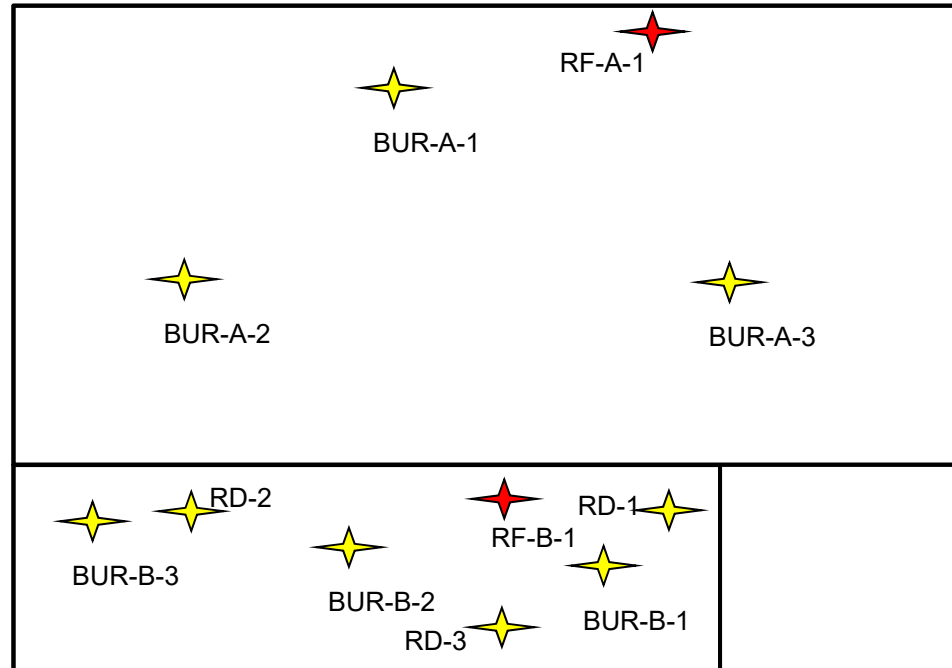
 Non-Detect


Figure 1 – Sample Locations
Forensics Building
100 South Spring Street
Spartanburg, South Carolina



Asbestos Samples

BUR-A,B- Built-Up Roof
RD-1 – Roof Deck
RF-A, B – Roof flashing



 >1% Asbestos


 Non-Detect

Figure 2 – Roof Sample Locations
Forensics Building
100 South Spring Street
Spartanburg, South Carolina





APPENDIX II

ASBESTOS ANALYTICAL RESULTS & CHAIN OF CUSTODY DOCUMENTS



EMSL Analytical, Inc.

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

EMSL Order: 411603037
Customer ID: FROE22
Customer PO: 65U0005
Project ID:

Attention: Thomas Tripp
Froehling & Robertson
18 Woods Lake Road
Greenville, SC 29607
Phone: (864) 271-2840
Fax: (864) 271-8124
Received Date: 04/08/2016 10:30 AM
Analysis Date: 04/13/2016
Collected Date:
Project: 100 South Spring Street

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
411603037-0001 PL-A-1-Skim Coat	Plaster Ceiling Interior - Plaster Ceiling	White Non-Fibrous Homogeneous		5% Quartz 10% Ca Carbonate 85% Non-fibrous (Other)	None Detected
411603037-0001A PL-A-1-Rough Coat	Plaster Ceiling Interior - Plaster Ceiling	Gray Non-Fibrous Homogeneous		5% Ca Carbonate 10% Perlite 85% Non-fibrous (Other)	None Detected
411603037-0002 PL-A-2-Skim Coat	Plaster Ceiling Interior - Plaster Ceiling	White Non-Fibrous Homogeneous		5% Quartz 8% Ca Carbonate 87% Non-fibrous (Other)	None Detected
411603037-0002A PL-A-2-Rough Coat	Plaster Ceiling Interior - Plaster Ceiling	Gray Non-Fibrous Homogeneous		5% Ca Carbonate 8% Perlite 87% Non-fibrous (Other)	None Detected
411603037-0003 PL-A-3-Skim Coat	Plaster Ceiling Interior - Plaster Ceiling	White Non-Fibrous Homogeneous		5% Quartz 10% Ca Carbonate 85% Non-fibrous (Other)	None Detected
411603037-0003A PL-A-3-Rough Coat	Plaster Ceiling Interior - Plaster Ceiling	Tan Non-Fibrous Homogeneous	5% Cellulose	15% Ca Carbonate 5% Perlite 75% Non-fibrous (Other)	None Detected
411603037-0004 PL-B-1-Skim Coat	Plaster Exterior - Plaster Wall	Gray/White Non-Fibrous Homogeneous		8% Quartz 92% Non-fibrous (Other)	None Detected
411603037-0004A PL-B-1-Rough Coat	Plaster Exterior - Plaster Wall	Gray Non-Fibrous Homogeneous	<1% Cellulose	25% Quartz 75% Non-fibrous (Other)	None Detected
411603037-0005 PL-B-2-Skim Coat	Plaster Exterior - Plaster Wall	Gray/White Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
411603037-0005A PL-B-2-Rough Coat	Plaster Exterior - Plaster Wall	Gray Non-Fibrous Homogeneous	<1% Cellulose	20% Quartz 80% Non-fibrous (Other)	None Detected
411603037-0006 PL-B-3-Skim Coat	Plaster Exterior - Plaster Wall	White Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
411603037-0006A PL-B-3-Rough Coat	Plaster Exterior - Plaster Wall	Gray Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
411603037-0007 PL-B-4-Skim Coat	Plaster Exterior - Plaster Wall	White Non-Fibrous Homogeneous		8% Quartz 92% Non-fibrous (Other)	None Detected
411603037-0007A PL-B-4-Rough Coat	Plaster Exterior - Plaster Wall	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
411603037-0008 PL-B-5-Skim Coat	Plaster Exterior - Plaster Wall	Gray/White Non-Fibrous Homogeneous		20% Quartz 5% Ca Carbonate 75% Non-fibrous (Other)	None Detected
411603037-0008A PL-B-5-Rough Coat	Plaster Exterior - Plaster Wall	Rust Non-Fibrous Homogeneous		20% Quartz 5% Ca Carbonate 75% Non-fibrous (Other)	None Detected

Initial Report From: 04/15/2016 09:46:39



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EMSL Order: 411603037
Customer ID: FROE22
Customer PO: 65U0005
Project ID:

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
PL-B-6-Skim Coat <small>411603037-0009</small>	Plaster Exterior - Plaster Wall	Gray/White Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
PL-B-6-Rough Coat <small>411603037-0009A</small>	Plaster Exterior - Plaster Wall	Brown/Gray Non-Fibrous Homogeneous		15% Quartz 85% Non-fibrous (Other)	None Detected
PL-B-7-Skim Coat <small>411603037-0010</small>	Plaster Exterior - Plaster Wall	Gray/White Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
PL-B-7-Rough Coat <small>411603037-0010A</small>	Plaster Exterior - Plaster Wall	Brown/Gray Non-Fibrous Homogeneous		30% Quartz 70% Non-fibrous (Other)	None Detected
DW-1 <small>411603037-0011</small>	Drywall Stairwell - Drywall	Brown/Tan Fibrous Homogeneous	8% Cellulose	92% Non-fibrous (Other)	None Detected
DW-2 <small>411603037-0012</small>	Drywall Stairwell - Drywall	Brown/Tan Fibrous Homogeneous	8% Cellulose	92% Non-fibrous (Other)	None Detected
DW-3 <small>411603037-0013</small>	Drywall Stairwell - Drywall	Brown/Tan Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
RD-1 <small>411603037-0014</small>	Roof Deck - Roof Decking	Gray/Tan/White Fibrous Homogeneous	20% Cellulose	8% Ca Carbonate 72% Non-fibrous (Other)	None Detected
RD-2 <small>411603037-0015</small>	Roof Deck - Roof Decking	Gray/Tan/White Fibrous Homogeneous	20% Cellulose	8% Ca Carbonate 72% Non-fibrous (Other)	None Detected
RD-3 <small>411603037-0016</small>	Roof Deck - Roof Decking	Gray/Tan/White Fibrous Homogeneous	25% Cellulose	5% Ca Carbonate 70% Non-fibrous (Other)	None Detected
RF-A-1 <small>411603037-0017</small>	Roof - Main - Roof Flashing	Black Fibrous Homogeneous		5% Ca Carbonate 92% Non-fibrous (Other)	3% Chrysotile
RF-A-2 <small>411603037-0018</small>	Roof - Main - Roof Flashing				Positive Stop (Not Analyzed)
BUR-A-1-Tar <small>411603037-0019</small>	Roof - Main - Built-Up Roof	Black Non-Fibrous Homogeneous	<1% Cellulose	5% Quartz 95% Non-fibrous (Other)	None Detected
BUR-A-1-Cellulose Layer <small>411603037-0019A</small>	Roof - Main - Built-Up Roof	Black Fibrous Homogeneous	25% Cellulose	75% Non-fibrous (Other)	None Detected
BUR-A-1-Brown Layer <small>411603037-0019B</small>	Roof - Main - Built-Up Roof	Brown Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
BUR-A-2-Tar <small>411603037-0020</small>	Roof - Main - Built-Up Roof	Black Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
BUR-A-2-Cellulose Layer <small>411603037-0020A</small>	Roof - Main - Built-Up Roof	Black Fibrous Homogeneous	40% Cellulose	60% Non-fibrous (Other)	None Detected
BUR-A-2-Brown Layer <small>411603037-0020B</small>	Roof - Main - Built-Up Roof	Brown Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected

Initial Report From: 04/15/2016 09:46:39



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

EMSL Order: 411603037
Customer ID: FROE22
Customer PO: 65U0005
Project ID:

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
BUR-A-3-Brown Layer <small>411603037-0020C</small>	Roof - Main - Built-Up Roof	Brown Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
RF-B-1 <small>411603037-0021</small>	Side Roof - Roof Flashing	Black Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
RF-B-2 <small>411603037-0022</small>	Side Roof - Roof Flashing				Positive Stop (Not Analyzed)
BUR-B-1-Tar <small>411603037-0023</small>	Side Roof - Built-Up Roof	Black Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
BUR-B-1-Cellulose Layer <small>411603037-0023A</small>	Side Roof - Built-Up Roof	Black Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
BUR-B-1-Brown Layer <small>411603037-0023B</small>	Side Roof - Built-Up Roof	Brown Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
BUR-B-2-Tar <small>411603037-0024</small>	Side Roof - Built-Up Roof	Black Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
BUR-B-2-Cellulose Layer <small>411603037-0024A</small>	Side Roof - Built-Up Roof	Black Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
BUR-B-2-Brown Layer <small>411603037-0024B</small>	Side Roof - Built-Up Roof	Brown Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
BUR-B-3-Brown Layer <small>411603037-0024C</small>	Side Roof - Built-Up Roof	Brown Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected

Analyst(s)
Derrick Young (16)
Erin Guzowski (26)

Lee Plumley, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

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

Initial Report From: 04/15/2016 09:46:39

**EMSL Analytical, Inc.**

376 Crompton Street, Charlotte, NC 28273
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EMSL Order: 411603037
 CustomerID: FROE22
 CustomerPO: 65U0005
 ProjectID:

Attn: **Thomas Tripp
 Froehling & Robertson
 18 Woods Lake Road
 Greenville, SC 29607**

Phone: (864) 271-2840
 Fax: (864) 271-8124
 Received: 04/15/16 9:40 AM
 Analysis Date: 4/16/2016
 Collected:

Project: 100 South Spring Street

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

SAMPLE ID	DESCRIPTION	APPEARANCE	% MATRIX MATERIAL	% NON-ASBESTOS FIBERS	ASBESTOS TYPES
BUR-A-3-Tar 411603037-0025	Roof - Main - Built-Up Roof	Black Non-Fibrous Homogeneous	100	None	No Asbestos Detected
BUR-A-3-Cellulose Layer 411603037-0026	Roof - Main - Built-Up Roof	Black Fibrous Homogeneous	100	None	No Asbestos Detected
BUR-B-3-Tar 411603037-0027	Side Roof - Built-Up Roof	Black Non-Fibrous Homogeneous	100	None	<0.1% Chrysotile
BUR-B-3-Cellulose Layer 411603037-0028	Side Roof - Built-Up Roof	Black Fibrous Homogeneous	100	None	<0.1% Chrysotile

Analyst(s)
 Aaron Hartley (4)

Lee Plumley, Laboratory Manager
 or other approved signatory

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

Initial report from 04/18/2016 08:48:53

EMSL Analytical, Inc.
 376 Crompton Street
 Charlotte, NC 28273
 PHONE: (704) 525-2205
 FAX: (704) 525 2382



EMSL ANALYTICAL, INC.
 LABORATORY • PRODUCTS • TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

411603037

Company: Froehling & Robertson, Inc.		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different note instructions in Comments**	
Street: 18 Woods Lake Road		Third Party Billing requires written authorization from third party	
City: Greenville	State/Province: SC	Zip/Postal Code: 29607	Country: United States
Report To (Name): Thomas Tripp		Telephone #: 864-271-2840	
Email Address: ttripp@fandr.com		Fax #:	Purchase Order: 65U0005
Project Name/Number: 100 South Spring Street		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email <input type="checkbox"/> Mail	
U.S. State Samples Taken: SC		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	

Turnaround Time (TAT) Options* - Please Check

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

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

PLM - Bulk (reporting limit)

TEM - Bulk

- | | |
|---|--|
| <input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) | <input checked="" type="checkbox"/> TEM EPA NOB - EPA 600/R-93/116 Section 2.5.5.1 |
| <input type="checkbox"/> PLM EPA NOB (<1%) | <input type="checkbox"/> NY ELAP Method 198.4 (TEM) |
| Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) | <input type="checkbox"/> Chatfield Protocol (semi-quantitative) |
| Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) | <input type="checkbox"/> TEM % by Mass - EPA 600/R-93/116 Section 2.5.5.2 |
| <input type="checkbox"/> NIOSH 9002 (<1%) | <input type="checkbox"/> TEM Qualitative via Filtration Prep Technique |
| <input type="checkbox"/> NY ELAP Method 198.1 (friable in NY) | <input type="checkbox"/> TEM Qualitative via Drop Mount Prep Technique |
| <input type="checkbox"/> NY ELAP Method 198.6 NOB (non-friable-NY) | |
| <input type="checkbox"/> OSHA ID-191 Modified | <u>Other</u> |
| <input type="checkbox"/> Standard Addition Method | <input type="checkbox"/> |

Check For Positive Stop - Clearly Identify Homogenous Group

Date Sampled: *[Signature]*

Samplers Name: *Thomas Tripp*

Samplers Signature: *[Signature]*

Sample #	HA #	Sample Location	Material Description
PLA-1	1	Plaster Ceiling Interior	Plaster ceiling
PLA-2	1	"	"
PLA-3	1	"	"
PLB-1	2	Plaster Extension	Plaster wall
PLB-2	2	"	"
PLB-3	2	"	"
PLB-4	2	"	"
PLB-5	2	"	"
PLB-6	2	"	"
PLB-7	2	"	"

Client Sample # (s):

Total # of Samples: 28

Relinquished (Client): *[Signature]*

Date: 4-7-16

Time: 12:00

Received (Lab): *[Signature]*

Date: 4/8/16

Time: 10:30AM ETLFK

Comments/Special Instructions:

7950 9562 2072



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

411603037

EMSL Analytical, Inc.

376 Crompton Street

Charlotte, NC 28273

PHONE: (704) 525-2205

FAX: (704) 525 2382

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

Sample #	HA #	Sample Location	Material Description
DW-1	3	Dry wall stairwell	Dry wall
DW-2	3	"	"
DW-3	3	"	"
RD-1	4	Roof Deck	Roof Decking
RD-2	4	"	"
RD-3	4	"	"
RFA-1	5	Roof-main	Roof Flashing
RFA-2	5	"	"
TEM - RFA-3	5	"	"
BUR-A-1	6	Roof - main	Built-up Roof
BUR-A-2	6	"	"
TEM - BUR-A-3	6	"	"
RFB-1	7	side roof	Roof Flashing
RFB-2	7	"	"
TEM - RFB-3	7	"	"
BUR-B-1	8	side roof	Built-up Roof
BUR-B-2	8	"	"
EM - BUR-B-3	8	"	"
*Comments/Special Instructions:			



EMSL Analytical, Inc.

706 Gralin Street, Kernersville, NC 27284
Phone/Fax: (336) 992-1025 / (336) 992-4175
<http://www.EMSL.com> greensborolab@emsl.com

EMSL Order: 021602338
CustomerID: FROE22
CustomerPO:
ProjectID:

Attn: **Thomas Tripp**
Froehling & Robertson
18 Woods Lake Road
Greenville, SC 29607

Phone: (864) 271-2840
Fax: (864) 271-8124
Received: 04/08/16 10:00 AM
Collected:

Project: **100 South Spring St.**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
LP-1	021602338-0001		4/11/2016	0.59 % wt
LP-2	021602338-0002		4/11/2016	1.4 % wt

James Cole, Laboratory Manager
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Samples analyzed by EMSL Analytical, Inc. Kernersville, NC EMSL Lab ID 102564 is accredited by the AIHA Laboratory Accreditation Program (AIHA-LAP), LLC in the Environmental Lead accreditation program for Lead in Paint Chips.

Initial report from 04/12/2016 09:51:51



EMSL ANALYTICAL, INC.
LABORATORY-PRODUCTS-TRAINING

Lead (Pb) Chain of Custody

EMSL Order ID (Lab Use Only):

2338

Kernersville, NC 27284
PHONE: (336) 992-1025
FAX: (336) 992-4175

Company: Froehling & Robertson, Inc.		EMSL-Bill to: <input type="checkbox"/> Different <input checked="" type="checkbox"/> Same <small>If Bill to is Different note instructions in Comments**</small>	
Street: 18 Woods Lake Road		<i>Third Party Billing requires written authorization from third party</i>	
City: Greenville	State/Province: SC	Zip/Postal Code: 29607	Country: United States
Report To (Name): Thomas Tripp		Telephone #: 864-918-1513	
Email Address: ttripp@fandr.com		Fax #:	Purchase Order:
Project Name/Number: 100 South Spring Street		Please Provide Results: <input type="checkbox"/> FAX <input checked="" type="checkbox"/> E-mail <input type="checkbox"/> Mail	
U.S. State Samples Taken: SC		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	

Turnaround Time (TAT) Options* - Please Check

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

*Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide

Matrix	Method	Instrument	Reporting Limit	Check
Chips <input checked="" type="checkbox"/> % by wt. <input type="checkbox"/> mg/cm ² <input type="checkbox"/> ppm	SW846-7000B	Flame Atomic Absorption	0.01%	<input type="checkbox"/>
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter	<input type="checkbox"/>
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter	<input type="checkbox"/>
	NIOSH 7300 modified	ICP-AES/ICP-MS	0.5 µg/filter	<input type="checkbox"/>
Wipe* <small>ASTM <input type="checkbox"/> non ASTM <input type="checkbox"/> *if no box is checked, non-ASTM Wipe is assumed</small>	SW846-7000B	Flame Atomic Absorption	10 µg/wipe	<input type="checkbox"/>
	SW846-6010B or C	ICP-AES	1.0 µg/wipe	<input type="checkbox"/>
	SW846-7000B/7010	Graphite Furnace AA	0.075 µg/wipe	<input type="checkbox"/>
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	SW846-1131/SW846-6010B or C	ICP-AES	0.1 mg/L (ppm)	<input type="checkbox"/>
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)	<input type="checkbox"/>
	SW846-7010	Graphite Furnace AA	0.3 mg/kg (ppm)	<input type="checkbox"/>
	SW846-6010B or C	ICP-AES	2 mg/kg (ppm)	<input type="checkbox"/>
Wastewater Unpreserved <input type="checkbox"/> Preserved with HNO ₃ pH < 2 <input type="checkbox"/>	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.7	ICP-AES	0.020 mg/L (ppm)	<input type="checkbox"/>
Drinking Water Unpreserved <input type="checkbox"/> Preserved with HNO ₃ pH < 2 <input type="checkbox"/>	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	<input type="checkbox"/>
TSP/SPM Filter	40 CFR Part 50	ICP-AES	12 µg/filter	<input type="checkbox"/>
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter	<input type="checkbox"/>
Other:				<input type="checkbox"/>

Name of Sampler: *Thomas Tripp* Signature of Sampler: *[Signature]*

Sample #	Location	Volume/Area	Date/Time Sampled
LP-1			
LP-1	<i>white / interior</i>		<i>4-6-16/1425</i>
LP-2	<i>Gray / interior</i>		<i>4-6-16/1425</i>

Client Sample #'s: - Total # of Samples: *2*

Relinquished (Client): *[Signature]* Date: *4-7-16* Time: *1200*

Received (Lab): *[Signature]* Date: *4-8-16* Time: *10:00*

Comments: *Fx 809700291009*