

# Asbestos Survey and Limited Lead-Based Paint Survey

Commercial Buildings A, B, and C  
613 Munger Street  
Hannibal, Marion County, Missouri

February 16, 2011

Terracon Project No. 15107089



Prepared for:

City of Hannibal  
Hannibal, Missouri

Prepared by:

Terracon Consultants, Inc.  
St. Louis, Missouri

Offices Nationwide  
Employee-Owned

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# Terracon

Geotechnical ■ Environmental ■ Construction Materials ■ Facilities

February 16, 2011



City of Hannibal  
320 Broadway  
Hannibal, Missouri 63401

Attn: Mr. Jeff LaGarce  
P: [573] 221 0111  
F: [573] 221 0646  
E: jlagarce@hannibal-mo.gov

Re: Asbestos Survey and Limited Lead-Based Paint Survey  
Commercial Buildings A, B, and C  
613 Munger Street  
Hannibal, Marion County, Missouri  
Terracon Project No. 15107089

Dear Mr. LaGarce:

Terracon Consultants, Inc. (Terracon) is pleased to submit the enclosed Asbestos Survey and Limited Lead-Based Paint Survey for the above-referenced site. This survey was performed in accordance with the Professional Services Agreement between the City of Hannibal, Missouri and Terracon dated December 7, 2010.

This report contains the results of samples collected and analyzed. Please refer to the attached report for details. Terracon Consultants, Inc. appreciates the opportunity to provide this service to the City of Hannibal. If there are any questions regarding this report or if we may be of further assistance, please do not hesitate to contact us.

Sincerely,  
**Terracon Consultants, Inc.**

Heather Beery  
Staff Environmental Scientist

  
Gary A. Ganson, CIH, CSP  
Senior Consultant

  
Bryan Gatlin  
Project Manager



Terracon Consultants, Inc. 11600 Lilburn Park Road, St. Louis, Missouri 63146  
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**ASBESTOS SURVEY AND  
LIMITED LEAD-BASED PAINT SURVEY**

**COMMERCIAL BUILDINGS A, B, AND C  
613 MUNGER STREET  
HANNIBAL, MARION COUNTY, MISSOURI**

**Terracon Project No. 15107089  
February 16, 2011**

**1.0 INTRODUCTION**

Terracon Consultants, Inc. (Terracon) conducted asbestos surveys and limited lead-based paint surveys on the commercial buildings located at 613 Munger Street in Hannibal, Marion County, Missouri. The sampling was conducted on January 5, 2011, in general accordance with the Professional Services Agreement between the City of Hannibal, Missouri and Terracon dated December 7, 2010. The survey included interior and exterior areas of the site buildings, and consisted of readily visible and accessible building materials.

**Asbestos**

Samples of suspect asbestos-containing materials (ACM) were collected to determine asbestos content. Sampling was performed in compliance with protocols outlined in EPA regulation 40 CFR 763 (Asbestos Hazard Emergency Response Act, AHERA) and in accordance with the provisions of the Federal National Emission Standard for Hazardous Air Pollutants (NESHAP; 40 CFR 61, Subpart M) and the Missouri Department of Natural Resources (MDNR) under 10 CSR 10-6.241 Asbestos Projects - Registration, Notification, and Performance Requirements. Upon collection, the samples were delivered to an accredited laboratory, EMSL Analytical, Inc. in St. Louis, Missouri, for analysis by polarized light microscopy (PLM) using EPA Method 600/R-93/116 per United States Environmental Protection Agency (EPA) methodology (40 CFR 763, Subpart E).

**Lead-Based Paint**

Lead-based paint (LBP) is regulated by the Environmental Protection Agency (EPA), Missouri Department of Health (MDOH), and the Occupational Safety and Health Administration (OSHA). The EPA and MDOH regulate lead use, removal, and disposal. The EPA defines LBP as paint, varnish, stain, or other applied coating that contains lead equal to or greater than 1.0 mg/cm<sup>2</sup>, 5,000 mg/kg, or 0.5% by dry weight as determined by laboratory analysis.

## 1.1 Project Objective

The objectives of this project were to identify the presence or absence of ACM that may be impacted by the impending demolition activities of the site structures, and the presence or absence of LBP considered sufficiently damaged/peeling to result in building demolition waste being classified as hazardous for lead.

Terracon visually assessed the interior and exterior of the site buildings to observe for the presence of potential damaged LBP. Terracon did not observe areas of significant cracking, peeling, or chipping. Painted components were generally in fair to good condition. Due to the lack of significant cracked or peeling painted components, Terracon did not collect samples of painted components (paint/substrate) for TCLP analysis.

### Asbestos

EPA regulation 40 CFR 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP) prohibits the release of asbestos fibers to the atmosphere during renovation or demolition activities. The asbestos NESHAP requires that regulated asbestos-containing building materials be identified, classified and quantified prior to planned disturbances or demolition activities. The NESHAP authority for the state of Missouri is Missouri Department of Natural Resources (MDNR).

### Lead-Based Paint

The MDNR Fact Sheet entitled "Disposal of Demolition Wastes Contaminated with Lead or Other Heavy Metals" dated August 2008, provided guidance for the disposal of the following types of waste:

- Paint residue
- Demolition debris, and
- Scrap metal.

The waste disposal requirements depend on the kind of waste disposed and how the owner is regulated. The wastes must be managed and disposed of so as not to adversely affect human health, pose a threat to environment, or create a public nuisance. MDNR indicated there were two classifications of buildings:

- Residential Properties Containing Not More Than four Family Units; and
- Other Structures.

The site buildings are classified as "Other Structures," which includes multi-family dwellings that are not owner occupied, multi-family dwellings containing more than four family units;

commercial and business enterprises, institutions and industrial buildings, and other structures not specifically identified.

Demolition debris need not be tested prior to disposal, so long as the debris is not chipped, shredded, milled, ground, mulched or similarly processed to enhance their leachability prior to disposal. Unprocessed wastes may be disposed in either a sanitary landfill or a demolition landfill.

Scrap metal should be sent to a salvage yard for recycling.

## **2.0 BUILDING DESCRIPTION**

The site is developed with three buildings, which are designated A, B and C. Building A is a 1,400 square foot warehouse building constructed of steel atop a concrete floor slab. Building B is a 4,000-square foot warehouse and offices constructed of concrete block atop a concrete floor slab. Building C is a 5,500-square foot warehouse and offices constructed of concrete block atop a concrete floor slab. The walls of the offices of Building B are finished with wood paneling and the ceilings are finished with drywall. The walls of the offices in Building C are finished with wood paneling and the ceilings included drywall and a suspended ceiling system. The shop room of Building C has cement board on the walls. Floor coverings in the offices of Building C included sheet vinyl flooring over vinyl floor tile over masonite over black mastic over concrete. Building B contains a metal roof. Building C contains a built-up roof.

## **3.0 FIELD ACTIVITIES**

The asbestos survey was conducted on January 5, 2011, by Mr. Bryan Gatlin and Ms. Heather Beery, MDNR Certified Asbestos Building Inspectors. Copies of Mr. Gatlin's and Ms. Beery's certificates are attached as Appendix E. The asbestos sampling was conducted consistent with the procedures outlined in our Professional Services Agreement referenced in Section 1.0.

The limited LBP survey was conducted on January 5, 2011 to provide the client with information to comply with OSHA requirements for lead-in-air content during disturbance of painted materials. The sampling was not designed to meet the requirements of the U.S. Department of Housing and Urban Development (HUD).

A summary of the field activities is described below.

### **3.1 Visual Assessment**

Terracon began the asbestos sampling activities with a visual assessment, identification and inventory of readily visible and accessible homogeneous areas of suspect ACM. A homogeneous area consists of building materials that appear similar throughout in terms of color, texture and date of application. The interior assessment was conducted throughout visually accessible areas of the site. Building materials identified as concrete, glass, wood, masonry, metal, plastic or rubber were not considered suspect ACM.

Terracon visually assessed the interior and exterior of the site buildings to identify construction materials suspect for LBP. Painted/coated surfaces which appear similar throughout in terms of color, texture, substrate and date of application are treated as a homogeneous material for paint chip collection purposes. Painted/coated surfaces were visually assessed for evidence of distress, flaking, and/or peeling.

### **3.2 Physical Assessment**

#### **Asbestos**

A physical assessment of each homogeneous area of suspect ACM was conducted to assess the friability and condition of the materials. A friable material is defined by the EPA as a material which can be crumbled, pulverized or reduced to powder by hand pressure when dry. Friability was assessed by physically touching suspect materials.

#### **Lead-Based Paint**

A physical assessment of each selected painted surface was conducted to assess its condition. The painted surfaces were assessed as good, fair or poor condition depending on degree of cracking, peeling or chipping.

### **3.3 Sample Collection**

Based on results of the visual observation, bulk samples of suspect ACM were collected from the interior and exterior of the subject buildings. Bulk samples of suspect ACM were collected in general accordance with AHERA sampling protocols using wet methods as applicable to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker. Suspect asbestos-containing materials were not identified in Building A during the visual assessment; therefore, no samples were collected from Building A. A total of six (6) bulk samples were collected from two (2) homogenous areas of suspect ACM in Building B. A total of eighteen (18) bulk samples were collected from six (6) homogeneous areas of suspect ACM in Building C. The asbestos survey sample summary is provided in Appendix A. The confirmed asbestos-containing materials are

tabulated in Appendix B. Although reasonable effort was made to survey accessible suspect materials, additional suspect but un-sampled materials could be located in walls, in voids or in other concealed areas.

### **Lead-Based Paint**

At the request of the client, collection of paint samples was requested for painted surfaces which exhibited significant cracking, peeling, or chipping to the extent that demolition debris could be considered hazardous. Due to lack of significant damaged or peeling paint, Terracon did not collect samples of painted components (paint/substrate) for TCLP analysis.

## **3.4 Sample Analysis**

### **Asbestos**

Samples of suspect ACM were delivered under proper chain-of-custody to EMSL Analytical, Inc. (EMSL) of St. Louis, Missouri. EMSL is a laboratory accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) under the National Institute of Standards and Technology (NIST) (Lab Code: 200742-0) for analysis by Polarized Light Microscopy (PLM). The percentage of asbestos, where applicable, was determined by microscopical visual estimation. Copies of the analytical reports and chain-of-custody forms are provided in Appendix C.

### **Lead-Based Paint**

Terracon did not observe areas of significant cracking, peeling, or chipping paint in the interior or exterior of the buildings; therefore, no samples of paint/substrate material were collected.

## **4.0 REGULATORY OVERVIEW**

As a consequence of the health hazard from inhalation of asbestos fibers, a body of federal and state regulations has been developed. Federal regulations pertaining to asbestos are included in AHERA (US EPA 40 CFR 763, Subparts E, F); NESHAP (EPA 40 CFR 61); OSHA Asbestos Standards (29 CFR 1910.1001 and 29 CFR 1926.1101), and ASHARA (Asbestos School Hazard Abatement Reauthorization Act). Many states have additional requirements including state-specific licensing and certification. In Marion County, Missouri, asbestos activities are regulated by the Missouri Department of Natural Resources (MDNR) under 10 CSR 10-6.241 Asbestos Projects - Registration, Notification, and Performance Requirements.

Friable ACM, Category I and Category II non-friable ACM which is in poor condition and has become friable or which will be subjected to drilling, sanding, grinding, cutting or abrading and which could be crushed or pulverized during anticipated renovation or demolition activities are

considered regulated ACM (RACM). RACM must be removed prior to renovation or demolition activities which will disturb the materials. The owner or operator must provide MDNR with written notification at least 10 working days prior to the commencement of any renovation activity which will include the disturbance of at least 160 square feet, 260 linear feet, or one cubic meter of RACM or prior to the commencement of demolition. Removal of RACM must be conducted by a MDNR licensed asbestos abatement contractor. Please note that demolition of any structure, which is defined as removal of a load-bearing member, requires a 10-day notification even when no asbestos is present.

The federal OSHA Asbestos standard for construction (29 CFR 1926.1101) regulates workplace exposure to asbestos. OSHA standards require that employee exposure to airborne asbestos fibers be maintained below 0.1 asbestos fibers per cubic centimeter of air (0.1 f/cc). The OSHA standards classifies construction and maintenance activities which could disturb ACM, and specifies work practices and precautions which employers must follow when engaging in each class of regulated work. However, workers who deliberately disturb any amount of asbestos should have pertinent training and wear proper personal protective equipment according to federal and state regulatory requirements (i.e., OSHA 29 CFR 1926.1101 (g) (1) through (9) for Class I, II and III work).

### **Lead-Based Paint**

The limited LBP survey was performed in accordance with the procedures prescribed in the EPA's work practice standards for conducting lead paint testing (40 CFR 745.227). Lead is regulated by the EPA and OSHA at the federal level and by MDOH at the state level.

The Resource Conservation and Recovery Act (RCRA) gave the USEPA authority to regulate the waste status of demolition and renovation debris, including lead-containing materials. Specific notification and testing requirements must be addressed prior to transporting, treating, storing, or disposing of hazardous wastes. Lead containing wastes are considered hazardous waste under RCRA if Toxicity Characteristic Leaching Procedure (TCLP) results exceed 5 milligrams per liter (mg/L). EPA exempts from most RCRA requirements those generators whose combined hazardous waste generation is less than 100 kilograms (kg) per month.

Detectable lead quantities may constitute a lead dust hazard during renovation/demolition activities. Personnel performing renovation/demolition activities that may disturb painted components with concentrations of lead above the designated analytical detection limit should comply with all current OSHA regulations in order to minimize employee exposure. OSHA regulates construction activities that disturb lead-containing material regardless of the concentration. Currently, any proposed renovation/demolition is subject to the OSHA regulations (29 CFR 1926.62 – Lead Exposure in Construction).

Contractors and employers are required to comply with 29 CFR 1926.62. Construction work covered by OSHA standards includes any repair or renovation activities or other activities that disturb in-place lead-containing materials, but does not include routine cleaning and repainting where there is insignificant damage, wear, or corrosion of existing lead-containing coatings or substrates. Employers must assure that no employee will be exposed to lead at concentrations greater than 50 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) averaged over an eight-hour period without adequate protection. The OSHA Standards also establish an action level of  $30 \mu\text{g}/\text{m}^3$ , which if exceeded, triggers the requirement for medical monitoring. The OSHA standard does not define the amount of lead in paint that constitutes lead based paint. OSHA regulates paint with lead levels equal to or exceeding 0.06% by weight. A negative exposure assessment per trigger task should be conducted to determine if field levels are below the required OSHA action and permissible levels.

## 5.0 FINDINGS AND RECOMMENDATIONS

### Asbestos

Terracon did not identify suspect materials in Building A. Six samples of suspect ACM were collected from the interior of Building B and eighteen samples of suspect ACM were collected from the interior of Building C. Laboratory analysis identified asbestos in the following materials:

- Cement board – Building C
- Flooring (sheet vinyl flooring) – Building C

The following material was not sampled but was assumed to contain asbestos:

- Built-up roof – Building C

It is recommended that the identified ACM at the site be managed in place with an Operations and Maintenance (O&M) Plan. ACM that will be disturbed during future construction or demolition activities should be properly removed and disposed by a trained and licensed abatement contractor. The roofing material can remain on Building C during demolition. Category Non-friable I Asphalt roofing material is not regulated by the Missouri Department of Natural Resources (MDNR) as long as the material is in good condition and is not made friable during removal or demolition.

The asbestos survey sample summary is provided in Appendix A. Confirmed asbestos-containing materials are summarized in Appendix B and laboratory analytical reports are included in Appendix C. Photographs of sampled materials are provided in Appendix D.

## Lead-Based Paint

The interior and exterior painted components were in generally fair to good condition with evidence of weathering. Terracon did not observe painted components which exhibited significant cracking, chipping, or peeling as defined in Section 3.2; and therefore did not collect samples of painted materials for TCLP analysis.

## 6.0 GENERAL COMMENTS

The asbestos survey and limited lead-based paint survey were conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions and recommendations expressed in this report are based on conditions observed during our sampling of the buildings. The information contained in this report is relevant to the date on which these samplings were performed, and should not be relied upon to represent conditions at a later date. This report has been prepared on behalf of and exclusively for use by the City of Hannibal for specific application to their project as discussed. This report is not a bidding document. Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation or remediation deemed necessary. Terracon does not warrant the work of regulatory agencies, laboratories or other third parties supplying information which may have been used in the preparation of this report. No warranty, express or implied is made.

**APPENDIX A**

**ASBESTOS SURVEY SAMPLE SUMMARY**

**ASBESTOS SURVEY SAMPLE SUMMARY  
613 MUNGER STREET BUILDING A, HANNIBAL, MO**

Homogeneous Area	Sample No.	Description	Sample Location	Lab Results	Condition
No samples collected from Building A					

**ASBESTOS SURVEY SAMPLE SUMMARY  
613 MUNGER STREET BUILDING B, HANNIBAL, MO**

Homogeneous Area	Sample No.	Description	Sample Location	Lab Results	Condition
1	1-1	Drywall	Ceiling of offices	None Detected	Good
	1-2	Drywall	Ceiling of offices	None Detected	
	1-3	Drywall	Ceiling of offices	None Detected	
2	2-1	Window glazing	Windows	None Detected	Good
	2-2	Window glazing	Windows	None Detected	
	2-3	Window glazing	Windows	None Detected	

**ASBESTOS SURVEY SAMPLE SUMMARY**  
**613 MUNGER STREET BUILDING C, HANNIBAL, MO**

Homogeneous Area	Sample No.	Description	Sample Location	Lab Results	Condition
1	1-1	Cement board	Mechanical Rooms	19% Chrysotile	Good
	1-2	Cement board	Mechanical Rooms	19% Chrysotile	
	1-3	Cement board	Mechanical Rooms	19% Chrysotile	
2	2-1	Baseboard mastic	Mechanical Rooms	None Detected	Good
	2-2	Baseboard mastic	Mechanical Rooms	None Detected	
	2-3	Baseboard mastic	Mechanical Rooms	None Detected	
3	3-1	Drywall & joint compound	Office ceilings	None Detected	Good
	3-2	Drywall & joint compound	Office ceilings	None Detected	
	3-3	Drywall & joint compound	Office ceilings	None Detected	
4	4-1	Flooring	Offices	20% Chrysotile	Good
	4-2	Flooring	Offices	20% Chrysotile	
	4-3	Flooring	Offices	20% Chrysotile	
5	5-1	2'x4' ceiling tile	Offices	None Detected	Good
	5-2	2'x4' ceiling tile	Offices	None Detected	
	5-3	2'x4' ceiling tile	Offices	None Detected	
6	6-1	Window glazing	Office	None Detected	Good
	6-2	Window glazing	Office	None Detected	
	6-3	Window glazing	West side of building	None Detected	
7	Not sampled	Built up roof	Roof	Assumed	Good

**APPENDIX B**

**CONFIRMED ASBESTOS-CONTAINING MATERIAL**

**CONFIRMED ASBESTOS-CONTAINING MATERIAL**

**COMMERCIAL BUILDING  
613 MUNGER STREET – BUILDING B  
HANNIBAL, MARION COUNTY, MISSOURI  
Terracon Project No. 15107089**

**CONFIRMED ASBESTOS-CONTAINING MATERIAL**

HA No.	Description	Material Location	Percent/Type Asbestos	NESHAP Classification	Condition	Estimated Quantity
Asbestos not detected in analyzed samples						

SF = Square feet  
LF = Linear feet  
C = Chrysotile asbestos

**COMMERCIAL BUILDING  
613 MUNGER STREET – BUILDING C  
HANNIBAL, MARION COUNTY, MISSOURI  
Terracon Project No. 15107089**

**CONFIRMED ASBESTOS-CONTAINING MATERIAL**

HA No.	Description	Material Location	Percent/Type Asbestos	NESHAP Classification	Condition	Estimated Quantity
1	Cement board	Mechanical rooms	19% Chrysotile	Category II non-friable	Good	2,000 SF
4	Sheet vinyl flooring	Offices	20% Chrysotile	Category I non-friable	Good	600 SF
7	Roofing	Roof	Assumed	Category I non-friable	Good	5,500 SF

SF = Square feet  
LF = Linear feet  
C = Chrysotile asbestos

**APPENDIX C**

**ANALYTICAL LABORATORY DATA**

Asbestos • Lead • Environmental • Materials & Indoor Air Analysis

EMSL Analytical, Inc.

3029 S. Jefferson Saint Louis, MO 63118  
Phone: (314) 577-0150 Fax: (314) 776-3313  
Web: Email: [saintlouislab@emsl.com](mailto:saintlouislab@emsl.com)

**FACSIMILE TRANSMITTAL SHEET**

To: Bryan Gatlin  
Company: Terracon Consultants, Inc.  
Fax Number: (314) 692-8810  
Phone Number: (314) 692-8811

From: EMSL Analytical, Inc.  
Date: January 17, 2011  
PAGES INCLUDING COVER: 5

**613 MUNGER - B**

RE: Analysis Results for Order(s) 391100148

The following report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on the following date(s):  
1/10/2011 9:00:00AM

**Notice:** This information may contain privileged and confidential information and is solely for the use of the sender's intended recipient(s). If you received this information in error, please notify the sender and delete all copies. Thank you.

**EMSL Analytical, Inc. News**

EMSL PRODUCTS MONTHLY SPECIALS	<u>Online Training</u>	<u>New Lab Services at EMSL</u>
<p><b>Air-o-Cell (50pk) \$199.00</b> PCM Cassettes \$24(10+bx) TEM Cassettes \$39(10+bx)</p> <p><b><u>PUMP BLOWOUT SALE</u></b></p> <p>Product #870610 EMSL H/D Diaphragm Pump \$169</p> <p>Product #8706105 H/D Diaphragm Pump Kit \$425</p> <p><b><u>IAQ INSTRUMENT DEALS</u></b></p> <p>Product #8703003 Protimeter Mini Moisture Meter \$175</p> <p>Product #8704013 BIOS Defender 510-H \$1299</p> <p>Product #8709001</p>	<p><a href="http://www.EMSLTraining.com">www.EMSLTraining.com</a></p> <p>CIE CMI CIAQM Microbiology for the IAQ Professional HVAC for the IAQ Professional</p>	<p>Chinese Drywall Testing Allergens PCB's Rapid Pathogen Detection by Real Time PCR Radon</p>
	<p><b><u>Online Sampling Videos</u></b> <a href="http://www.EMSL.tv">www.EMSL.tv</a></p>	<p><b><u>Westmont, NJ Lab Open Saturday</u></b> Asbestos, Lead, and Mold Analysis!</p> <p><b>1-800-220-3675 East Coast</b> <b>1-888-455-3675 West Coast</b></p>

If you have any questions, please do not hesitate to contact us at (314) 577-0150.

VISIT OUR WEBSITE AT

Please tell us how we are doing by going to the survey at <http://www2.emsl.com/custsurvey/?fromregion=eastcoast>

YOU CAN DOWNLOAD AND PRINT

CERTIFICATIONS OF ACCREDITATIONS AND CHAIN OF CUSTODY FORMS

613 MUNCER  
BLDG B

**Chain of Custody**  
**EMSL Order Number (Lab Use Only):**

391100148

EMSL ANALYTICAL, INC.  
LABORATORY PRODUCTS DIVISION

Company: TERADCON		EMSL-Bill to: <input type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different note instructions in Comments*	
Street: 11600 WILBURN PARK RD		Third Party Billing requires written authorization from third party	
City: ST LOUIS	State/Province:	Zip/Postal Code: 63146	Country:
Report To (Name): BRYAN GATLIN		Fax #: 314-692-8810	
Telephone #: 314-692-8811		Email Address:	
Project Name/Number: FLOOD BUYOUT - 15107089			
Please Provide Results: <input checked="" type="checkbox"/> Fax <input type="checkbox"/> Email		Purchase Order:	U.S. State Samples Taken: MO

**Turnaround Time (TAT) Options\* - Please Check**

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

\*For RUSH TAT's Please Call Ahead to Confirm Lab Hours and Availability. Not all TAT options are valid for every test. Materials Science and IAQ TATs are in Business Days rather than Hours (i.e. 24 Hour = End of Next Business Day)

**Asbestos**

<b>PCM - Air</b> <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ 8hr. TWA <b>TEM - Air</b> <input type="checkbox"/> 4-4.5hr TAT (AHERA ONLY) <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312 <b>TEM - Water</b> Fibers $\geq 10\mu m$ <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking	<b>PLM - Bulk</b> <input checked="" type="checkbox"/> PLM EPA 600/R-93/116 <input type="checkbox"/> PLM EPA NOB (<1%) <input type="checkbox"/> NYS 198.1 (friable-NY) <input type="checkbox"/> NYS 198.6 (non-friable-NY) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/ Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)	<b>TEM - Bulk</b> <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chalfield SOP <b>Soil/Rock/Vermiculite</b> <input type="checkbox"/> PLM CARB 435 - A (0.25% sensitivity) <input type="checkbox"/> PLM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> EPA Reg. 1 Screening Protocol (Qualitative) Other:
<b>Lead (Pb)</b> <b>Flame Atomic Absorption</b> <input type="checkbox"/> Chips SW846-7000B or AOAC 974.02 <input type="checkbox"/> Soil SW846-7000B/7420 <input type="checkbox"/> Air NIOSH 7082 <input type="checkbox"/> Wastewater SM3111B or SW846-7000B/7420 <input type="checkbox"/> ASTM Wipe SW846-7000B/7420 <input type="checkbox"/> non ASTM Wipe SW846-7000B/7420 <input type="checkbox"/> TCLP SW846-1311/7420/SM 3111B <b>Graphite Furnace Atomic Absorption</b> <input type="checkbox"/> Soil SW846-7421 <input type="checkbox"/> Wastewater EPA 200.9 <input type="checkbox"/> Air NIOSH 7105 <input type="checkbox"/> Drinking Water EPA 200.9		<b>ICP</b> <input type="checkbox"/> Air NIOSH 7300 Modified <input type="checkbox"/> non ASTM Wipe SW846-6010B or C <input type="checkbox"/> ASTM Wipe SW846-6010B or C <input type="checkbox"/> Soil SW846-6010 B or C <input type="checkbox"/> Waste Water SW846-6010B or C <input type="checkbox"/> TCLP SW846-6010B or C Other:

**Materials Science**

Common Particle ID (large particles)  
 Full Particle ID (environmental dust)  
 Basic Material ID (solids)  
 Advanced Material ID  
 Physical Testing (Tensile, Compression)  
 Combustion-by-products (soot, char, etc.)  
 X-Ray Fluorescence (elem. analysis)  
 X-Ray Diffraction (Crystalline Part.)  
 MMVF's (Fibrous glass, RCF's)  
 Particle Size (sieve/microscopy/laser)  
 Combustible Dust  
 Petrographic Examination  
 Other:

**Microbiology**

<b>Wipe and Bulk Samples</b> <input type="checkbox"/> Mold & Fungi - Direct Examination <input type="checkbox"/> Mold & Fungi Culture (Genus Only) <input type="checkbox"/> Mold & Fungi Culture (Genus & Species) <input type="checkbox"/> Bacterial Count & ID (Up to Three Types) <input type="checkbox"/> Bacterial Count & ID (Up to Five Types) <input type="checkbox"/> MRSA <input type="checkbox"/> Pseudomonas aeruginosa <b>Water Samples</b> <input type="checkbox"/> Total Coliform & E.coli (P/A) <input type="checkbox"/> Fecal Coliform (SM 9222D) <input type="checkbox"/> Sewage Screen <input type="checkbox"/> Heterotrophic Plate Count (SM 9215)	<b>Air Samples</b> <input type="checkbox"/> Mold & Fungi (Spore Trap) <input type="checkbox"/> Mold & Fungi Culture (Genus Only) <input type="checkbox"/> Mold & Fungi (Genus & Species) <input type="checkbox"/> Bacterial Culture & ID (Up to Three Types) <input type="checkbox"/> Bacterial Culture & ID (Up to Five Types) <input type="checkbox"/> Endotoxin Testing <b>Real Time Q-PCR</b> (See Analytical Guide for Code) Code: <b>Legionella</b> <input type="checkbox"/> Level 1 <input type="checkbox"/> Level 2 <input type="checkbox"/> Level 3 <input type="checkbox"/> Level 4 Other:
--	---

**IAQ**

Nuisance Dust NIOSH  0500  0600  
 Airborne Dust  PM10  TSP  
 Silica Analysis:  All Species  
 Silica Analysis - Single Species  
 Alpha Quartz  Cristobalite  Tridymite  
 HVAC Efficiency  
 Carbon Black  
 Airborne Oil Mist  
 Radon Testing: Call for Kit and COC  
 Other:

\*\*Comments/Special Instructions:

Client Sample #'s	Date: 1-7-11	Total # of Samples: 5
Relinquished (Client):	Date: 1-10-11	Time: 3 PM
Received (Lab):		Time: 5:00 PM

**Chain of Custody**  
**EMSL Order Number (Lab Use Only):**

613 MUNGER  
 BLDG B  
 1 of 1

391100148

EMSL ANALYTICAL, INC.  
 LABORATORY PRODUCTS TRAINING

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
1-1	DRY WALL		
-2	↓		
-3	↓		
2-1	WINDOW GLAZING		
-2	↓		
-3	↓		
*Comments/Special Instructions:			

Analysis Completed in Accordance with EMSL's Terms and Conditions located in the Analytical Price Guide



**EMSL Analytical, Inc.**  
 3029 S. Jefferson, Saint Louis, MO 63118  
 Phone: (314) 677-0150 Fax: (314) 776-3413 Email: [saintlouis@emsl.com](mailto:saintlouis@emsl.com)

**Attn: Bryan Gatlin**  
**Terracon Consultants, Inc.**  
**11600 Lilburn Park Road**  
**Saint Louis, MO 63146**

Customer ID: TERR57  
 Customer PO:  
 Received: 01/10/11 9:00 AM  
 EMSL Order: 391100148

Fax: (314) 692-8810 Phone: (314) 692-8811  
 Project: Flood Buyout - 15107089 / 613 Munger Bldg B

EMSL Proj:  
 Analysis Date: 1/17/2011

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1-1-Joint Compound 391100148-0001		Various Non-Fibrous Heterogeneous		96% Non-fibrous (other) 4% Mica	None Detected
1-1-Drywall 391100148-0001A		Various Non-Fibrous Heterogeneous	13% Cellulose	87% Non-fibrous (other)	None Detected
1-2-Joint Compound 391100148-0002		Various Non-Fibrous Heterogeneous		96% Non-fibrous (other) 4% Mica	None Detected
1-2-Drywall 391100148-0002A		Various Non-Fibrous Heterogeneous	13% Cellulose	87% Non-fibrous (other)	None Detected
1-3-Joint Compound 391100148-0003		Various Non-Fibrous Heterogeneous		96% Non-fibrous (other) 4% Mica	None Detected
1-3-Drywall 391100148-0003A		Various Non-Fibrous Heterogeneous	13% Cellulose	87% Non-fibrous (other)	None Detected
2-1 391100148-0004		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected

Initial report from 01/17/2011 16:45:58

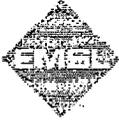
Analyst(s)

Sue Ferrario (9)

Jeff Siria, 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-liable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. 3029 S. Jefferson, Saint Louis MO NVLAP Lab Code 200742-0



**EMSL Analytical, Inc.**

3029 S. Jefferson, Saint Louis, MO 63112

Phone: (314) 677-0150 Fax: (314) 713-3315 Email: saintlouislab@emsl.com

Attn: **Bryan Gatlin**  
**Terracon Consultants, Inc.**  
**11600 Lilburn Park Road**

**Saint Louis, MO 63146**

Fax: (314) 692-8810 Phone: (314) 692-8811  
 Project: Flood Buyout - 15107089 / 613 Munger Bldg B

Customer ID: TERR57  
 Customer PO:  
 Received: 01/10/11 9:00 AM  
 EMSL Order: 391100148

EMSL Proj:  
 Analysis Date: 1/17/2011

**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
2-2 391100148-0005		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
2-3 391100148-0006		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected

Initial report from 01/17/2011 16:45:58

Analyst(s)  
 Sue Ferrario (9)

*Jeff Siria*  
 Jeff Siria, 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-ferrous organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted.  
 Samples analyzed by EMSL Analytical, Inc. 3029 S. Jefferson, Saint Louis MO NVLAP Lab Code 200742-0

Asbestos • Lead • Environmental • Materials & Indoor Air Analysis	
EMSL Analytical, Inc.	3029 S. Jefferson Saint Louis, MO 63118 Phone: (314) 577-0150 Fax: (314) 776-3313 Web: Email: <a href="mailto:saintlouislab@emsl.com">saintlouislab@emsl.com</a>

**FACSIMILE TRANSMITTAL SHEET**

To: Bryan Gatlin From: EMSL Analytical, Inc.  
 Company: Terracon Consultants, Inc. Date: January 17, 2011  
 Fax Number: (314) 692-8810 PAGES INCLUDING COVER: 8  
 Phone Number: (314) 692-8811

613 MUNGER - C

RE: Analysis Results for Order(s) 391100146  
 The following report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on the following date(s):  
 1/10/2011 9:00:00AM

**Notice:** This information may contain privileged and confidential information and is solely for the use of the sender's intended recipient(s). If you received this information in error, please notify the sender and delete all copies. Thank you.

## EMSL Analytical, Inc. News

EMSL PRODUCTS MONTHLY SPECIALS	<u>Online Training</u>	<u>New Lab Services at EMSL</u>
<p><b>Air-o-Cell (50pk) \$199.00</b>                      PCM Cassettes \$24(10+bx)                      TEM Cassettes \$39(10+bx)</p> <p style="text-align: center;"><b><u>PUMP BLOWOUT SALE</u></b></p> <p>Product #870610                      EMSL H/D Diaphragm Pump \$169</p> <p>Product #8706105                      H/D Diaphragm Pump Kit \$425</p> <p style="text-align: center;"><b><u>IAQ INSTRUMENT DEALS</u></b></p> <p>Product #8703003                      Protimeter Mini Moisture Meter \$175</p> <p>Product #8704013                      BIOS Defender 510-H \$1299</p> <p>Product #8709001</p>	<p><a href="http://www.EMSLTraining.com">www.EMSLTraining.com</a></p> <p>CIE                      CMI                      CIAQM                      Microbiology for the IAQ Professional                      HVAC for the IAQ Professional</p> <p style="text-align: center;"><b><u>Online Sampling Videos</u></b>  <a href="http://www.EMSL.tv">www.EMSL.tv</a></p>	<p>Chinese Drywall Testing                      Allergens                      PCB's                      Rapid Pathogen Detection by Real Time PCR                      Radon</p> <p style="text-align: center;"><b><u>Westmont, NJ Lab Open Saturday</u></b>                      Asbestos, Lead, and Mold Analysis!</p> <p style="text-align: center;">1-800-220-3675 East Coast                      1-888-455-3675 West Coast</p>

If you have any questions, please do not hesitate to contact us at (314) 577-0150.

VISIT OUR WEBSITE AT

Please tell us how we are doing by going to the survey at <http://www2.emsl.com/custsurvey/?fromregion=eastcoast>

YOU CAN DOWNLOAD AND PRINT  
 CERTIFICATIONS OF ACCREDITATIONS AND CHAIN OF CUSTODY FORMS

615 MUMBER  
BLDG C

**Chain of Custody**  
**EMSL Order Number (Lab Use Only):**

391100146

EMSL ANALYTICAL, INC.  
LABORATORY / PRODUCTS / TRAINING

Company: <u>TERRACON</u>		EMSL-Bill to: <input type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different note instructions in Comments**	
Street: <u>11600 LILBURN PARK RD</u>		Third Party Billing requires written authorization from third party	
City: <u>ST LOUIS</u>	State/Province: <u>MO</u>	Zip/Postal Code: <u>63146</u>	Country:
Report To (Name): <u>BRYAN GATLIN</u>		Fax #: <u>314-592-8810</u>	
Telephone #: <u>314-692-8811</u>		Email Address:	
Project Name/Number: <u>FLOOD BUYOUT</u>			
Please Provide Results: <input checked="" type="checkbox"/> Fax <input type="checkbox"/> Email		Purchase Order:	U.S. State Samples Taken: <u>MO</u>
<b>Turnaround Time (TAT) Options* - Please Check</b>			
<input type="checkbox"/> 3 Hour <input type="checkbox"/> 6 Hour <input type="checkbox"/> 24 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 72 Hour <input type="checkbox"/> 96 Hour <input checked="" type="checkbox"/> 1 Week <input type="checkbox"/> 2 Week <small>*For RUSH TATs Please Call Ahead to Confirm Lab Hours and Availability. Not all TAT options are valid for every test. Materials Science and IAQ TATs are in Business Days rather than Hours (i.e. 24 Hour = End of Next Business Day)</small>			
<b>Asbestos</b>			
<b>PCM - Air</b> <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ 8hr. TWA <b>TEM - Air</b> <input type="checkbox"/> 4-4.5hr TAT (AHERA ONLY) <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312 <b>TEM - Water</b> Fibers $\geq 10\mu m$ <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking		<b>PLM - Bulk</b> <input checked="" type="checkbox"/> PLM EPA 600/R-93/116 <input type="checkbox"/> PLM EPA NOB (<1%) <input type="checkbox"/> NYS 198.1 (friable-NY) <input type="checkbox"/> NYS 198.6 (non-friable-NY) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/ Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)	
		<b>TEM - Bulk</b> <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP <b>Soil/Rock/Vermiculite</b> <input type="checkbox"/> PLM CARB 435 - A (0.25% sensitivity) <input type="checkbox"/> PLM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> EPA Reg. 1 Screening Protocol (Qualitative) <b>Other:</b>	
<b>Lead (Pb)</b>		<b>Materials Science</b>	
<b>Flame Atomic Absorption</b> <input type="checkbox"/> Chips SW846-7000B or AOAC 974.02 <input type="checkbox"/> Soil SW846-7000B/7420 <input type="checkbox"/> Air NIOSH 7082 <input type="checkbox"/> Wastewater SM3111B or SW846-7000B/7420 <input type="checkbox"/> ASTM Wipe SW846-7000B/7420 <input type="checkbox"/> non ASTM Wipe SW846-7000B/7420 <input type="checkbox"/> TCLP SW846-1311/7420/SM 3111B		<b>ICP</b> <input type="checkbox"/> Air NIOSH 7300 Modified <input type="checkbox"/> non ASTM Wipe SW846-6010B or C <input type="checkbox"/> ASTM Wipe SW846-6010B or C <input type="checkbox"/> Soil SW846-6010 B or C <input type="checkbox"/> Waste Water SW846-6010B or C <input type="checkbox"/> TCLP SW846-6010B or C	
<b>Graphite Furnace Atomic Absorption</b> <input type="checkbox"/> Soil SW846-7421 <input type="checkbox"/> Wastewater EPA 200.9 <input type="checkbox"/> Air NIOSH 7105 <input type="checkbox"/> Drinking Water EPA 200.9		<b>Other:</b> <input type="checkbox"/>	
<b>Microbiology</b>			
<b>Wipe and Bulk Samples</b> <input type="checkbox"/> Mold & Fungi - Direct Examination <input type="checkbox"/> Mold & Fungi Culture (Genus Only) <input type="checkbox"/> Mold & Fungi Culture (Genus & Species) <input type="checkbox"/> Bacterial Count & ID (Up to Three Types) <input type="checkbox"/> Bacterial Count & ID (Up to Five Types) <input type="checkbox"/> MRSA <input type="checkbox"/> <i>Pseudomonas aeruginosa</i>		<b>Air Samples</b> <input type="checkbox"/> Mold & Fungi (Spore Trap) <input type="checkbox"/> Mold & Fungi Culture (Genus Only) <input type="checkbox"/> Mold & Fungi (Genus & Species) <input type="checkbox"/> Bacterial Culture & ID (Up to Three Types) <input type="checkbox"/> Bacterial Culture & ID (Up to Five Types) <input type="checkbox"/> Endotoxin Testing <b>Real Time Q-PCR</b> (See Analytical Guide for Code) Code: <b>Legionella</b> <input type="checkbox"/> Level 1 <input type="checkbox"/> Level 2 <input type="checkbox"/> Level 3 <input type="checkbox"/> Level 4 <b>Other:</b> <input type="checkbox"/>	
<b>Water Samples</b> <input type="checkbox"/> Total Coliform & E.coli (P/A) <input type="checkbox"/> Fecal Coliform (SM 9222D) <input type="checkbox"/> Sewage Screen <input type="checkbox"/> Heterotrophic Plate Count (SM 9215)		<b>IAQ</b> Nuisance Dust NIOSH <input type="checkbox"/> 0500 <input type="checkbox"/> 0600 Airborne Dust <input type="checkbox"/> PM10 <input type="checkbox"/> TSP Silica Analysis: <input type="checkbox"/> All Species Silica Analysis - Single Species <input type="checkbox"/> Alpha Quartz <input type="checkbox"/> Cristobalite <input type="checkbox"/> Tridymite <input type="checkbox"/> HVAC Efficiency <input type="checkbox"/> Carbon Black <input type="checkbox"/> Airborne Oil Mist Radon Testing: Call for Kit and COC <b>Other:</b> <input type="checkbox"/>	
**Comments/Special Instructions:			
Client Sample #'s		Total # of Samples: <u>18</u>	
Relinquished (Client): <u>[Signature]</u>		Date: <u>1-7-11</u>	
Received (Lab): <u>[Signature]</u>		Date: <u>1-7-11</u>	
		Time: <u>3pm</u>	
		Time: <u>[Signature]</u>	

613 MUNWER  
BLDG C  
1 of 2

**Chain of Custody**  
EMSL Order Number (Lab Use Only):

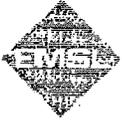
39100146

EMSL ANALYTICAL INC.  
LABORATORY PRODUCTS TRAINING

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
1-1	CEMENT BOARD SHOP ROOM		
-2	↓	"	
-3	↓	"	
2-1	COVE BASE MASTIC, BROWN SHOP ROOM		
-2	↓	"	
-3	↓	"	
3-1	JOINT DRY WALL T COMPOUND OFFICE CEILING		
-2	↓	"	
-3	↓	"	
4-1	FLOORING { SHEET VINYL FLOOR VINYL FLOOR TILE } OFFICE		
-2	{ MASONITE } "		
-3	{ BLOCK MASTIC } "		
5-1	2'x4' CEILING TILE OFFICE		
-2	↓	"	
-3	↓	"	
6-1	WINDOW GLDZING OFFICE		
*Comments/Special Instructions:			

Analysis Completed in Accordance with EMSL's Terms and Conditions located in the Analytical Price Guide





**EMSL Analytical, Inc.**  
 3029 S. Jefferson, Saint Louis, MO 63118

Phone: (314) 577-9150 Fax: (314) 779-3413 Email: [saintlouislab@emsl.com](mailto:saintlouislab@emsl.com)

**Attn: Bryan Gatlin**  
**Terracon Consultants, Inc.**  
**11600 Lilburn Park Road**  
  
**Saint Louis, MO 63146**

Customer ID: TERR57  
 Customer PO:  
 Received: 01/10/11 9:00 AM  
 EMSL Order: 391100146

Fax: (314) 692-8810 Phone: (314) 692-8811  
 Project: Flood Buyout - 15107089 / 613 Munger Bldg C

EMSL Proj:  
 Analysis Date: 1/17/2011

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1-1 391100146-0001		Gray Non-Fibrous Heterogeneous		81% Non-fibrous (other)	19% Chrysotile
1-2 391100146-0002		Various Non-Fibrous Heterogeneous		81% Non-fibrous (other)	19% Chrysotile
1-3 391100146-0003		Various Non-Fibrous Heterogeneous		81% Non-fibrous (other)	19% Chrysotile
2-1 391100146-0004		Brown Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
2-2 391100146-0005		Brown Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
2-3 391100146-0006		Brown Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
3-1-Joint Compound 391100146-0007		White Non-Fibrous Heterogeneous		96% Non-fibrous (other) 4% Mica	None Detected

Initial report from 01/17/2011 15:38:55

Analyst(s)

Sue Ferrario (28)

Jeff Siria, Laboratory Manager  
 or other approved signatory

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 Samples analyzed by EMSL Analytical, Inc. 3029 S. Jefferson, Saint Louis MO NVLAP Lab Code 200742-0



**EMSL Analytical, Inc.**  
 3029 S. Jefferson, Saint Louis, MO 63118

Phone: (314) 577-6150 Fax: (314) 776-3443 Email: [saintlouislab@emsl.com](mailto:saintlouislab@emsl.com)

Attn: **Bryan Gatlin**  
**Terracon Consultants, Inc.**  
**11600 Lilburn Park Road**  
  
**Saint Louis, MO 63146**

Customer ID: TERR57  
 Customer PO:  
 Received: 01/10/11 9:00 AM  
 EMSL Order: 391100146

Fax: (314) 692-8810 Phone: (314) 692-8811  
 Project: Flood Buyout - 15107089 / 613 Munger Bldg C

EMSL Proj:  
 Analysis Date: 1/17/2011

**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
3-1-Drywall 391100146-0007A		Various Non-Fibrous Heterogeneous	9% Cellulose 8% Glass	83% Non-fibrous (other)	None Detected
3-2 391100146-0008		Various Non-Fibrous Heterogeneous	9% Cellulose 8% Glass	83% Non-fibrous (other)	None Detected
3-3 391100146-0009		Various Non-Fibrous Heterogeneous	9% Cellulose 8% Glass	83% Non-fibrous (other)	None Detected
4-1-Linoleum 391100146-0010		Various Non-Fibrous Heterogeneous		80% Non-fibrous (other)	20% Chrysotile
4-1-Floor Tile 391100146-0010A		Green Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
4-1-Adhesive 391100146-0010B		Tan Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
4-1-Insulation 391100146-0010C		Various Fibrous Heterogeneous	79% Cellulose	21% Non-fibrous (other)	None Detected

Initial report from 01/17/2011 15:38:55

Analyst(s)

Sue Ferrario (28)

Jeff Siria, Laboratory Manager  
 or other approved signatory

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 Samples analyzed by EMSL Analytical, Inc. 3029 S. Jefferson, Saint Louis MO NVLAP Lab Code 200742-0



**EMSL Analytical, Inc.**

3029 S. Jefferson, Saint Louis, MO 63118

Phone: (314) 677-0150 Fax: (314) 778-3213 Email: [saintlouis@emsl.com](mailto:saintlouis@emsl.com)

**Attn: Bryan Gatlin**  
**Terracon Consultants, Inc.**  
**11600 Lilburn Park Road**

**Saint Louis, MO 63146**

Fax: (314) 692-8810 Phone: (314) 692-8811  
 Project: Flood Buyout - 15107089 / 613 Munger Bldg C

Customer ID: TERR57  
 Customer PO:  
 Received: 01/10/11 9:00 AM  
 EMSL Order: 391100146

EMSL Proj:  
 Analysis Date: 1/17/2011

**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
4-2-Linoleum 391100146-0011		Various Non-Fibrous Heterogeneous		80% Non-fibrous (other)	20% Chrysotile
4-2-Floor Tile 391100146-0011A		Green Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
4-2-Adhesive 391100146-0011B		Tan Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
4-2-Insulation 391100146-0011C		Various Fibrous Heterogeneous	79% Cellulose	21% Non-fibrous (other)	None Detected
4-3-Linoleum 391100146-0012		Various Non-Fibrous Heterogeneous		80% Non-fibrous (other)	20% Chrysotile
4-3-Floor Tile 391100146-0012A		Green Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
4-3-Adhesive 391100146-0012B		Tan Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected

Initial report from 01/17/2011 15:38:55

Analyst(s)

Sue Ferrario (28)

Jeff Siria, Laboratory Manager  
 or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. 3029 S. Jefferson, Saint Louis MO NVLAP Lab Code 200742-0



**EMSL Analytical, Inc.**

3029 S. Jefferson, Saint Louis, MO 63112

Phone: (314) 577-6150 Fax: (314) 775-3313 Email: saintlouisdab@emsl.com

**Attn: Bryan Gatlin**  
**Terracon Consultants, Inc.**  
**11600 Lilburn Park Road**

Customer ID: TERR57  
 Customer PO:  
 Received: 01/10/11 9:00 AM  
 EMSL Order: 391100146

**Saint Louis, MO 63146**

Fax: (314) 692-8810 Phone: (314) 692-8811

Project: Flood Buyout - 15107069 / 613 Munger Bldg C

EMSL Proj:  
 Analysis Date: 1/17/2011

**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
4-3-Insulation 391100146-0012C		Various Fibrous Heterogeneous	79% Cellulose	21% Non-fibrous (other)	None Detected
5-1 391100146-0013		Various Fibrous Heterogeneous	28% Cellulose 37% Min. Wood	7% Non-fibrous (other) 28% Perlite	None Detected
5-2 391100146-0014		Various Fibrous Heterogeneous	28% Cellulose 37% Min. Wood	7% Non-fibrous (other) 28% Perlite	None Detected
5-3 391100146-0015		Various Fibrous Heterogeneous	28% Cellulose 37% Min. Wood	7% Non-fibrous (other) 28% Perlite	None Detected
6-1 391100146-0016		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
6-2 391100146-0017		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
6-3 391100146-0018		Various Non-Fibrous Heterogeneous	2% Fibrous (other)	98% Non-fibrous (other)	None Detected

Initial report from 01/17/2011 15:38:55

Analyst(s)

Sue Ferrario (28)

Jeff Siria, 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.  
 Samples analyzed by EMSL Analytical, Inc. 3029 S. Jefferson, Saint Louis MO NVLAP Lab Code 200742-0

**APPENDIX D**  
**PHOTOGRAPHS**

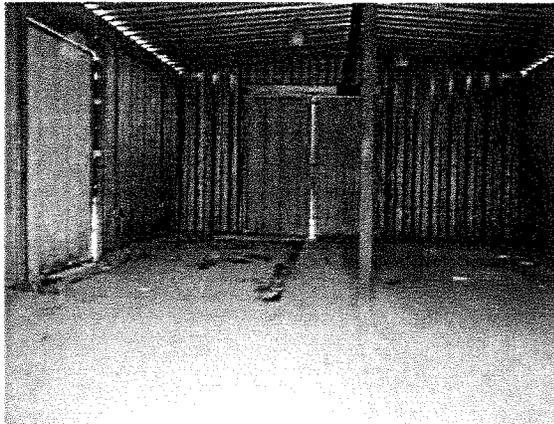


Photo #1 Interior of Building A

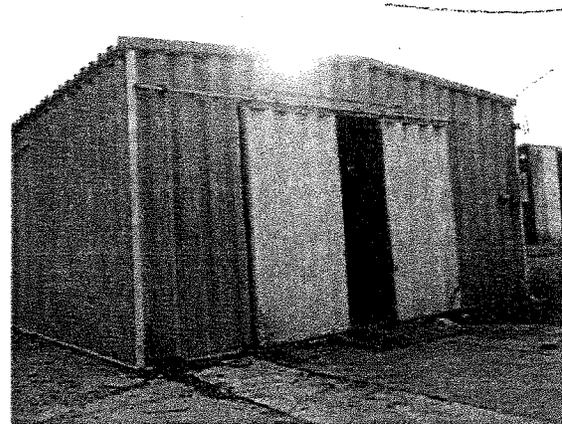


Photo #2 North side of Building A

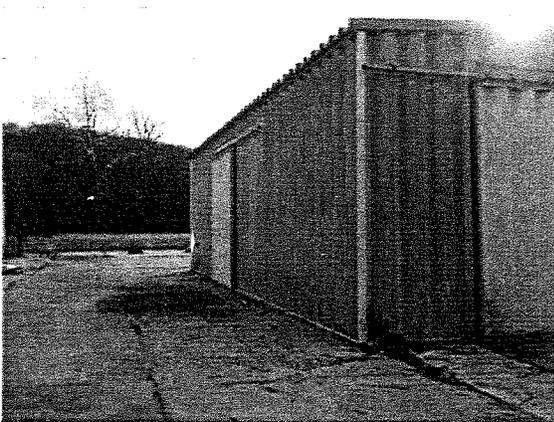


Photo #3 East side of Building A



Photo #4 Interior of Building B



Photo #5 HA 1 (Building B) - drywall on ceiling of offices

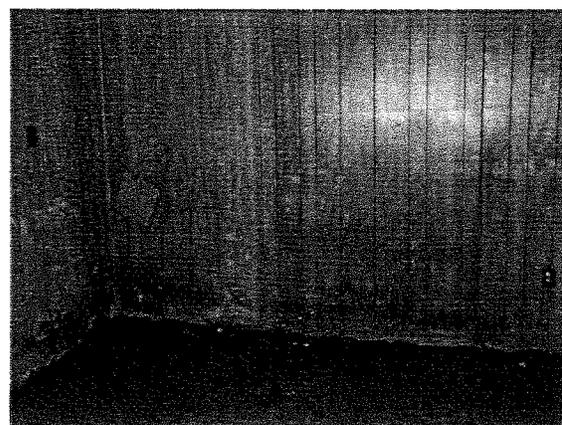


Photo #6 Office in Building B



Photo #7 HA 2 (Building B) – window glazing

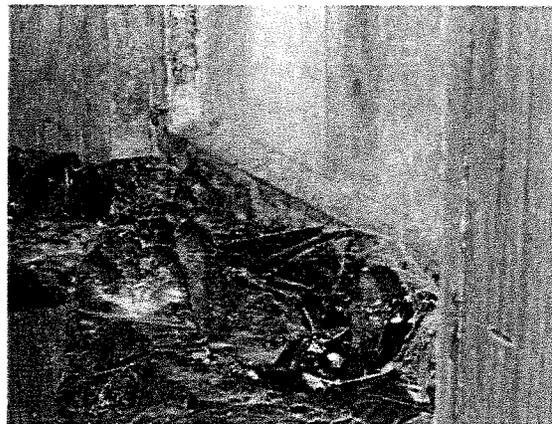


Photo #8 HA 2 (Building B) – window glazing

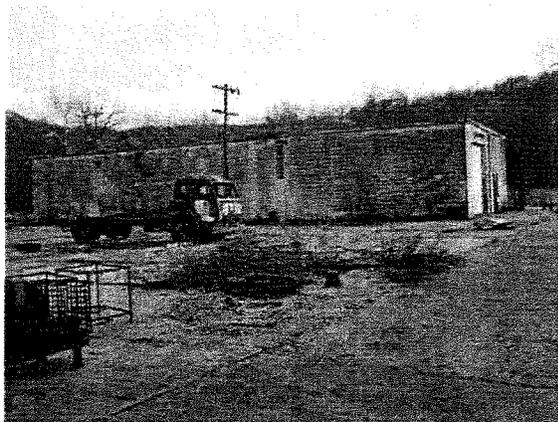


Photo #9 View of north side of Building C

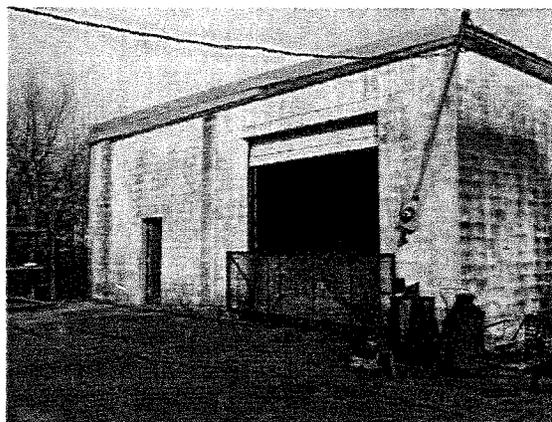


Photo #10 View of west side of Building B

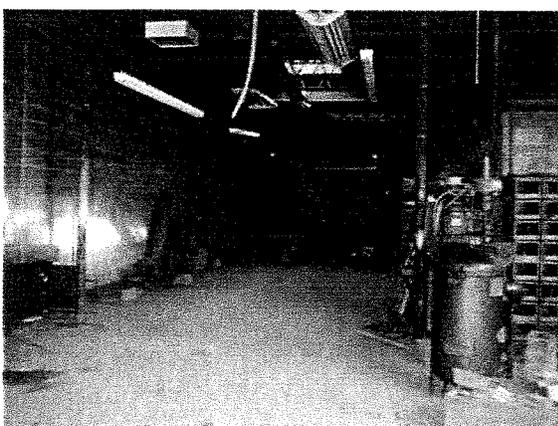


Photo #11 Interior of Building C

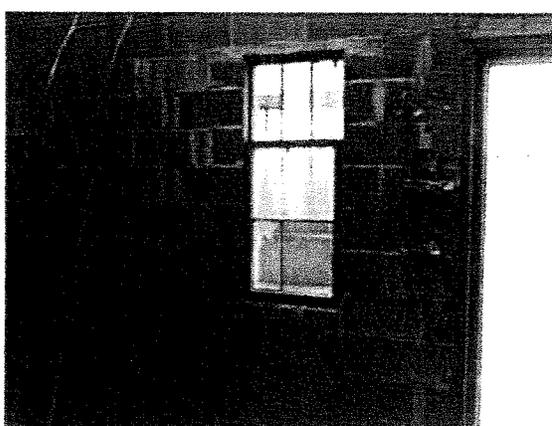


Photo #12 HA 6 (Building C) – window glazing



Photo #9 HA 1 (Building C) – cement board

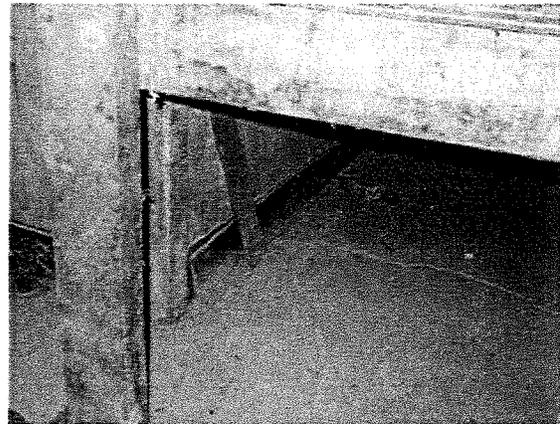


Photo #10 HA 2 (Building C) – baseboard mastic

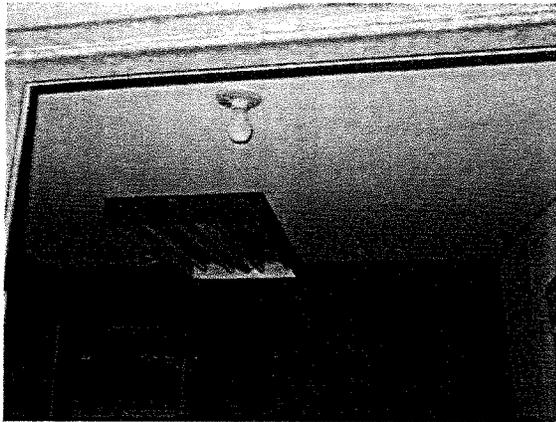


Photo #13 HA 3 (Building C) – drywall and joint compound

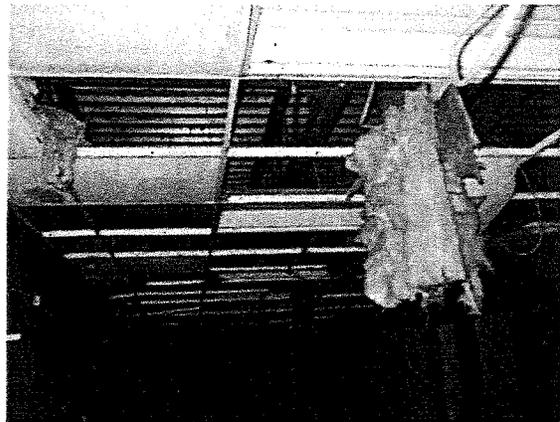


Photo #14 HA 5 (Building C) – 2'x4' ceiling tile

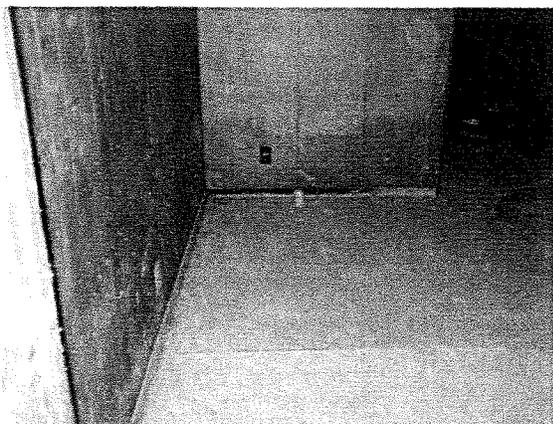


Photo #15 HA 4 (Building C) – flooring in offices

**APPENDIX E**  
**CERTIFICATIONS**

Expiration Date: 1/18/2012

Certificate Number: 7112121710MOIR5258

Training Date: 12/17/2010

**Missouri State Certificate for Asbestos Related Occupations**

issued by Department of Natural Resources

P.O. Box 176

Jefferson City, MO 65102

Phone (573) 751-4817

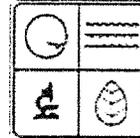
**Bryan N. Gatlin**

has successfully completed the requirements for certification as a INSPECTOR. This Missouri State Certification is subject to review and the director may deny, suspend or revoke the certification per RSMo chapter 643.230.

1/18/2011

Date

  
Director of Air Pollution Control Program



**APPENDIX F**

**OPINION OF ABATEMENT COST**

The regulated asbestos-containing materials in the buildings must be removed before demolition. It is recommended that an asbestos abatement specification (Project Design) be prepared by an AHERA-accredited and State of Missouri licensed Project Designer. Notification to the State of Missouri Department of Natural Resources, National Emissions Standards for Hazardous Air Pollutants (NESHAP) program coordinator will be required at least 10 days prior to demolition.

Based on our experience with similar projects in Missouri, the following are our opinions of abatement costs. Terracon encourages the City to contract for oversight and monitoring of the abatement contractor. These oversight costs typically amount to about \$500 per day.

#### **613 Munger – Building C**

The abatement of approximately 2,000 square feet of cement asbestos board and 600 square feet of sheet vinyl flooring may cost between \$9,000 and \$11,000. The 5,500 square feet of assumed asphaltic roofing can remain on Building C during demolition as long as the material is in good condition and is not made friable during removal or demolition.

These opinions of asbestos abatement costs are based on the following assumptions.

- The abatement contractor will have unlimited access to the building to perform the work.
- The contractor will have water and electrical power provided by the building owner.
- The contractor will mobilize personnel and equipment to the project site only once, and complete the abatement removal within normal 8-hour work shifts.

The City should consider stating these assumptions in a solicitation for competitive bids from appropriately licensed/accredited asbestos abatement contractors.