

# Asbestos Survey and Limited Lead-Based Paint Survey

Hannibal Machine  
400 South 11<sup>th</sup> Street  
Hannibal, Marion County, Missouri

January 28, 2011

Terracon Project No. 15107089



**Prepared for:**  
City of Hannibal  
Hannibal, Missouri

**Prepared by:**  
Terracon Consultants, Inc.  
St. Louis, Missouri

Offices Nationwide  
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# Terracon

Geotechnical   ●   Environmental   ●   Construction Materials   ●   Facilities

January 28, 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  
Hannibal Machine  
400 South 11<sup>th</sup> Street  
Hannibal, Marion County, Missouri  
Terracon Project No. 15107089

Dear Mr. LaGarce:

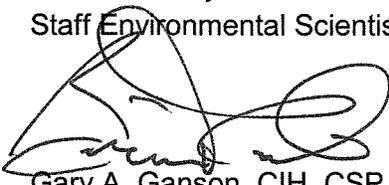
Terracon Consultants, Inc. (Terracon) is pleased to submit the enclosed Asbestos Survey and Limited Lead-Based Paint Survey for the above-referenced site. This survey was performed in accordance with the Professional Services Agreement between the City of Hannibal, Missouri and Terracon dated December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

*for:*   
Heather Beery  
Staff Environmental Scientist

  
Bryan Gatlin  
Project Manager

*for:*   
Gary A. Ganson, CIH, CSP  
Senior Consultant

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**ASBESTOS SURVEY AND  
LIMITED LEAD-BASED PAINT SURVEY**

**HANNIBAL MACHINE  
400 SOUTH 11<sup>TH</sup> STREET  
HANNIBAL, MARION COUNTY, MISSOURI**

**Terracon Project No. 15107089  
January 28, 2011**

**1.0 INTRODUCTION**

Terracon Consultants, Inc. (Terracon) conducted an asbestos survey and limited lead-based paint survey at Hannibal Machine located at 400 South 11<sup>th</sup> Street in Hannibal, Marion County, Missouri. The sampling was conducted on January 6, 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 building, 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 Objectives**

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 (e.g., paint which is deteriorated and is delaminating from the painted surface) to result in building demolition waste being classified as hazardous for lead.

Terracon visually assessed the interior and exterior of the site building to observe for the presence of potential damaged LBP.

## **1.2 Project General Information**

### **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 building is 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 a two-story, 25,000-square foot brick and cement building atop a concrete slab. There is a partial basement under a portion of the building. The site building was constructed around 1903. Interior floors are concrete with the exception of the office area which is covered in carpet. The ceiling in the rented office space (First Choice Delivery) is finished with a suspended ceiling system. The ceilings of the offices in Hannibal Machine are finished with drywall. Corrugated sheet metal covered a significant portion of the buildings windows (to protect from vandalism). The building contains a metal roof. The mezzanine level was not accessed as the building owner indicated portions of the second floor were deteriorated and not considered safe.

## **3.0 FIELD ACTIVITIES**

The asbestos survey was conducted on January 6, 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 6, 2011 by Bryan Gatlin, an MDOH-accredited lead inspector (MDOH #971119-200033535) 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 building 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 such as delaminating, flaking, 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 painted surface which could be observed was conducted to assess its condition. The painted surfaces were assessed as intact (entire surface intact), fair (less than or equal to 2 square feet of peeling paint on large interior surfaces or 10 square feet on large exterior surfaces), or poor (greater than 2 square feet on large interior surfaces and 10 square feet on large exterior surfaces) condition.

### **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 building. 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. A total of eighteen (18) bulk samples were collected from six (6) homogeneous areas of suspect ACM. 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 appeared deteriorated to the extent that demolition debris could be considered hazardous. Due to lack of observed peeling, cracking, or chipping paint, Terracon did not collect samples of painted components 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**

Due to lack of observed peeling, cracking, or chipping paint, Terracon did not collect samples of painted components (paint/substrate) for TCLP analysis.

### **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

**Asbestos Survey and Limited Lead-Based Paint Survey**Hannibal Machine ■ 400 South 11<sup>th</sup> Street

Terracon Project No. 15107089 ■ January 28, 2011



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).

## **5.0 FINDINGS AND RECOMMENDATIONS**

### **Asbestos**

Eighteen samples of suspect ACM were collected from the interior and exterior of the subject building. Laboratory analysis identified asbestos in the following materials:

- Window glazing
- Awning roof over loading dock

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 renovation or demolition activities should be properly removed and disposed by a trained and licensed abatement contractor.

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 intact condition with evidence of weathering. Terracon did not observe painted components which exhibited deterioration as described 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 building. 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**  
**400 SOUTH 11<sup>TH</sup> STREET, HANNIBAL, MO**

Homogeneous Area	Sample No.	Description	Sample Location	Lab Results	Condition
1	1-1	2'x4' ceiling tile	First Choice Delivery office	None Detected	Good
	1-2	2'x4' ceiling tile	First Choice Delivery office	None Detected	
	1-3	2'x4' ceiling tile	First Choice Delivery office	None Detected	
2	<b>2-1</b>	<b>Window glazing</b>	<b>Shop</b>	<b>None Detected</b>	<b>Damaged</b>
	<b>2-2</b>	<b>Window glazing</b>	<b>Shop office</b>	<b>2% Chrysotile</b>	
	<b>2-3</b>	<b>Window glazing</b>	<b>Vacant loading dock</b>	<b>None Detected</b>	
3	3-1	Drywall	Shop office ceiling	None Detected	Good
	3-2	Drywall	Shop office ceiling	None Detected	
	3-3	Drywall	Shop office ceiling	None Detected	
4	4-1	Carpet adhesive	Shop office	None Detected	Good
	4-2	Carpet adhesive	Shop office	None Detected	
	4-3	Carpet adhesive	Shop office	None Detected	
5	<b>5-1</b>	<b>Loading dock roof</b>	<b>Loading dock roof</b>	<b>19% Chrysotile</b>	<b>Good</b>
	<b>5-2</b>	<b>Loading dock roof</b>	<b>Loading dock roof</b>	<b>19% Chrysotile</b>	
	<b>5-3</b>	<b>Loading dock roof</b>	<b>Loading dock roof</b>	<b>19% Chrysotile</b>	
6	6-1	Pipe wrap	Basement	None Detected	Good
	6-2	Pipe wrap	Basement	None Detected	
	6-3	Pipe wrap	Basement	None Detected	

**APPENDIX B**

**CONFIRMED ASBESTOS-CONTAINING MATERIAL**

**COMMERCIAL BUILDING  
400 SOUTH 11<sup>TH</sup> STREET  
HANNIBAL, MARION COUNTY, MISSOURI  
Terracon Project No. 15107089**

**CONFIRMED ASBESTOS-CONTAINING MATERIAL**

<b>HA No.</b>	<b>Description</b>	<b>Material Location</b>	<b>Percent/Type Asbestos</b>	<b>NESHAP Classification</b>	<b>Condition</b>	<b>Estimated Quantity</b>
2	Window glazing	Shop office	2% Chrysotile	Category II non-friable	Damaged	10,000 LF
5	Loading dock roof	Loading dock roof	19% Chrysotile	Category II non-friable	Good	2,200 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 From: EMSL Analytical, Inc.  
 Company: Terracon Consultants, Inc. Date: January 17, 2011  
 Fax Number: (314) 692-8810 PAGES INCLUDING COVER: 7  
 Phone Number: (314) 692-8811

**400 S. 11<sup>th</sup>**

RE: Analysis Results for Order(s) 391100150

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>  <b>PCM Cassettes \$24(10+bx)</b>  <b>TEM Cassettes \$39(10+bx)</b></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><a href="http://www.EMSLTraining.com">www.EMSLTraining.com</a></p> <p>CIE                      GMI                      CIAQM                      Microbiology for the IAQ Professional                      HVAC for the IAQ Professional</p> <p><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><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>
<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>		

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

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

400 S. 11th

**391100150**

EMSL ANALYTICAL, INC.  
 LABORATORY SERVICES DIVISION

Company: <b>TERRADION</b>		EMSL-Bill to: <input type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different note instructions in Comments**	
Street: <b>11500 LILBURN PARK RD</b>		Third Party Billing requires written authorization from third party	
City: <b>ST LOUIS</b>	State/Province: <b>MO</b>	Zip/Postal Code: <b>63145</b>	Country:
Report To (Name): <b>BRYAN GATLIN</b>		Fax #: <b>314-622-8810</b>	
Telephone #: <b>314-622-8810</b>		Email Address:	
Project Name/Number: <b>FLOOD BUYOUT - 1510708</b>			
Please Provide Results: <input checked="" type="checkbox"/> Fax <input type="checkbox"/> Email <input type="checkbox"/> Purchase Order:		U.S. State Samples Taken: <b>MO</b>	

**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 - Dust</b> <input type="checkbox"/> Microvac -- ASTM D 5755 <input type="checkbox"/> Wipe-ASTM D6480	<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>
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**Lead (Pb)**

<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"/>
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**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"/> <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)	

**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: <b>1-7-11</b>	Total # of Samples: <b>18</b>
Relinquished (Client): <b>[Signature]</b>	Date: <b>1-10-11</b>	Time: <b>3 PM</b>
Received (Lab): <b>[Signature]</b>	Date: <b>1-10-11</b>	Time: <b>9 AM</b>

400 S. 11TH



EMSL ANALYTICAL, INC.  
LABORATORY PRODUCTS + TRAINING

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

391100150

1 of 2

EMSL ANALYTICAL, INC.  
200 ROUTE 130 NORTH  
CHAMBERS, NJ 08077  
PHONE: (800) 220-3675  
FAX: (856) 786-5974

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
1-1	2'x4' CEILING TILE	FIRST CHOICE	
-2	↓	"	
-3	↓	"	
2-1	WINDOW GLAZING	SHOP	
-2	↓	SHOP OFFICE	
-3	↓	VOLUNT LOADING DOCK	
3-1	DRYWALL CEILING	SHOP OFFICE	
-2	↓	"	
-3	↓	"	
4-1	CARPET ADHESIVE	SHOP OFFICE	
-2	↓	"	
-3	↓	"	
5-1	LOADING DOCK ROOF	"	
-2	↓	"	
-3	↓	"	
6-1	PIPE WRAP IN BSMT		
*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) 577-6150 Fax: (314) 778-3313 Email: saintlouislab@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: 391100150

**Saint Louis, MO 63146**

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

Project: Flood Buyout - 15107089 / 400 S. 11th

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 391100150-0001		Various	28% Cellulose	7% Non-fibrous (other)	None Detected
		Fibrous	37% Min. Wood	28% Perlite	
		Heterogeneous			
1-2 391100150-0002		Various	28% Cellulose	35% Non-fibrous (other)	None Detected
		Fibrous	37% Min. Wood		
		Heterogeneous			
1-3 391100150-0003		Various	28% Cellulose	7% Non-fibrous (other)	None Detected
		Fibrous	37% Min. Wood	28% Perlite	
		Heterogeneous			
2-1 391100150-0004		Gray		100% Non-fibrous (other)	None Detected
		Non-Fibrous			
		Heterogeneous			
2-2 391100150-0005		Gray		98% Non-fibrous (other)	2% Chrysotile
		Non-Fibrous			
		Heterogeneous			
2-3 391100150-0006		Tan		100% Non-fibrous (other)	None Detected
		Non-Fibrous			
		Heterogeneous			
3-1 391100150-0007		Various	13% Cellulose	87% Non-fibrous (other)	None Detected
		Non-Fibrous			
		Heterogeneous			

Initial report from 01/17/2011 15:41:21

Analyst(s)

Sue Ferrario (18)

Jeff Sina, 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-fragile 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 63113  
 Phone: (314) 617-6166 Fax: (314) 776-3313 Email: 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: 391100150

Fax: (314) 692-8810 Phone: (314) 692-8811  
 Project: Flood Buyout - 15107089 / 400 S. 11th

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
3-2 391100150-0008		Various Non-Fibrous Heterogeneous	13% Cellulose	87% Non-fibrous (other)	None Detected
3-3 391100150-0009		Various Non-Fibrous Heterogeneous	13% Cellulose	87% Non-fibrous (other)	None Detected
4-1 391100150-0010		Various Non-Fibrous Heterogeneous	2% Synthetic	98% Non-fibrous (other)	None Detected
4-2 391100150-0011		Brown Non-Fibrous Heterogeneous	2% Synthetic	98% Non-fibrous (other)	None Detected
4-2 391100150-0012		Various Non-Fibrous Heterogeneous	2% Synthetic	98% Non-fibrous (other)	None Detected
5-1 391100150-0013		Gray Non-Fibrous Heterogeneous		81% Non-fibrous (other)	19% Chrysotile
5-2 391100150-0014		Gray Non-Fibrous Heterogeneous		81% Non-fibrous (other)	19% Chrysotile

Initial report from 01/17/2011 15:41:21

Analyst(s)

Sue Ferrario (18)

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) 677-0159 Fax: (314) 778-3313 Email: saintlouislam@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: 391100150

Fax: (314) 692-8810 Phone: (314) 692-8811  
 Project: Flood Buyout - 15107089 / 400 S. 11th

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
5-3 391100150-0015		Gray Non-Fibrous Heterogeneous		81% Non-fibrous (other)	19% Chrysotile
6-1 391100150-0016		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
6-2 391100150-0017		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
6-3 391100150-0018		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected

Initial report from 01/17/2011 15:41:21

Analyst(s)

Sue Ferrario (18)

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

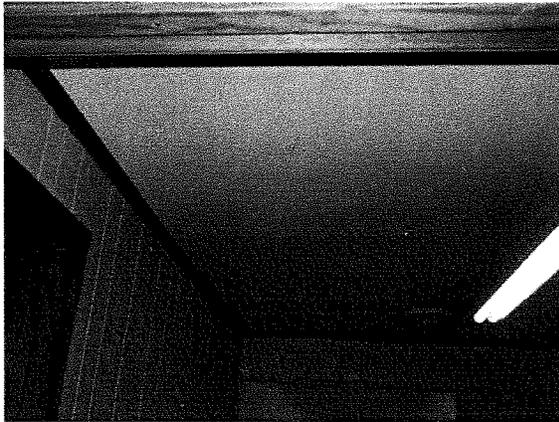
**APPENDIX D**  
**PHOTOGRAPHS**



**Photo #1** HA 1 – 2'x4' ceiling tile



**Photo #2** HA 2 – window glazing



**Photo #3** HA 3 – drywall ceiling in office



**Photo #4** HA 4 – carpet adhesive in office



**Photo #5** View of east side of site building



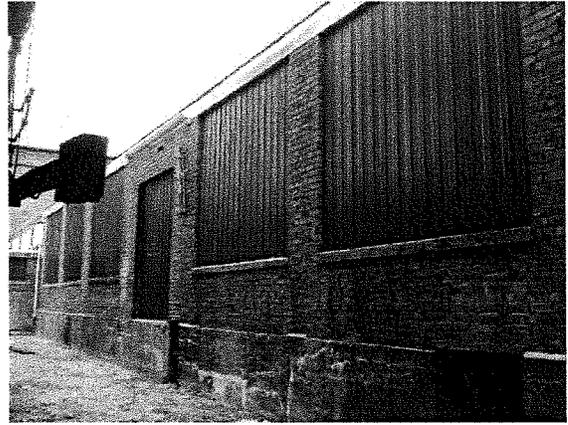
**Photo #6** View of east side of site building

Asbestos Survey and Limited Lead Based Paint Survey  
Terracon Project No. 15107089  
Hannibal Machine, 400 South 11<sup>th</sup> Street, Hannibal, MO  
Date Photos Taken: January 6, 2011

**Terracon**  
Consulting Engineers & Scientists



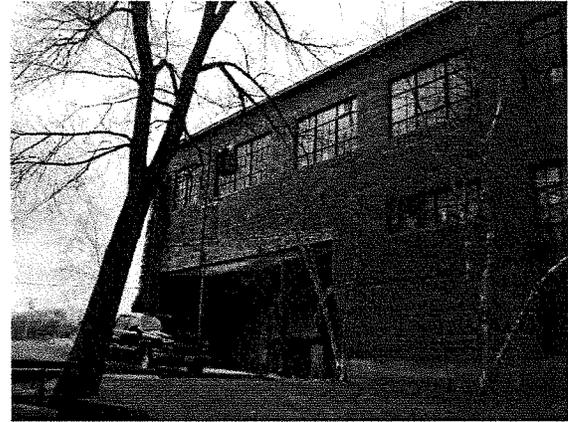
**Photo #7** View of south side of site building



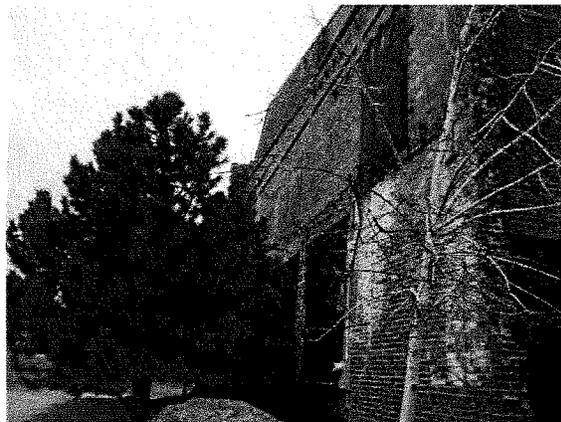
**Photo #8** View of west side of site building



**Photo #9** View of south side of site building



**Photo #10** View of south side of site building



**Photo #11** View of west side of site building



**Photo #12** HA 5 – loading dock roof

Asbestos Survey and Limited Lead Based Paint Survey  
Terracon Project No. 15107089  
Hannibal Machine, 400 South 11<sup>th</sup> Street, Hannibal, MO  
Date Photos Taken: January 6, 2011

**Terracon**  
Consulting Engineers & Scientists



**Photo #13** View of north side of site building

**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

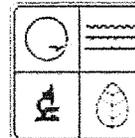
**Bryan N. Gatlin**

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



**STATE OF MISSOURI**  
**DEPARTMENT OF HEALTH AND SENIOR SERVICES**

**LEAD OCCUPATION LICENSE REGISTRATION**

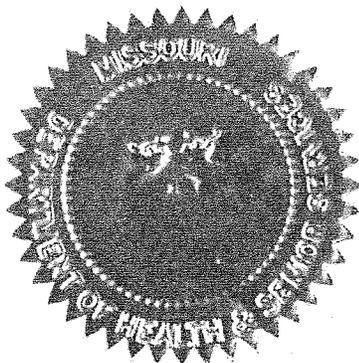
Issued to:

**BRYAN GATLIN**

The person, firm or corporation whose name appears on this certificate has fulfilled the requirements for licensure as set forth in the Missouri Revised Statutes 701.300-701.338, as long as not suspended or revoked, and is hereby authorized to engage in the activity listed below.

Lead Inspector  
Category of License

Issuance Date: 11/19/2009  
Expiration Date: 11/19/2011  
License Number: 971119-200033535



A handwritten signature in black ink, reading "Margaret T. Donnelly".

Margaret T. Donnelly  
Director  
Department of Health and Senior Services

Expiration Date: 4/8/2011

Certificate Number: 7112032410MOII14486

Training Date: 3/24/2010

**Missouri State Certificate for Asbestos Related Occupations**

issued by Department of Natural Resources

P.O. Box 176

Jefferson City, MO 65102

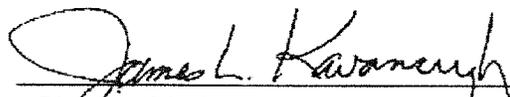
Phone (573) 751-4817

**Heather L. Beery**

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.

4/8/2010

Date

  
Director of Air Pollution Control Program

