



ECS MID-ATLANTIC, LLC

"Setting the Standard for Service"

Geotechnical • Construction Materials • Environmental • Facilities

April 20, 2015

Mr. Larry Moore
National Park Service
PO Box 65
Harper's Ferry, WV 25425
Larry_moore@nps.gov

ECS Project No. 01:24343

Reference: Asbestos Containing Materials and Lead Based Paint Survey, Civil War Story
Building 3, 31 High Street, Harper's Ferry, WV

Dear Mr. Moore:

ECS Mid-Atlantic, LLC (ECS), is pleased to provide you with the results of the above referenced non-invasive Asbestos Containing Material and Lead Based Paint Survey for the subject building. This work was performed in general conformance with ECS Proposal No. 01:50740-EP, dated March 30, 2015. The following is a summary of results of the above referenced work performed on April 6, 2014. This survey is limited to the exterior windows only.

ECS appreciates this opportunity to provide these testing services. If we can be of further assistance to you, please do not hesitate to contact us.

Sincerely,

ECS MID-ATLANTIC, LLC

Beverly Sedon
Senior Environmental Project Manager

Christopher J. Chapman, CIH
Director of Industrial Hygiene

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**REPORT OF ASBESTOS CONTAINING MATERIALS AND
LEAD BASED PAINT SURVEY**

**CIVIL WAR STORY BUILDING 3
HARPER'S FERRY, WEST VIRGINIA**

ECS PROJECT NO. 01:24343

FOR

NATIONAL PARK SERVICE

APRIL 20, 2015

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SITE DESCRIPTION

The subject site is located at 31 High Street in Harper's Ferry, West Virginia. The survey was performed for the rear exterior windows that are proposed for repairs. No other areas of the interior and exterior of the structure were included in this assessment. The windows consist of painted wood frames with glazing and associated caulk.

During the survey, ECS attempted to access suspect asbestos-containing building materials in readily accessible areas. However, due to the destructive means required to access some materials, certain areas were deemed inaccessible (i.e. behind walls or sub grade materials) and were not surveyed for suspect ACMs. Unidentified suspect asbestos-containing materials may be located in these and/or other inaccessible areas. Interior window cavity components such as flashings and glazings, if present, were not accessible.

METHODS AND RESULTS

Asbestos

The asbestos survey was performed by West Virginia Licensed asbestos inspector (AI007755) who has received EPA accredited training. Samples of suspect asbestos-containing materials (ACMs) were collected utilizing hand tools and placed into individual, labeled plastic bags. Unique bulk suspect ACM samples were sent to Scientific Analytical Institute, Inc. (SAI) for analysis via Polarized Light Microscopy in accordance with current EPA-600 methodology. Materials consisting of additional layers were analyzed separately. SAI is listed as an accredited laboratory by the National Voluntary Laboratory Accreditation Plan (NVLAP) managed by the National Institute of Standards and Technology (NIST) for bulk sample analysis.

Samples were collected in general accordance with EPA Standard 40 CFR 763 Subpart E, Asbestos Hazard Emergency Response Act (AHERA) and OSHA Standard 29 CFR 1926.1101 Inspection Protocol. Multiple samples of each unique material were submitted. Samples were analyzed using "Positive Stop" methodology. If one sample of a homogeneous material is reported to contain asbestos, the remaining samples of that material are not analyzed. EPA regulations stipulate that if one sample contains asbestos the entire quantity of that material contains asbestos, regardless of additional analysis. In total, 4 bulk representative samples were submitted to the laboratory of which 4 layers were analyzed.

Table 1 below summarizes the materials reported to contain asbestos. A list of all of the materials sampled during this survey and reported results are located in Table 2 attached to this report. Photographs of collected samples reported as asbestos containing are also attached to this report.

TABLE 1
ASBESTOS-CONTAINING MATERIALS SUMMARY

<u>General Location</u>	<u>Material</u>	<u>Friability</u>
Exterior Windows	White Window Caulk	Category II Non-Friable

The exterior window caulk was observed to be missing in most locations. Samples were collected from residual caulk identified near the top of the window casings. Similar materials referenced above as asbestos containing may be present in other areas of the building.

Suspect/Assumed Asbestos Containing Materials

Suspect asbestos containing materials may be present in areas that were inaccessible during our survey. The suspected asbestos containing materials should be tested or treated as ACMs if they are discovered during renovation activities. This list is not comprehensive, but does include materials typically present in similarly constructed buildings.

Inaccessible areas that are suspected to contain asbestos containing materials include:

- Interior window cavity flashings, if present.

Lead-Based Paint

The Lead-Based Paint (LBP) survey was performed by a West Virginia licensed Lead Inspector (PI000308). Painted and/or glazed surfaces were assessed for lead content using a Direct-Read X-Ray Fluorescence (XRF) Spectrometer manufactured by Innov-X Systems.

The survey was conducted utilizing the EPA definition of lead-based paint. Under this definition, painted surfaces which contain lead in concentrations equal to or greater than 1.0 milligrams per square centimeter ($\geq 1.0 \text{ mg/cm}^2$) are classified as coated with LBP. Paints with concentrations of lead detectable by the XRF are considered lead-containing paints. Additionally, fixtures or components that are manufactured with a factory applied glazing (i.e., sinks, toilets, ceramic tiles, etc.) are tested as these factory-applied finishes often contain lead. Lead-containing glazes, while not lead-based paints by the EPA definition, are regulated by OSHA (29 CFR 1926.62), if removed or otherwise disturbed in a manner that will potentially expose contractor employees or other occupants to lead.

The representative survey included taking readings from the exterior window components. Walls are listed by letter with wall "A" being the entrance of the subject building, proceeding

clockwise to "B, C, D", etc. A total of 26 readings were collected during the survey, including calibration readings. A list of XRF readings collected from the building is included in the Table 3 attached to this report.

None of the painted surfaces tested were detected to contain lead in concentrations equal to or greater than 1.0 milligrams per square centimeter ($\geq 1.0 \text{ mg/cm}^2$) and is listed in the table below. Several of the tested components were reported to have lead concentrations ranging from 0.04 to 0.99 mg/cm^2 .

Although the EPA defines lead based paint as any paint containing equal to or greater than 1.0 mg/cm^2 , OSHA has no specific action level for lead in paint or glazings. Work activities disturbing painted or glazed surfaces with measurable concentrations of lead should be performed in accordance with 29 CFR 1926.62. Please refer to the attached Table 3 for the complete listing of readings and results.

RECOMMENDATIONS

This survey was performed for the exterior windows proposed for renovations at the rear exterior of the building. Additional materials containing asbestos and/or lead based paint may be present in other areas of the building not included in this assessment. This report should not be used to represent all materials and surfaces within the entire building.

Asbestos

The materials listed in Table 1 consist of non-friable materials which contain greater than one percent ($> 1\%$) asbestos. By definition, these materials are considered ACMs. Friable materials will easily produce airborne asbestos fibers if disturbed. Non-friable materials may also produce airborne asbestos fibers if disturbed.

ECS recommends where a material type has been identified as asbestos containing that all similar type materials throughout the building's interior be assumed to contain asbestos. Suspect asbestos containing materials not observed due to inaccessibility during the survey may be encountered during renovation activities and should be tested for asbestos content or assumed as asbestos containing.

Federal and state regulations require asbestos-containing materials be removed prior to disturbance by renovation/demolition operations by a qualified contractor.

If asbestos-containing materials are to be removed, it is recommended that an industrial hygienist monitor the project. This involves collecting air samples from within and outside abatement work areas to monitor the abatement contractor's work practices over the course of the project. The industrial hygienist should inform the building owner if the asbestos abatement contractor is not performing the work in accordance with project specifications,

West Virginia regulations, and local regulations (for asbestos) as well as EPA regulation 40 CFR Part 61-National Emission Standards for Hazardous Air Pollutants Subpart M: National Emission Standard for Asbestos, and U.S. Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1926.1101 – Asbestos in Construction which, in part, requires the contractor to perform personal exposure monitoring for all workers abating and disposing of asbestos containing materials.

The industrial hygienist should assess each work area to monitor the removal of asbestos-containing materials. ECS can provide these services for an additional fee if requested.

At the time of the survey, destructive means were not used to locate or sample suspect ACMs; therefore, additional suspect ACMs may remain within the building hidden behind inaccessible areas that include, but are not limited to, sub-grade walls, structural members, topping slabs, exterior areas, sub-grade sealants, flooring located below underlayments, areas behind walls, pipe chases, vapor barriers, etc. were deemed inaccessible and were not assessed. If additional suspect asbestos-containing materials are uncovered during renovation activities which were not accessible during this survey, it is recommended that these materials be sampled immediately upon discovery for asbestos content by a licensed asbestos inspector in accordance with 29 CFR 1926.1101.

If the ACM materials will remain in place, ECS recommends that they be placed within an Operations and Maintenance Plan for continued monitoring.

Lead-Based Paint

Based on the findings of this screening, none of the tested components were reported to have lead concentrations greater than 1.0 mg/cm². However, the lead concentrations were detected in several components or tested areas to range from 0.04 to 0.99 mg/cm². Based on this information, all of the window components should be considered as lead containing.

Although the EPA defines lead based paint as any paint containing equal to or greater than 1.0 mg/cm², OSHA has no specific action level for lead in paint or glazings. Work activities disturbing painted or glazed surfaces with measurable concentrations of lead should be performed in accordance with 29 CFR 1926.62.

The OSHA standard also gives no guidance on acceptable levels of lead in paint at which no exposure to airborne lead (above the action level) would be expected. Rather, OSHA defines airborne concentrations, and references specific types of work practices and operations from which a lead hazard may be generated (reference 29 CFR 1926.62, section d). Environmental and personnel monitoring should be conducted during any removal/demolition process (as appropriate) to verify that actual personal exposures are below the Permissible Exposure Limit (PEL). All paint that is scheduled to be disturbed during this project may potentially contain small amounts of lead. Under OSHA

requirements, the contractor performing renovation work will be required to conduct this monitoring and follow applicable requirements under 29 CFR 1926.62 if disturbing paint.

During renovation activities, ECS recommends a Toxicity Characteristic Leaching Procedure (TCLP) sample to be collected from the demolition debris prior to disposal of the waste stream. Waste tested which results in a lead content in the leachate of greater than or equal to five parts per million (5 ppm) is to be considered hazardous, handled and disposed in accordance with local, city, state and federal regulations

GENERAL

ECS recommends that a project specification to delineate and quantify known and suspect hazardous and regulated materials in the building and to outline proper procedures for the abatement be performed. This will help protect the owner's liability in better defining the scope of work and contractors' roles and responsibilities in the abatement process and holding the contractor accountable for the performance of the project. The specification typically define the Contractor's scope of work and outline requirements and procedures that must be followed for this project. The intent of the specification is to give performance requirements for the Contractor so that the project can be completed safely and in compliance with applicable federal and state regulations. Typically, the specification document serves as part of the site owner's contract with the contractor.

Should any identified or assumed hazardous material remain in place, ECS recommends the development and implementation of a site-specific Operations and Maintenance Plan detailing routine maintenance and repair operations and contractor notification procedures.

LIMITATIONS

The conclusions and recommendations presented within this report are based upon a reasonable level of assessment within normal bounds and standards of professional practice for a site in this particular geographic setting. ECS is not responsible or liable for the discovery and elimination of hazards that may potentially cause damage, accidents, or injuries.

The observations, conclusions, and recommendations pertaining to environmental conditions at the subject site are necessarily limited to conditions observed, and/or materials reviewed at the time this study was undertaken. No warranty, expressed or implied, is made with regard to the conclusions and recommendations presented within this report. This report is provided for the exclusive use of the client. This report is not intended to be used or relied upon in connection with other projects or by other unidentified third parties without the written consent of ECS and the client.

During this study, suspect asbestos samples were submitted for analysis at an NVLAP-accredited laboratory via polarized light microscopy. As with any similar survey of this nature, actual conditions exist only at the precise locations from which suspect asbestos samples were collected. Certain inferences are based on the results of this sampling and related testing to form a professional opinion of conditions in areas beyond those from which the samples were collected. No other warranty, expressed or implied, is made.

Our recommendations are in part based on federal and local regulations and guidelines. ECS does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies any conditions at the site that may present a potential danger to public health, safety, or the environment. Under this scope of services, ECS assumes no responsibility regarding any response actions initiated as a result of these findings. General compliance with regulations and response actions are the sole responsibility of the Client and should be conducted in accordance with local, state, and/or federal requirements.

The client agrees to notify the appropriate local, state, or federal public agencies as required by law, or otherwise to disclose, in a timely manner, information that may be necessary to prevent any danger to public health, safety, or the environment.

ATTACHMENT

**TABLE 2
BULK SAMPLING OF SUSPECT
ASBESTOS-CONTAINING MATERIALS**

TABLE 2
BULK SAMPLING OF SUSPECT ASBESTOS-CONTAINING MATERIALS

<u>Sample #</u>	<u>Sampling Location</u>	<u>Material/Description</u>	<u>Analytical Results</u>
1	Exterior Windows	Exterior White Window Glaze	NAD
2	Exterior Windows	Exterior White Window Glaze	NAD
3	Exterior Windows	Exterior White Window Caulk	NAD
4	Exterior Windows	Exterior White Window Caulk	Asbestos: 2% Chrysotile

NAD = No Asbestos Detected
N/A = Sample Not Analyzed; Positive Stop

ATTACHMENT

**TABLE 3
XRF LEAD-BASED PAINT RESULTS**



TABLE 3
XRF LEAD BASED PAINT RESULTS

Building 3
ECS Project No. 01:24343
April 2015

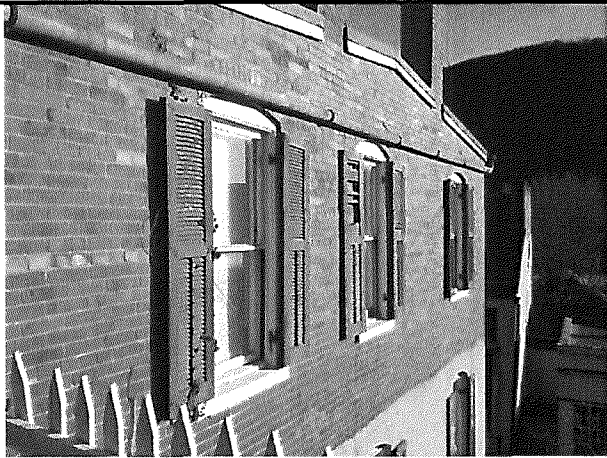
<u>Date</u>	<u>Reading</u>	<u>Bldg/Unit</u>	<u>Room</u>	<u>Side</u>	<u>Substrate</u>	<u>Color</u>	<u>Component</u>	<u>Pb</u>	<u>Pb +/-</u>
4/6/2015	1		Standardization						
4/6/2015	2	Bldg 3	Calibration					1.12	0.06
4/6/2015	4	Bldg 3	Calibration					1.11	0.06
4/6/2015	5	Bldg 3	Calibration					1.15	0.08
4/6/2015	6	Bldg 3	Exterior	C	Wood	Green	Window Shutter	0.00	0.00
4/6/2015	7	Bldg 3	Exterior	C	Wood	Green	Window Shutter	0.00	0.00
4/6/2015	8	Bldg 3	Exterior	C	Wood	Green	Window Shutter	0.00	0.00
4/6/2015	9	Bldg 3	Exterior	C	Wood	White	Window Sill	0.01	0.00
4/6/2015	10	Bldg 3	Exterior	C	Wood	White	Window Sill	0.01	0.00
4/6/2015	11	Bldg 3	Exterior	C	Wood	White	Window Casing	0.21	0.04
4/6/2015	12	Bldg 3	Exterior	C	Wood	White	Window Casing	0.00	0.00
4/6/2015	13	Bldg 3	Exterior	C	Wood	White	Window Sash	0.06	0.02
4/6/2015	14	Bldg 3	Exterior	C	Wood	White	Window Sash	0.04	0.02
4/6/2015	15	Bldg 3	Exterior	C	Wood	White	Window Sash	0.12	0.03
4/6/2015	16	Bldg 3	Exterior	C	Wood	White	Window Sash	0.06	0.02
4/6/2015	17	Bldg 3	Exterior	C	Wood	White	Window Header	0.91	0.04
4/6/2015	18	Bldg 3	Exterior	C	Wood	White	Window Header	0.99	0.04
4/6/2015	19	Bldg 3	Exterior	C	Wood	White	Window Header	0.18	0.04
4/6/2015	20	Bldg 3	Exterior	C	Wood	White	Door Casing	0.00	0.00
4/6/2015	21	Bldg 3	Exterior	C	Wood	White	Door	0.00	0.00
4/6/2015	22	Bldg 3	Exterior	C	Wood	White	Door Header	0.64	0.11
4/6/2015	23	Bldg 3	Family Room	C	Wood	White	Window Casing	0.00	0.00
4/6/2015	24	Bldg 3	Family Room	C	Wood	White	Window Sill	0.00	0.00
4/6/2015	35		Calibration					1.15	0.07
4/6/2015	36		Calibration					1.08	0.04
4/6/2015	37		Calibration					1.07	0.03

Notes:

Bold - Lead Based Paint

Pb - Lead in milligrams per square centimeter

ATTACHMENT
PHOTOGRAPHS



1. View of the windows along the side of the building.



2. View of the rear windows.



3. Typical view of the window.



4. View of the glazing.



5. View of the window caulk (ACM), Sample No. 3.



6. View of the window caulk (ACM), Sample No. 4.

**Civil War Story Building 3
31 High Street
Harper's Ferry, West Virginia**



**Site Photographs
ECS Project No. 01:24343
April 2015**

ATTACHMENT

LABORATORY RESULTS AND CHAINS OF CUSTODY



Asbestos Bulk Analysis Report

Environmental Hazards Services, L.L.C.

7469 Whitepine Rd

Richmond, VA 23237

Telephone: 800.347.4010

Report Number: 15-04-00859

Client: ECS Mid-Atlantic - Chantilly

14026 Thunderbolt Pl

Suite 100

Chantilly, VA 20151

Received Date: 04/07/2015

Analyzed Date: 04/08/2015

Reported Date: 04/10/2015

Project/Test Address: Bldg 3/24343; Harpers Ferry, WV

Client Number:

201119

Fax Number:

Laboratory Results

Lab Sample Number	Client Sample Number	Layer Type	Lab Gross Description	Asbestos	Other Materials
15-04-00859-001	1		White Brittle; Homogeneous	NAD	100% Non-Fibrous
15-04-00859-002	2		White Brittle; Paint-Like; Inhomogeneous	NAD	100% Non-Fibrous
15-04-00859-003	3		White Rubbery; Homogeneous	NAD	100% Non-Fibrous
15-04-00859-004	4		Tan Brittle; Red Paint-Like; 2% Chrysotile Inhomogeneous		98% Non-Fibrous
				Total Asbestos: 2%	
Chrysotile present in tan brittle material.					



00859

Environmental Hazards Services, LLC

7469 Whitepine Rd, Richmond, VA 23237

(800) 347-4010

www.leadlab.com

Company Name: ECS Mid-Atlantic, LLC

Address: 14026 Thunderbolt Place, Ste 100

City/State/Zip: Chantilly, VA 20151

Phone: 703-471-8400

e-Mail: bsedon@ecslimited.com

Acct No. 201119

Project Name: Bldg 3/24343

City/State: Harpers Ferry WV

Collected By: BES

PO# 24343

Positive Stop Analysis: Yes

Date Collected: 4/6/2015

Turn Around Time: If no TAT is specified, samples will be processed as 3-Day TAT

1- Day

2-Day

X

3-Day

Same Day

Analysis: PLM

[illegible]