



Department of Economic and
Community Development

Connecticut
still revolutionary

1252
LR

July 10, 2014

Hermia M. Delaire, Program Manager
CDBG-Sandy Disaster Recovery Program
Department of Housing
505 Hudson Street
Hartford, CT 06106

received
7-16-14

RE: 39 Richard Street, Milford, CT

Dear Ms. Delaire:

The State Historic Preservation Office (SHPO) has reviewed the above-named project pursuant to the provisions of Section 106 of the National Historic Preservation Act of 1966.

The property is located within the National Register eligible Point Beach Historic District; however, in the opinion of the SHPO, the proposed undertaking will have no adverse effect upon historic district.

This office appreciates the opportunity to have reviewed and commented upon the project.

For further information, please contact Julie Carmelich at (860) 256-2762.

Sincerely:

Mary B. Dunne
Deputy State Historic Preservation Officer

State Historic Preservation Office

One Constitution Plaza | Hartford, CT 06103 | P: 860.256.2800 | Cultureandtourism.org

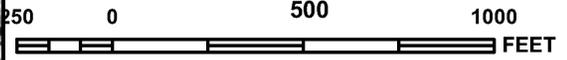
An Affirmative Action/Equal Opportunity Employer An Equal Opportunity Lender



Approx. Location of
39 Richard Street, Milford, CT



MAP SCALE 1" = 500'



PANEL 0534J

FIRM
FLOOD INSURANCE RATE MAP
NEW HAVEN COUNTY,
CONNECTICUT
 (ALL JURISDICTIONS)

PANEL 534 OF 635
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MILFORD, CITY OF	090082	0534	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.



MAP NUMBER
 09009C0534J
MAP REVISED
 JULY 8, 2013

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

FEMA NFHL MINIMAL FLOOD HAZARD Zone X



**Zone VE
(EL. 19 Feet)**

**Zone AE
(EL. 12 Feet)**

39 Richard St, Milford, CT 06460, USA

**Zone VE
(EL. 20 Feet)**

REFERENCE LAYERS

- NFHL Data Available
- FIRM Panel Boundary
- LOMR Boundary

SPECIAL FLOOD HAZARD AREAS

- 1% Annual Chance Flood Hazard Zone A, AE, AH, X, B, C, D, G, I, O, S, VE
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee Zone X
- Areas Outside the 0.2% Annual Chance Floodplain Zone X
- Areas of Undetermined Flood Hazard Zone D

NO SCREENS

CROSS SECTIONS & BFES

- M&Z Cross Sections with 1% Annual Chance Water Surface Elevation
- 100 Coastal Transect
- Profile Baseline
- Base Flood Elevation

SUPPORTING INFORMATION

- Limit of Study
- Jurisdictional Boundary

489 ft



1991



U.S. Fish and Wildlife Service
National Wetlands Inventory

39 Richard Street,
Milford, CT

May 21, 2014



Wetlands

-  Freshwater Emergent
-  Freshwater Forested/Shrub
-  Estuarine and Marine Deepwater
-  Estuarine and Marine
-  Freshwater Pond
-  Lake
-  Riverine
-  Other

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 COMMERCIAL STREET, SUITE 300
CONCORD, NH 3301
PHONE: (603)223-2541 FAX: (603)223-0104
URL: www.fws.gov/newengland

Consultation Tracking Number: 05E1NE00-2014-SLI-0495

July 31, 2014

Project Name: DOH 1252

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having

similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: DOH 1252

Official Species List

Provided by:

New England Ecological Services Field Office

70 COMMERCIAL STREET, SUITE 300

CONCORD, NH 3301

(603) 223-2541

<http://www.fws.gov/newengland>

Consultation Tracking Number: 05E1NE00-2014-SLI-0495

Project Type: ** Other **

Project Description: 39 Richard Street
Milford, CT



United States Department of Interior
Fish and Wildlife Service

Project name: DOH 1252

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-73.0193097 41.2053774, -73.0193314 41.2057328, -73.0190042 41.2057408, -73.0189881 41.2053776, -73.0193097 41.2053774)))

Project Counties: New Haven, CT



United States Department of Interior
Fish and Wildlife Service

Project name: DOH 1252

Endangered Species Act Species List

There are a total of 1 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Birds	Status	Has Critical Habitat	Condition(s)
Roseate tern (<i>Sterna dougallii dougallii</i>) Population: northeast U.S. nesting pop.	Endangered		



United States Department of Interior
Fish and Wildlife Service

Project name: DOH 1252

Critical habitats that lie within your project area

There are no critical habitats within your project area.



Milford Fire Rescue

EMS/Safety/Hazmat



**To: Thomas Ivers, CDBG Coordinator
Community Development**

From: Captain Christopher Waiksnoris

Date: May 02, 2014

Subject: Thermal/Explosive/Toxic Hazards

Mr. Ivers,

A review of Milford Fire Department record and site review indicate there are no conditions present that would subject the above listed property to any foreseeable Thermal/Explosive/Toxic Hazard.

This information is provided only for the propose of the United States Department of Housing and Development to approve and fund a Community Development Block Grant application for the property listed as 39 Richard St. This information may not be relied upon by any other person or organizations other than the United States Department of Housing and Urban Development.

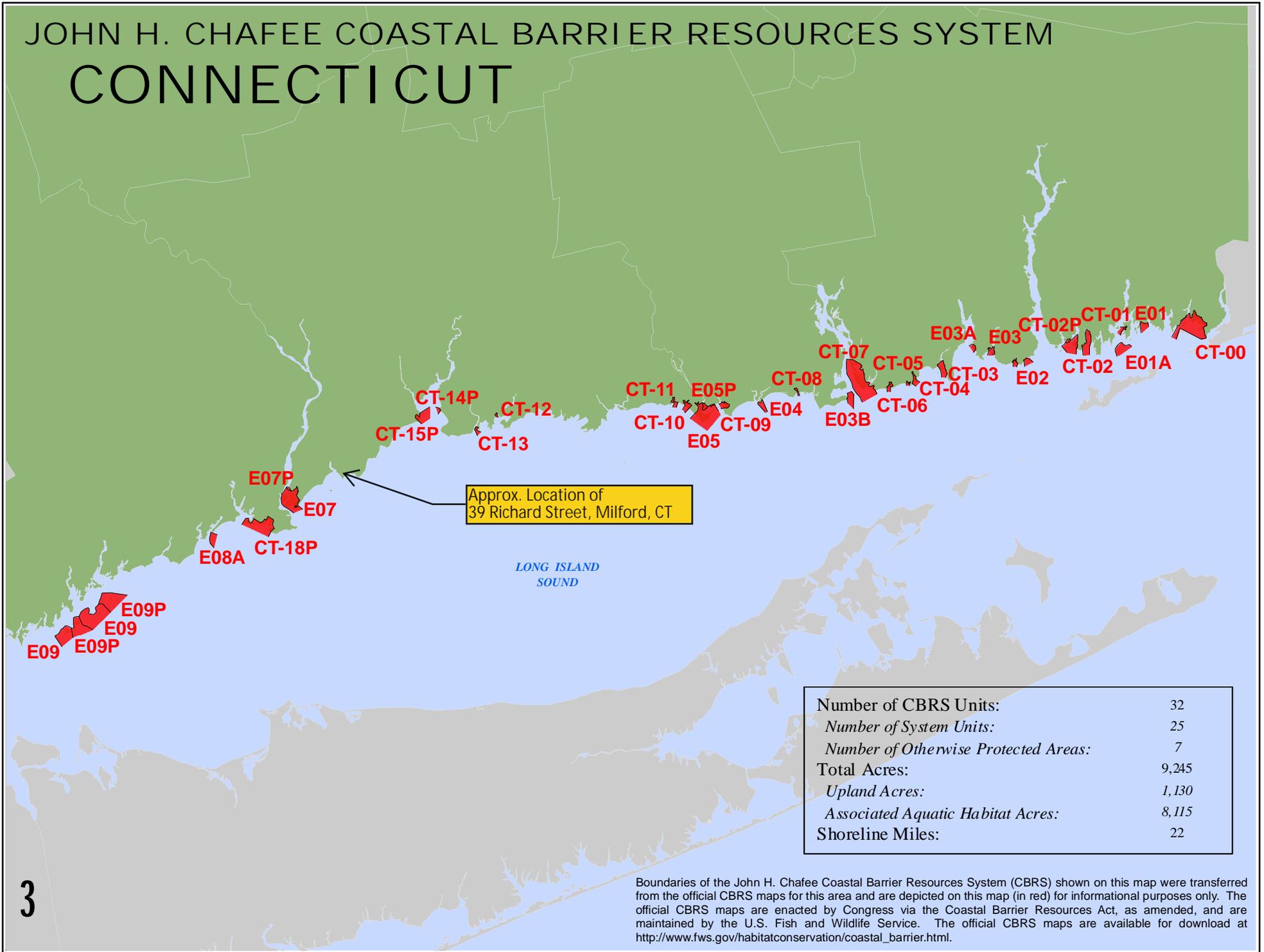
If you have any questions please feel free to contact me.

Thank You

Captain Waiksnoris

Milford Fire Department
EMS HAZMAT SAFETY OFFICER
72 New Haven Ave
Milford Ct 06460
(203)783-3750
(203)996-2148

JOHN H. CHAFEE COASTAL BARRIER RESOURCES SYSTEM CONNECTICUT



Boundaries of the John H. Chafee Coastal Barrier Resources System (CBRS) shown on this map were transferred from the official CBRS maps for this area and are depicted on this map (in red) for informational purposes only. The official CBRS maps are enacted by Congress via the Coastal Barrier Resources Act, as amended, and are maintained by the U.S. Fish and Wildlife Service. The official CBRS maps are available for download at http://www.fws.gov/habitatconservation/coastal_barrier.html.



May 1, 2014

Amaya Architects
284 Racebrook Rd
Orange, CT 06477

Attn: Rafael Amaya

RE: Hazardous Building Materials Survey for Proposed Renovations
Location: 39 Richard St, Milford, CT
LEA Comm. No. 01MH4.07

Dear Mr. Amaya:

In accordance with our proposal, Loureiro Engineering Associates, Inc (Loureiro) conducted bulk material sampling and analysis of accessible suspect asbestos-containing materials (ACM's), lead-based paint testing, mold inspection and radon air testing in the dwelling located at 39 Richard St, Milford, Connecticut. The purpose of the bulk sampling and analysis was to sample suspect materials prior to the proposed renovation of the site structure.

Please refer to Appendix A through C for analytical results and chain of custody forms.

If you have any questions as you review the report, please contact me at 860-410-2945.

Sincerely,

LOUREIRO ENGINEERING ASSOCIATES, INC.

Brett Nicholas
Industrial Hygienist

Jamie Roche
Director, Environmental Services

Enclosures:

- Appendix A Asbestos Laboratory Analysis Data
- Appendix B Mold Laboratory Results
- Appendix C Radon Air Testing Results
- Appendix D Staff and Laboratory Certifications

Loureiro Engineering Associates, Inc.

100 Northwest Drive • Plainville, CT 06062 • 860.747.6181 • Fax 860.747.8822 • www.Loureiro.com

An Employee-Owned Company

1.00 INTRODUCTION

1.1 *Purpose*

Loureiro was retained by Amaya Architects to conduct bulk material sampling and analysis of accessible suspect asbestos-containing materials (ACM's), test surfaces for lead-based paint, conduct mold testing and radon air testing in the dwelling as needed that may be impacted by the proposed renovation of said dwelling. The asbestos inspection was completed in accordance with the Environmental Protection Agency (EPA) National Emissions Standards for Hazardous Air Pollutants (NESHAPS) 40 CFR part 61.

1.2 *Special Terms and Conditions*

Loureiro was contracted to perform an investigative survey of all accessible interior and exterior spaces. These areas included the living spaces, attic, basement crawl space, porches, exterior areas and accessible roofing. Inaccessible areas were generally identified as above or behind documented finish materials. Estimated quantities and approximate locations of ACM's as presented were based on the visual observations at the time of the survey. Visual observations were made to determine ACM quantities. Every attempt was made to locate all suspect materials. However, additional materials may be discovered above hard ceilings or behind walls during demolition or renovation. Loureiro performed limited destructive investigation for verification of any additional suspect materials.

2.0 ASBESTOS INVESTIGATIVE SURVEY

2.1 *General Summary*

The following asbestos survey section presents the survey results, methods, and conclusions based on survey findings. A summary of material descriptions, locations and quantities are presented in Table 1, below. Laboratory results are found in Appendix A.

2.2 *Methodology*

As required by the U.S. Occupational Safety & Health Administration (OSHA), the U.S. Environmental Protection Agency (EPA), and the State of Connecticut Department of Public Health (DPH), sampling was performed by an EPA AHERA-accredited and DPH-certified asbestos inspector (see Appendix D). Sampling was done in a manner to prevent airborne fiber release. Samples were placed in appropriately labeled containers that were sealed and submitted to the laboratory for analysis. The samples were submitted for petrographic analysis using the EPA-endorsed Polarized Light Microscopy with Dispersion Staining (PLM/DS) method. The percentage of asbestos present in each sample was determined by the visual area estimation technique.

Samples were collected using a wet technique to prevent airborne fiber release. Each suspect material was sampled using a knife to cut through its entire thickness to ensure that a complete cross

section was obtained. The sample was then placed in an appropriately labeled container, which was sealed and submitted to the laboratory for analysis.

Samples were submitted for petrography analysis using the EPA-endorsed Polarized Light Microscopy with Dispersion Staining (PLM/DS) method. The percentage of asbestos present in each sample was determined by the visual area estimation technique.

2.3 Results of Sampling and Analysis for Asbestos

The table below illustrates each type of suspect asbestos-containing material identified, whether the materials are classified as ACM or not ACM based upon the analytical results and the bulk sample chain of custody forms:

Table 1 – ACM Summary

Sample	Description	Location	Quantity	Results
1a,b	Sheetrock	1 st Floor	N/A	Non-Detect
1c,d	Sheetrock	2 nd Floor	N/A	Non-Detect
2a,b	Joint Compound	1 st Floor	N/A	Non-Detect
2c	Joint Compound	2 nd Floor	N/A	<1% Chrysotile
2d	Joint Compound	2nd Floor	2960 SF	2% Chrysotile
3a,b	Sheetrock Joint Tape	1 st Floor	N/A	Non-Detect
3c,d	Sheetrock Joint Tape	2 nd Floor	N/A	Non-Detect
4a,b,c	Ceiling Texture	2 nd Floor	N/A	Non-Detect
5a,b	Interior Window Frame Caulk	2 nd Floor	N/A	Non-Detect
5c	Interior Window Frame Caulk	1 st Floor	N/A	Non-Detect
6a,b,c	Blown-In Insulation	Attic	N/A	Non-Detect
7a,b,c	12"x12" Ceramic Floor Tile Grout	2 nd Floor Bathroom	N/A	Non-Detect
8a,b,c	5"x5" Ceramic Tile Grout	1 st Floor Entry Way	N/A	Non-Detect
9a	12"x12" Ceramic Floor Tile Grout	Kitchen	N/A	Non-Detect
9b,c	12"x12" Ceramic Floor Tile Grout	Laundry	N/A	Non-Detect
10a,b,c	Exterior Window Frame Caulk	Exterior	N/A	Non-Detect
11a,b,c	Brown Asphalt Roof Shingle	Front (South) Window Roof	N/A	Non-Detect
12a,b,c	Dark Grey / Beige Asphalt Roof Shingle	Rear (North) Roof	N/A	Non-Detect

Please refer to the Appendices specific to each building on the site. Laboratory results and chain of custody forms are included.

3.0 LEAD-BASED PAINT SURVEY

The Lead-based paint survey was conducted with an XRF direct reading instrument in accordance with the Department of Housing & Urban Development (HUD) testing guidelines. These protocols were developed for residential or day care facilities and were adopted by the Connecticut Childhood Lead Poisoning Prevention Regulations (CLPPR). The Lead-paint reports were prepared using the CLPPR threshold of 1 mg/cm². Although most surface paints are reported as below the threshold of 1.0 mg/cm², the instrument recorded a result that indicates lead was present in limited locations but below the CLPPR threshold of 1.0. mg/cm².

The State of Connecticut and the U.S. Department of Housing and Urban Development (HUD) have developed technical guidelines for testing, abatement, cleanup, and disposal of lead-based paint in specific types of buildings such as public and Indian housing, and locations where children below the age of six years old reside. These guidelines define the regulated level of lead paint (Toxic Level of Lead) as paint containing greater than 1.0 milligrams lead per square centimeter (mg/cm²) of surface as measured on-site by an X-ray fluorescent analyzer or more than 0.50 percent lead by dry weight as measured by Atomic Absorption Spectrometry (AAS).

For the purposes of this report, all paints containing detectable amounts of lead are considered lead-based paints. This action is taken because OSHA regulates lead in construction based on airborne exposures and it cannot be ensured that lead paint with concentrations of lead less than 1.0 mg/cm² or 0.50% mass will not result in exposures exceeding the OSHA standard.

The table 2 illustrates confirmed locations with detectable amounts of lead:

Table 2 – Lead Paint - XRF Results

Room / Area	Component	Side	Paint Color	Substrate (Condition)	Results (mg/cm ²)
1 st Floor – Living Room	Wall	North	Yellow	Sheetrock (Intact)	0.0
1 st Floor – Living Room	Wall	South	Yellow	Sheetrock (Intact)	0.0
1 st Floor – Living Room	Wall	East	Yellow	Sheetrock (Intact)	0.0
1 st Floor – Living Room	Wall	West	Yellow	Sheetrock (Intact)	0.0
1 st Floor – Living Room	Baseboard	North	White	Wood (Intact)	0.0

1 st Floor – Living Room	Baseboard	South	White	Wood (Intact)	0.0
1 st Floor – Living Room	Baseboard	East	White	Wood (Intact)	0.0
1 st Floor – Living Room	Baseboard	West	White	Wood (Intact)	0.0
1 st Floor – Living Room	Ceiling	North	White	Sheetrock (Intact)	0.0
1 st Floor – Living Room	Ceiling	South	White	Sheetrock (Intact)	0.0
1 st Floor – Living Room	Window Sill	South	White	Wood (Intact)	0.0
1 st Floor – Living Room	Window Moldings	North	White	Wood (Intact)	0.0
1 st Floor – Living Room	Window Moldings	South	White	Wood (Intact)	0.0
1 st Floor – Living Room	Window Moldings	East	White	Wood (Intact)	0.0
1 st Floor – Living Room	Window Moldings	West	White	Wood (Intact)	0.0
Stairwell	Balusters and Posts	-	Beige	Wood (Intact)	0.0
Stairwell	Rails	-	Beige	Wood (Intact)	0.0
Stairwell	Wall	East	Yellow	Sheetrock (Intact)	0.0
Stairwell	Wall	South	White	Sheetrock (Intact)	0.0
Stairwell	Wall	West	White	Sheetrock (Intact)	0.0
2 nd Floor – Bathroom	Wall	North	White	Sheetrock (Intact)	0.0
2 nd Floor – Bathroom	Wall	South	White	Sheetrock (Intact)	0.0
2 nd Floor – Bathroom	Wall	East	White	Sheetrock (Intact)	0.0
2 nd Floor – Bathroom	Wall	West	White	Sheetrock (Intact)	0.0
2 nd Floor – Bathroom	Ceiling	-	White	Sheetrock (Intact)	0.0

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2 nd Floor – Bathroom	Window Moldings	East	White	Wood (Intact)	0.0
2 nd Floor – Bathroom	Door Jamb	-	White	Wood (Intact)	0.0
2 nd Floor – Northwest Bedroom	Door Frame / Jamb	-	Green	Wood (Intact)	0.01
2 nd Floor – Northwest Bedroom	Door	-	Pink	Wood (Intact)	0.0
2 nd Floor – Northwest Bedroom	Wall Paneling	North	Green	Wood (Intact)	0.0
2 nd Floor – Northwest Bedroom	Wall Paneling	South	Green	Wood (Intact)	0.0
2 nd Floor – Northwest Bedroom	Wall Paneling	East	Green	Wood (Intact)	0.0
2 nd Floor – Northwest Bedroom	Wall Paneling	West	Green	Wood (Intact)	0.0
2nd Floor – Northwest Bedroom	Ceiling	-	White	Sheetrock (Intact)	>1.0
2 nd Floor – Hallway Closet	Wall Paneling	-	Yellow	Wood (Intact)	0.46
2 nd Floor – Hallway Closet	Door	-	Pink	Wood (Intact)	0.0
2 nd Floor – Hallway Closet	Ceiling	-	White	Sheetrock (Intact)	0.31
2 nd Floor – Hallway	Wall	North	White	Sheetrock (Intact)	0.0
2 nd Floor – Hallway	Wall	South	White	Sheetrock (Intact)	0.0
2 nd Floor – Hallway	Wall	East	White	Sheetrock (Intact)	0.0
2 nd Floor – Hallway	Wall	West	White	Sheetrock (Intact)	0.0
2 nd Floor – Hallway	Attic Hatch	-	White	Wood (Intact)	0.0

2 nd Floor – Hallway	Ceiling	-	White	Sheetrock (Intact)	0.0
2 nd Floor – West Bedroom	Door Frame / Jamb	-	Green	Wood (Intact)	0.0
2 nd Floor – West Bedroom	Wall	North	Pink	Sheetrock (Intact)	0.0
2 nd Floor – West Bedroom	Wall	South	Pink	Sheetrock (Intact)	0.0
2 nd Floor – West Bedroom	Wall	East	Pink	Sheetrock (Intact)	0.0
2 nd Floor – West Bedroom	Wall	West	Pink	Sheetrock (Intact)	0.0
2 nd Floor – West Bedroom	Window Frame	Northwest	Pink	Wood (Intact)	0.0
2 nd Floor – West Bedroom	Window Frame	Northwest	Green	Wood (Intact)	0.0
2 nd Floor – West Bedroom	Window Frame	Southwest	Pink	Wood (Intact)	0.0
2 nd Floor – West Bedroom	Window Frame	Southwest	Green	Wood (Intact)	0.0
2 nd Floor – West Bedroom	Window Sill	Northwest	Green	Wood (Intact)	0.0
2 nd Floor – West Bedroom	Window Sill	Southwest	Green	Wood (Intact)	0.0
2 nd Floor – West Bedroom	Ceiling	-	White	Sheetrock (Intact)	0.0
2 nd Floor – West Bedroom	Door	-	Pink	Wood (Intact)	0.0
2 nd Floor – Southwest Bedroom	Wall	North	Pink	Sheetrock (Intact)	0.02
2 nd Floor – Southwest Bedroom	Wall	South	Pink	Sheetrock (Intact)	0.02
2 nd Floor – Southwest Bedroom	Wall	East	Pink	Sheetrock (Intact)	0.05
2 nd Floor – Southwest Bedroom	Wall	West	Pink	Sheetrock (Intact)	0.02
2 nd Floor – Southwest	Ceiling	-	White	Sheetrock (Intact)	>1.0

Bedroom					
1 st Floor – Music Studio	Wall	North	Yellow	Sheetrock (Intact)	0.0
1 st Floor – Music Studio	Wall	South	Yellow	Sheetrock (Intact)	0.0
1 st Floor – Music Studio	Wall	East	Yellow	Sheetrock (Intact)	0.0
1 st Floor – Music Studio	Wall	West	Yellow	Sheetrock (Intact)	0.0
1 st Floor – Music Studio	Window Moldings	West	White	Wood (Intact)	0.0
1 st Floor – Music Studio	Door Frame / Jamb	North	White	Wood (Intact)	0.0
1 st Floor – Music Studio	Baseboard	North	White	Wood (Intact)	0.0
1 st Floor – Music Studio	Baseboard	South	White	Wood (Intact)	0.0
1 st Floor – Music Studio	Baseboard	East	White	Wood (Intact)	0.0
1 st Floor – Music Studio	Baseboard	West	White	Wood (Intact)	0.0
1 st Floor – Music Studio	Ceiling	-	White	Sheetrock (Intact)	0.0
1 st Floor – Kitchen	Wall	North	Yellow	Sheetrock (Intact)	0.0
1 st Floor – Kitchen	Wall	South	Yellow	Sheetrock (Intact)	0.0
1 st Floor – Kitchen	Wall	East	Yellow	Sheetrock (Intact)	0.0
1 st Floor – Kitchen	Wall	West	Yellow	Sheetrock (Intact)	0.0
1 st Floor – Kitchen	Window Moldings	East	White	Wood (Intact)	0.0
1 st Floor – Kitchen	Entry Door Frame / Jamb	North	White	Wood (Intact)	0.0
1 st Floor – Kitchen	Entry Door Frame / Jamb	West	White	Wood (Intact)	0.0
1 st Floor – Kitchen	Baseboard	North	White	Wood (Intact)	0.0

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1 st Floor – Kitchen	Baseboard	South	White	Wood (Intact)	0.0
1 st Floor – Kitchen	Baseboard	East	White	Wood (Intact)	0.0
1 st Floor – Kitchen	Baseboard	West	White	Wood (Intact)	0.0
1 st Floor – Kitchen	Ceiling	-	White	Sheetrock (Intact)	0.0
1 st Floor – Laundry	Wall	North	Yellow	Sheetrock (Intact)	0.0
1 st Floor – Laundry	Wall	South	Yellow	Sheetrock (Intact)	0.0
1 st Floor – Laundry	Wall	East	Yellow	Sheetrock (Intact)	0.0
1 st Floor – Laundry	Wall	West	Yellow	Sheetrock (Intact)	0.0
1 st Floor – Laundry	Window Moldings	North	White	Wood (Intact)	0.0
1 st Floor – Laundry	Entry Door Frame / Jamb	South	White	Wood (Intact)	0.0
1 st Floor – Laundry	Baseboard	North	White	Wood (Intact)	0.0
1 st Floor – Laundry	Baseboard	South	White	Wood (Intact)	0.0
1 st Floor – Laundry	Baseboard	East	White	Wood (Intact)	0.0
1 st Floor – Laundry	Baseboard	West	White	Wood (Intact)	0.0
1 st Floor – Laundry	Ceiling	-	White	Sheetrock (Intact)	0.0
Exterior	Siding	North	Grey	Wood (Intact)	0.06
Exterior	Siding	South	Grey	Wood (Intact)	0.03
Exterior	Siding	East	Grey	Wood (Intact)	0.05
Exterior	Siding	West	Grey	Wood (Intact)	0.08
Exterior	Foundation	North	Grey	Concrete (Intact)	0.0

Exterior	Foundation	South	Grey	Concrete (Intact)	0.0
Exterior	Foundation	East	Grey	Concrete (Intact)	0.06
Exterior	Foundation	West	Grey	Concrete (Intact)	0.02
Exterior	Rear Porch – Rails	-	Grey	Wood (Intact)	0.0
Exterior	Rear Porch – Balusters	-	Grey	Wood (Intact)	0.0
Exterior	Rear Porch – Block Base	-	Grey	Concrete (Intact)	0.0
Exterior	Original Siding (under Grey Siding)	Southwest	Dark Green	Wood (Deteriorated)	4.16

4.0 MOLD

Loureiro observed mold growths on the floor joists under the first floor sub-floor within the basement crawl space of the dwelling. The visually impacted surfaces were swab sampled and analyzed via direct microscopic examination in order to determine mold type and relative concentration of the mold. The samples were labeled and delivered with a Chain of Custody to EMSL, which is located in Wallingford, CT. The samples were analyzed by direct examination optical microscopy for mold species identification and quantification. EMSL is an AIHA approved Laboratory.

Laboratory testing confirmed the presence of *Aspergillus / Penicillium* and *Chaetomium* molds in low concentrations on joist surfaces. Hyphal or fruiting structures were also present indicating active mold colonies. These mold types along with the presence of hyphal structures, indicates that continued mold growth is likely. *Chaetomium* is rarely associated with human infections. *Penicillium* type mold is often associated with buildings having water or moisture problems. Microbiological growth can produce offensive odors and can produce upper respiratory allergy-like symptoms if it is disturbed and the spores inhaled.

REPORT LIMITATIONS CRITERIA

Information contained in this report is based on site observations, sample results relevant to the scope of work for this survey. Conclusions of this report are based on the survey, study, and/or investigation. This is not to be interpreted as a complete compilation of all existing information pertaining to the site conditions.

It should be noted that site conditions observed during this investigation may change based on any number of influencing factors and/or environmental variables such as fluctuations in indoor and

outdoor temperatures, humidity and seasonal changes in sunlight. These factors can influence the spread and concentration of molds as they change. The attached report and analytical data materials are not intended to guarantee that the investigated site is, or is not, free from conditions, which could pose a threat or hazard to human health or safety. Should further research on the site be conducted, any additional data should be submitted to Loureiro for review and revisions as necessary.

This report is intended for the sole use of the Client, and may not be used or relied upon by others without the written consent of the Client. The scope of work conducted in performing this service for the Client may not be appropriate to satisfy the needs of other Parties, and the use or re-use of this document or the findings, conclusions, or recommendations is at the risk of said user.

The criteria used to evaluate the survey results includes, but is not limited to, guidelines recommended by the:

- American Conference of Governmental Industrial; Hygienists (ACGIH);
- The American Society for Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE);
- The U.S. Environmental Protection Agency (EPA);
- The American Industrial Hygiene Association (AIHA);
- The American Indoor Air Quality Council (AIAQC);
- Indoor Environmental Standards Organization (IESO);
- The Institute of Inspection Cleaning and Restoration Certification (IICRC);
- The National Air Duct Cleaners Association (NADCA);
- The New York City Department of Health; and,

Any comments and/or questions in regards this report should be directed to Loureiro Engineering.

Table 4 – Mold Summary Results

Sample No. / Location	Fungi Detected	Fungi Concentration	Comments
Sample 1 Basement Joists	Aspergillus / Penicillium Chaetomium	Low Low	*Active Colonies *Active Colonies

5.0 RADON TESTING

Radon is an odorless, tasteless and invisible gas produced by the decay of naturally occurring uranium in soil and water. Radon is a form of ionizing radiation and a proven carcinogen. Lung cancer is the only known effect on human health from exposure to radon in air. Thus far, there is no evidence that children are at greater risk of lung cancer than are adult. EPA recommends homes be mitigated if the radon level is 4.0 pCi/L (picocuries per liter) or more. Laboratory results are found in Appendix C.

Radon gas typically moves up through the ground to the air above and into a building through cracks and other holes in the foundation. Radon mitigation may involve sealing the routes of entry or installing sub-slab ventilation systems.

Table 5 – Radon Summary Results – Basement

Sample Number	Area	Sample Result
157626	Basement Crawl Space	0.9 pCi/L
157757	Basement Crawl Space	0.9 pCi/L

A standard recommendation by the EPA to reduce Radon gas migration into homes is to caulk all joints and stress fractures or cracks in all slab and concrete foundations. Prior to our testing, the basement crawl space of the home had a dirt floor and various cracks and gaps in the block wall foundation.

This round of Radon testing indicates that the basement is below the EPA 4.0 pCi/L threshold.

Radon gas concentrations can vary dependant upon other environmental factors such as barometric pressure, and Loureiro recommends retesting every two years. Loureiro also recommends that any cracks or gaps in the foundation be inspected on an annual basis and resealed as necessary.

6.0 RECOMMENDATIONS

In accordance with the OSHA regulations (29 CFR Part 1926.1101 and 1910.1001), all potential contractors bidding on work must first be informed of the results of this survey. In addition, notification regarding the presence of the ACM must be provided to all employees and tenants who occupy an area containing ACM.

All materials identified as negative for asbestos may be removed at will and disposed of as standard construction debris as long as they do not impact or disturb identified asbestos materials.

In the State of Connecticut, a licensed asbestos abatement contractor must perform all asbestos-related activities, including the renovation/demolition portion of the work that includes asbestos. Disturbance of asbestos-containing material can only be done by trained and licensed individuals. It should be noted that the State of Connecticut regulations governing asbestos abatement does not distinguish between friable and non-friable material. Therefore, full containment procedures are required for any interior abatement work (removal, encapsulation, or enclosure) involving both Category I and/or Category II non-friable asbestos-containing materials.

During any renovation or demolition process, safe work procedures must be implemented by properly lead-paint trained workers employed by contractors to address worker protection, lead exposure controls, waste stream management, and ambient air quality monitoring. Specifically, contractors will be required to comply with all applicable OSHA regulations including 29 CFR 1926.62, "Lead Exposure in Construction: Interim Final Rule" and 29 CFR 1926.59, "Hazard



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Communication for the Construction Industry". In addition, pre-disposal lead-waste testing requirements must be complied with.

Based upon the visual inspection and the mold swab test results, Loureiro recommends that the underlying cause of the moisture source in the basement crawl space is related to lack of ventilation and possible excess humidity in the marine environment. Excess humidity may only exist during certain, warmer times of the year when temperatures and ambient humidity levels are higher.

Loureiro recommends that a competent mold remediation contractor be employed to wash the floor joists under the first floor sub-floor throughout the basement crawl space. Surface molds on non-porous materials may be wet wiped with a mild detergent solution.

- Asbestos containing materials that will be impacted by renovation activities, as well as estimated abatement costs, are as follows:

ACM Material	Quantity	Per unit abatement cost estimate	Total Abatement Cost
Joint Compound (2 nd Floor Only)	2960 s.f.	\$6	\$17,760
Consulting Fees			\$3,552
		TOTAL	\$21,312

- Per the HUD and Connecticut regulations Toxic Levels of lead-paint (>1.0 mg/cm²) were identified in the dwelling tested. Measurable levels of lead were detected in painted surfaces. OSHA regulations require personal protective equipment (PPE) or proper engineering controls for procedures such as dry scraping or sanding that may generate lead emissions. Loureiro recommends wet sanding or the use of local exhaust ventilation with High Efficiency Particulate Air (HEPA) filtration during preparation procedures prior to repainting should any lead-paint be disturbed during renovation.

Lead-Painted Components	Quantity	Per unit abatement cost estimate	Total Abatement Cost
Ceilings	320 S.F.	\$5 / S.F.	\$1,600
Original Siding (under Grey)	2350 S.F.	\$10 / S.F.	\$23,500
Consulting Fees at 20%			\$1,800
		TOTAL	\$26,900

- Loureiro recommends contracting a qualified mold remediation contractor to remove all mold affected surfaces and treatment of structural studs, joists, headers, etc. prior to renovations.

Mold Contaminated Components	Quantity	Per unit abatement cost estimate	Total Abatement Cost
Basement (Floor Joists)	770 S.F.	\$8	\$6,160
Consulting Fees at 20%			\$900
		TOTAL	\$7,060

Appendix A

Asbestos Laboratory Analysis Data



EMSL Analytical, Inc.

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

EMSL Order: 241401434
CustomerID: LOUR62
CustomerPO:
ProjectID:

Attn: **Jamie Roche**
Loureiro Engineering Associates, Inc.
100 Northwest Drive
Plainville, CT 06062

Phone: (860) 747-6181
Fax: (860) 747-8822
Received: 04/24/14 10:00 AM
Analysis Date: 4/25/2014
Collected: 4/23/2014

Project: 01MH4.07 (39 RICHARD ST, MILFORD)

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
042314-1A 241401434-0001	1st floor - sheetrock	White Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (other)	None Detected
042314-1B 241401434-0002	1st floor - sheetrock	Gray Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (other)	None Detected
042314-1C 241401434-0003	2nd floor - sheetrock	Tan Non-Fibrous Homogeneous	50% Cellulose	50% Non-fibrous (other)	None Detected
042314-1D 241401434-0004	2nd floor - sheetrock	Gray Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (other)	None Detected
042314-2A 241401434-0005	1st floor - joint compound	Tan Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
042314-2B 241401434-0006	1st floor - joint compound	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
042314-2C 241401434-0007	2nd floor - joint compound	Tan Non-Fibrous Homogeneous		100% Non-fibrous (other)	<1% Chrysotile
042314-2D 241401434-0008	2nd floor - joint compound	Tan Non-Fibrous Homogeneous		98% Non-fibrous (other)	2% Chrysotile

Analyst(s)
Fievel Lam (15)
Sean Ryan (24)


Gloria V. Oriol, Laboratory Manager
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Wallingford, CT NVLAP Lab Code 200700-0,

Initial report from 04/28/2014 09:18:31

**EMSL Analytical, Inc.**

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 Received: 04/24/14 10:00 AM
 Analysis Date: 4/25/2014
 Collected: 4/23/2014

Project: 01MH4.07 (39 RICHARD ST, MILFORD)

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
042314-3A 241401434-0009	1st floor - sheetrock joint tape	White Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (other)	None Detected
042314-3B 241401434-0010	1st floor - sheetrock joint tape	White Fibrous Homogeneous	99% Cellulose	1% Non-fibrous (other)	None Detected
042314-3C 241401434-0011	2nd floor - sheetrock joint tape	White Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (other)	None Detected
042314-3D 241401434-0012	2nd floor - sheetrock joint tape	White Fibrous Homogeneous	99% Cellulose	1% Non-fibrous (other)	None Detected
042314-4A 241401434-0013	2nd floor - ceiling texture	Tan Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
042314-4B 241401434-0014	2nd floor - ceiling texture	Tan Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
042314-4C 241401434-0015	2nd floor - ceiling texture	Tan Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
042314-5A 241401434-0016	2nd floor - interior window frame caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

Analyst(s)

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 Sean Ryan (24)

Gloria V. Oriol, Laboratory Manager
 or other approved signatory

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 Samples analyzed by EMSL Analytical, Inc. Wallingford, CT NVLAP Lab Code 200700-0.

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Analysis Date: 4/25/2014
Collected: 4/23/2014

Project: 01MH4.07 (39 RICHARD ST, MILFORD)

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
042314-5B 241401434-0017	2nd floor - interior window frame caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
042314-5C 241401434-0018	1st floor - interior window frame caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
042314-6A 241401434-0019	Attic - blown-in insulation (grey)	Brown Fibrous Homogeneous	95% Min. Wool	5% Non-fibrous (other)	None Detected
042314-6B 241401434-0020	Attic - blown-in insulation (grey)	Brown Fibrous Homogeneous	95% Min. Wool	5% Non-fibrous (other)	None Detected
042314-6C 241401434-0021	Attic - blown-in insulation (grey)	Gray Fibrous Homogeneous	95% Min. Wool	5% Non-fibrous (other)	None Detected
042314-7A 241401434-0022	2nd floor bathroom - 12x12 ceramic tile grout	Red Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
042314-7B 241401434-0023	2nd floor bathroom - 12x12 ceramic tile grout	Red Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
042314-7C 241401434-0024	2nd floor bathroom - 12x12 ceramic tile grout	Red Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

Analyst(s)
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Sean Ryan (24)

Gloria V. Oriol, Laboratory Manager
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Wallingford, CT NVLAP Lab Code 200700-0,

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 Received: 04/24/14 10:00 AM
 Analysis Date: 4/25/2014
 Collected: 4/23/2014

Project: 01MH4.07 (39 RICHARD ST, MILFORD)

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
042314-8A 241401434-0025	Entry way - 5x5 ceramic tile grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
042314-8B 241401434-0026	Entry way - 5x5 ceramic tile grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
042314-8C 241401434-0027	Entry way - 5x5 ceramic tile grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
042314-9A 241401434-0028	Kitchen - 12x12 ceramic tile grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
042314-9B 241401434-0029	Laundry - 12x12 ceramic tile grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
042314-9C 241401434-0030	Laundry - 12x12 ceramic tile grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
042314-10A 241401434-0031	Exterior - exterior window frame caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
042314-10B 241401434-0032	Exterior - exterior window frame caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

Analyst(s)

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Gloria V. Oriol, Laboratory Manager
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 Samples analyzed by EMSL Analytical, Inc. Wallingford, CT NVLAP Lab Code 200700-0.

Initial report from 04/28/2014 09:18:31

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 Received: 04/24/14 10:00 AM
 Analysis Date: 4/25/2014
 Collected: 4/23/2014

Project: 01MH4.07 (39 RICHARD ST, MILFORD)

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
042314-10C 241401434-0033	Exterior - exterior window frame caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
042314-11A 241401434-0034	Front window - brown asphalt roof shingle	Black Non-Fibrous Homogeneous	3% Glass	97% Non-fibrous (other)	None Detected
042314-11B 241401434-0035	Front window - brown asphalt roof shingle	Black Non-Fibrous Homogeneous	3% Glass	97% Non-fibrous (other)	None Detected
042314-11C 241401434-0036	Front window - brown asphalt roof shingle	Black Fibrous Homogeneous	5% Glass	95% Non-fibrous (other)	None Detected
042314-12A 241401434-0037	Rear low roof - dark grey/beige asphalt roof shingle	Black Non-Fibrous Homogeneous	3% Glass	97% Non-fibrous (other)	None Detected
042314-12B 241401434-0038	Rear low roof - dark grey/beige asphalt roof shingle	Black Non-Fibrous Homogeneous	3% Glass	97% Non-fibrous (other)	None Detected
042314-12C 241401434-0039	Rear low roof - dark grey/beige asphalt roof shingle	Black Fibrous Homogeneous	5% Glass	95% Non-fibrous (other)	None Detected

Analyst(s)
 Fievel Lam (15)
 Sean Ryan (24)


 Gloria V. Oriol, Laboratory Manager
 or other approved signatory

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 Samples analyzed by EMSL Analytical, Inc. Wallingford, CT NVLAP Lab Code 200700-0,

Initial report from 04/28/2014 09:18:31

Appendix B

Mold Laboratory Results



EMSL Analytical, Inc.

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Order ID: 241401425
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Project ID:

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Phone: (860) 747-6181
Fax: (860) 747-8822
Collected: 04/23/2014
Received: 04/24/2014
Analyzed: 04/25/2014

Proj: 01MH4.07 (39 RICHARD ST, MILFORD, CT)

Test Report: Microscopic Examination of Fungal Spores, Fungal Structures, Hyphae, and Other Particulates from Swab Samples (EMSL Method: M041)

Lab Sample Number:	241401425-0001			
Client Sample ID:	042314-Mold-1			
Sample Location:	Basement joists			
Spore Types	Category			
Agrocybe/Coprinus	-			
Alternaria	-			
Ascospores	-			
Aspergillus/Penicillium	*Low*			
Basidiospores	-			
Bipolaris++	-			
Chaetomium	Low			
Cladosporium	-			
Curvularia	-			
Epicoccum	-			
Fusarium	-			
Ganoderma	-			
Myxomycetes++	-			
Paecilomyces	-			
Rust	-			
Scopulariopsis	-			
Stachybotrys	-			
Torula	-			
Ulocladium	-			
Unidentifiable Spores	-			
Zygomycetes	-			
Fibrous Particulate	-			
Hyphal Fragment	Rare			
Insect Fragment	-			
Pollen	-			

Category: Count/per area analyzed
Rare: 1 to 10 Low: 11 to 100 Medium: 101 to 1000 High: >1000

Bipolaris++ = Bipolaris/Dreschlera/Exserohilum Myxomycetes++ = Myxomycetes/Periconia/Smut
* = Sample contains fruiting structures and/or hyphae associated with the spores.

Gloria V. Oriol, Laboratory Manager
or Other Approved Signatory

No discernable field blank was submitted with this group of samples.

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Samples analyzed by EMSL Analytical, Inc. Wallingford, CT AIHA-LAP, LLC--EMLAP Accredited #165118

Initial report from: 04/25/2014 12:28:05

For Information on the fungi listed in this report please visit the Resources section at www.emsl.com

Appendix C

Radon Air Testing Results

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077
 Phone/Fax: (800) 220-3675 / (856) 786-0327
<http://www.EMSL.com> RadonLab@emsl.com

EMSL Order: 381402023
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Phone: (860) 747-6181
 Fax: (860) 747-8822
 Received: 04/28/14 4:20 PM
 Analysis Date: 4/29/2014
 Collected: 4/23/2014

Project: 39 Richard Street

Test Site: 39 Richard Street
 Milford, CT

Test Report: Radon in Air Test Results**Samples for EMSL Kit 93736**

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
157626	Basement	0.9	4/23/2014	4/25/2014	50	40	Customer
381402023-0001			9:15:00 AM	2:35:00 PM			
Sample Notes:							
157757	Basement	0.9	4/23/2014	4/25/2014	50	40	Customer
381402023-0002			9:15:00 AM	2:35:00 PM			
Sample Notes:							
Summary for EMSL kit 93736		Average Radon Result: 0.9 pCi/L					

The results indicate that both testing devices registered below the United States Environmental Protection Agency (EPA) action level of 4.0 picoCuries per liter of air (pCi/L). The EPA recommends fixing your home if the average of two short-term tests taken in the lowest lived-in level of the home show radon levels that are equal to or greater than 4.0pCi/L. The radon test was performed using a liquid scintillation radon detector/s and counted on a liquid scintillation counter using approved EPA testing protocols for Radon in Air testing. The EPA recommends retesting your home every two years.

Please contact EMSL Analytical, Inc. or your State Health Department for further information.

All procedures used for generating this report are in complete accordance with the current EPA protocols for the analysis of Radon in Air.

Report Notes

Analyst(s)

Laura Freeman (2)

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 Certified Radon Measurement Specialist NRSB 5SS0093
 NJ MES12264, FL R2001, NE 116, PA 2572

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from 05/01/2014 12:09:22

Please visit www.radontestinglab.com

Appendix D

Staff and Laboratory Certifications

INSTRUCTIONS:

- 1. Detach and sign each of the cards on this form.
- 2. Display the large card in a prominent place in your office or place of business.
- 3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.

4. The employer's copy is for persons who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.

**STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH**

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT

THE INDIVIDUAL NAMED BELOW IS LICENSED
BY THIS DEPARTMENT AS A

ASBESTOS CONSULTANT-INSPECTOR

BRETT M. NICHOLAS

LICENSE NO.
000685
CURRENT THROUGH
07/31/14
VALIDATION NO.
03-627042

[Signature]
SIGNATURE

[Signature]
COMMISSIONER

EMPLOYER'S COPY

**STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH**

NAME

BRETT M. NICHOLAS

VALIDATION NO. 03-627042
LICENSE NO. 000685
CURRENT THROUGH 07/31/14
PROFESSION

ASBESTOS CONSULTANT-INSPECTOR

[Signature]
SIGNATURE

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COMMISSIONER

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**STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH**

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT

THE INDIVIDUAL NAMED BELOW IS CERTIFIED
BY THIS DEPARTMENT AS A

LEAD INSPECTOR

BRETT M NICHOLAS

CERTIFICATION NO.
002212
CURRENT THROUGH
07/31/14
VALIDATION NO.
03-756542

[Signature]
SIGNATURE

[Signature]
COMMISSIONER

EMPLOYER'S COPY

**STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH**

NAME

BRETT M NICHOLAS

VALIDATION NO. 03-756542
CERTIFICATION NO. 002212
CURRENT THROUGH 07/31/14
PROFESSION

LEAD INSPECTOR

[Signature]
SIGNATURE

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COMMISSIONER



National Institute of Standards & Technology

Certificate of Analysis

Standard Reference Material® 2573

Lead Paint Film

For Portable X-Ray Fluorescence Analyzers – Nominal 1.0 mg/cm²
(Color Code: Red)

This Standard Reference Material (SRM) is intended for checking the calibration of portable, hand-held, x-ray fluorescence analyzers when testing for lead in paint coatings on interior and exterior building surfaces. A unit of SRM 2573 consists of a white polyester sheet, approximately 7.6 cm wide, 10.2 cm long, and 0.2 mm thick, coated with a single, red-colored paint layer, approximately 0.04 mm thick. A blank, SRM 2570, is also provided. The blank is coated with a lead-free, lacquer layer on a white polyester sheet of the same thickness as the lead paint samples. All sheets are over-coated with a clear, thin, plastic laminate to protect the surface from abrasion. SRM 2573 and SRM 2570 are two of a set of six paint films (SRM 2570 to SRM 2575) available as SRM 2579a.

The certified values for lead for this SRM and the blank, SRM 2570, are reported in Table 1 in units of mg/cm². These values are based on measurements by isotope dilution inductively-coupled plasma mass spectrometry.

Table 1. Certified Lead Values

Level	Color Code	Lead Concentration, in mg/cm ²
SRM 2570	White (Blank)	<0.001
SRM 2573	Red	1.040 ± 0.064

The uncertainty of each certified value is expressed as an expanded uncertainty, U , at the 95 % level of confidence and is calculated according to the method described in the ISO Guide [1,2]. Because of variability in the paint film between different sheets of each SRM, the uncertainties are 95 % prediction intervals. The expanded uncertainty is calculated as $U = ku_c$, where u_c is intended to represent, at the level of one standard deviation, the combined uncertainty due to material variability and measurement uncertainty. The coverage factor, k , is determined from the Student's t -distribution corresponding to the calculated effective degrees of freedom and 95 % level of confidence.

Expiration of Certification: The certification of SRM 2573 is valid, within the measurement uncertainties specified, until **01 July 2020**, provided the SRM is handled and stored in accordance with the instructions given in this certificate (see "Instructions for Use"). The certification is nullified if the SRM is damaged, contaminated, or otherwise modified.

Maintenance of SRM Certification: NIST will monitor this SRM over the period of its certification. If substantive technical changes occur that affect the certification before the expiration of this certificate, NIST will notify the purchaser. Registration (see attached sheet) will facilitate notification.

The overall direction and coordination of the analytical measurements leading to certification were performed by G.C. Turk and J.D. Fassett of the NIST Analytical Chemistry Division. Analytical measurements were performed by K.E. Murphy, J.R. Sieber, A.F. Marlow, L.J. Wood, P.R. Seo, and M. Lankosz of the NIST Analytical Chemistry Division. The SRM was fabricated under the direction of J.R. Sieber of the NIST Analytical Chemistry Division.

Stephen A. Wise, Chief
Analytical Chemistry Division

Robert L. Watters, Jr., Chief
Measurement Services Division

Gaithersburg, MD 20899
Certificate Issue Date: 24 March 2009
See Certificate Revision History on Last Page

Statistical consultation for this SRM was provided by E.S. Lagergren and N.F. Zhang of the NIST Statistical Engineering Division.

Support aspects involved in the issuance of this SRM were coordinated through the NIST Measurement Services Division.

NOTICE AND WARNING TO USERS

NOTE: This SRM contains lead, as a lead chromate pigment, which is toxic and a suspected carcinogen to the lung and kidney. The SRM must be handled with care and disposed of according to the U.S. Environmental Protection Agency (EPA) practices and procedures.

INSTRUCTIONS FOR USE

The SRM sheet must first be removed from the plastic sleeve in which it is stored and then positioned so that the side labeled with the NIST logo and SRM number faces the x-ray source. For best results, the size of the x-ray beam from the field unit should irradiate an area of the SRM that is at least 2.5 cm in diameter and is centered on the sheet. Care must be exercised not to compromise the protective plastic laminate which prevents scratching or chipping of the painted surface and the potential release of dust containing lead. Upon completion of the measurement, the SRM must be re-stored in the plastic sleeve provided. It is also recommended that this SRM be stored indoors at ambient room temperature and away from direct sunlight when not in use.

Stability: This SRM is considered to be stable during the period of certification. NIST will monitor the SRM and will report any significant changes in certification to the purchaser. Return of the attached registration card will facilitate notification.

PREPARATION

SRM Preparation: The paint-coated, polyester sheets were prepared by an automated coating process at a commercial facility under contract to NIST. Known concentrations of a lead chromate pigment were dispersed in a commercial paint vehicle to prepare the lead paints. A lead-free, organic tint was added to each paint mixture to give the desired color. A thin, protective overlay of plastic laminate was applied to each paint film. The attenuation of lead $L_{3-M_{4,5}}$ ($L\alpha_{1,2}$) X-rays due to the protective overlay does not exceed 2 % relative, while that of $K-L_{2,3}$ ($K\alpha_{1,2}$) x-rays commonly used for field measurement is negligible.

REFERENCES

- [1] ISO; *Guide to the Expression of Uncertainty in Measurement*; ISBN 92-67-10188-9, 1st ed., International Organization for Standardization: Geneva, Switzerland (1993); see also Taylor, B.N.; Kuyatt, C.E.; *Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results*; NIST Technical Note 1297, U.S. Government Printing Office: Washington, DC (1994); available at <http://physics.nist.gov/Pubs/>.
- [2] Hahn, G.J.; Meeker, W.Q.; *Statistical Intervals: A Guide for Practitioners*; John Wiley & Sons, Inc., New York, NY (1991).

Certificate Revision History: 24 March 2009 (Extension of certification period); 29 November 1999 (Original certificate date).

Users of this SRM should ensure that the certificate in their possession is current. This can be accomplished by contacting the SRM Program at: telephone (301) 975-2200; fax (301) 926-4751; e-mail srminfo@nist.gov; or via the Internet at <http://www.nist.gov/srm>.

Performance Characteristic Sheet

EFFECTIVE DATE: October 12, 2006

EDITION NO.: 1

MANUFACTURER AND MODEL:

Make: *Innov-X Systems, Inc.*
Models: *LBP4000 with software version 1.4 and higher*
Source: *X-ray tube (no radioactive isotopes)*

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Inspection mode, variable reading time.

XRF CALIBRATION CHECK LIMITS:

1.0 to 1.1 mg/cm ² (inclusive)

SUBSTRATE CORRECTION:

Not applicable

INCONCLUSIVE RANGE OR THRESHOLD:

INSPECTION MODE READING DESCRIPTION	SUBSTRATE	INCONCLUSIVE RANGE (mg/cm ²)
Results not corrected for substrate bias on any substrate	Brick	0.6 to 1.1
	Concrete	0.6 to 1.1
	Drywall	0.6 to 1.1
	Metal	0.6 to 1.1
	Plaster	0.6 to 1.1
	Wood	0.6 to 1.1

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted on 146 test locations, with two separate instruments, in December 2005.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

XRF CALIBRATION CHECK:

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm² in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm² film).

If the average (rounded to 1 decimal place) of three readings is outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instrument into control before XRF testing proceeds.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Chapter 7 of the HUD Guidelines provides guidance on correcting XRF results for substrate bias. Supplemental guidance for using the paint film nearest 1.0 mg/cm² for substrate correction is provided:

XRF results are corrected for substrate bias by subtracting from each XRF result a correction value determined separately in each house for single-family housing or in each development for multifamily housing, for each substrate. The correction value is an average of XRF readings taken over the NIST SRM paint film nearest to 1.0 mg/cm² at test locations that have been scraped bare of their paint covering. Compute the correction values as follows:

Using the same XRF instrument, take three readings on a bare substrate area covered with the NIST SRM paint film nearest 1 mg/cm². Repeat this procedure by taking three more readings on a second bare substrate area of the same substrate covered with the NIST SRM.

Compute the correction value for each substrate type where XRF readings indicate substrate correction is needed by computing the average of all six readings as shown below.

For each substrate type (the 1.02 mg/cm² NIST SRM is shown in this example; use the actual lead loading of the NIST SRM used for substrate correction):

$$\text{Correction value} = (1\text{st} + 2\text{nd} + 3\text{rd} + 4\text{th} + 5\text{th} + 6\text{th Reading}) / 6 - 1.02 \text{ mg/cm}^2$$

Repeat this procedure for each substrate requiring substrate correction in the house or housing development.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing.

Take one XRF reading on each of the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Calculate the average of the original XRF reading and the retest XRF reading for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF readings.

Compute the average of all ten re-test XRF readings.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

For the variable-time inspection paint test mode, the instrument continues to read until it has determined whether the result is positive or negative (with respect to the 1.0 mg/cm² Federal standard), with 95% confidence. The following table provides testing time information for this testing mode.

Testing Times Using Variable Reading Time Inspection Mode (Seconds)						
Substrate	All Data			Median for laboratory-measured lead levels (mg/cm ²)		
	25 th Percentile	Median	75 th Percentile	Pb < 0.25	0.25 ≤ Pb < 1.0	1.0 ≤ Pb
Wood, Drywall	2.1	2.3	5.4	2.2	5.4	2.2
Metal	2.6	3.2	5.3	2.7	5.1	5.1
Brick, Concrete, Plaster	3.1	4.0	5.7	3.2	4.0	5.9

CLASSIFICATION OF RESULTS:

When an inconclusive range is specified on the *Performance Characteristic Sheet*, XRF results are classified as positive if they are greater than the upper boundary of the inconclusive range, negative if they are less than the lower boundary of the inconclusive range, or inconclusive if in between. The inconclusive range includes both its upper and lower bounds. If the instrument reads "> x mg/cm²", the value "x" should be used for classification purposes, ignoring the ">". For example, a reading reported as ">1.0 mg/cm²" is classified as 1.0 mg/cm², or inconclusive. When the inconclusive range reported in this PCS is used to classify the readings obtained in the EPA/HUD evaluation, the following False Positive, False Negative and Inconclusive rates are obtained:

- FALSE POSITIVE RATE: 2.5% (2/80)
- FALSE NEGATIVE RATE: 1.9% (4/212)
- INCONCLUSIVE RATE: 16.4% (48/212)

DOCUMENTATION:

A document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD.

This XRF Performance Characteristic Sheet was developed by the Midwest Research Institute (MRI) and QuanTech, Inc., under a contract between MRI and the XRF manufacturer. XRF Performance Characteristic Sheets were originally developed by the MRI under a grant from the U. S. Environmental Protection Agency and the U.S. Department of Housing and Urban Development. HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.