FINAL
Lead-Based Paint Inspection and Risk Assessment Report

U.S. Coast Guard Housing Unit
Parcel No. 010-034-400-002-00
10119 Bonita Drive
Ocean City, Maryland 21842

Contract No. GS-10F-0230J / GS-00P-14-CY-A-0003 / Order No. GS-P-00-16-CY-7127

Prepared For:

United States General Services Administration
Office of Real Property Utilization and Disposal
1800 F Street, NW
Washington, DC 20405

Prepared By:

Amec Foster Wheeler Environment & Infrastructure, Inc.
46850 Magellan Drive, Suite 190
Novi, Michigan 48377

January 2017

Amec Foster Wheeler Project No: 32106D009.0001

Date of Site Visit: August 24, 2016

Erica Geasler-Bromley, P.E.
Project Manager

Kate Watson, P.E.
Environmental Engineer

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ACRONYM AND ABBREVIATION LIST

Amec Foster Wheeler	Amec Foster Wheeler Environment & Infrastructure, Inc.
bgs	below ground surface
CFR	Code of Federal Regulations
HEPA	high-efficiency particulate absorption
HUD	Housing and Urban Development
LBP	lead-based paint
MDE	Maryland Department of the Environment
mg/cm2	milligram per square centimeter
mg/kg	milligram per kilogram
µg/ft^2	micrograms per square foot
µg/L	microgram per liter
ppb	parts per billion
ppm	parts per million
Site	10119 Bonita Drive, Ocean City, Maryland
SOW	Scope of Work
U.S.	United States
USCG	United States Coast Guard
USEPA	U.S. Environmental Protection Agency
XRF	X-ray Fluorescence

1.0 INTRODUCTION

Prior to the late 1970s many paints contained lead. When these paints become damaged, i.e., peeling or flaking, or the painted surface is renovated or demolished, lead can be released into the environment constituting an environmental and worker health hazard. Depending on the age of structures, lead-based paint (LBP) could be either exposed or covered over with other paints or materials as a result of subsequent renovation. Flaking or peeling paint that could be lead-based should be removed or encapsulated appropriately.

Federal law, 20 Code of Federal Regulations (CFR) Part 35 and 40 CFR Part 745, requires sellers or lessors of residential units constructed prior to 1978, except housing for the elderly or persons with disabilities (unless any child who is less than six years of age resides or is expected to reside in such housing) or any zero-bedroom dwelling to disclose and provide a copy of a Lead Risk Assessment Report to new purchasers or lessees before they become obligated under a lease or sales contract. Property owners and sellers are also required to distribute an educational pamphlet approved by the United States Environmental Protection Agency (USEPA) and include standard warning language in sales contracts or in or attached to lease contracts to ensure that parents have the information they need to protect children from LBP hazards.

Based on the age of the Site, it is possible that LBP was used for painting the interior and/or exterior walls of the structure. Therefore, Amec Foster Wheeler, Environment and Infrastructure, Inc. (Amec Foster Wheeler) conducted a LBP inspection and risk assessment at the housing unit.

2.0 LEAD-BASED PAINT

Amec Foster Wheeler contracted France Environmental Consulting Services to complete a LBP Inspection and Risk Assessment during the Environmental Compliance Due Diligence Activities. The objective of the LBP inspection was to determine where LBP exists on the property and the concentration of each painted surface.

An X-ray Fluorescence (XRF) lead analyzer was used to test the paint for lead. The analyzer is a nondestructive method of testing paint and provides immediate results for each test conducted. If paint contains lead equal to or greater than 1.0 milligram per square centimeter (mg/cm^2), as defined by the USEPA/Housing of Urban Development (HUD), it is considered to be lead-based paint. The higher the reading on the XRF, the higher the lead content of the paint. Readings greater than 9.9 (>9.9) are considered above the highest readout settings.

France Environmental Consulting Services obtained 228 (including six calibration tests) test readings on interior and exterior coated surfaces. This testing was conducted on August 24, 2016, by Mr. Ray Goodwin using Chapter 7 of HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* (1997 revision), to document whether lead-based coatings were present. A copy of Mr. Goodwin's certification is included in **Attachment A**.

The LBP inspection indicated that, out of the 222 tested locations, two locations had lead concentrations at or above the USEPA/HUD definition of lead-based paint (at or above 1.0 mg/cm^2). Paint on a post and the ceiling of the front porch contained 1.3 and 4.6 mg/cm^2, respectively. Two locations (porch header and crown molding in the laundry room) were documented to have lead concentrations present, but at levels below the USEPA/HUD levels. The remaining tested component coatings were below the detection limit of the instrument. The painted surfaces appeared to be in good condition with no peeling or flaking. The risk assessment concluded that a LBP hazard is not present. The LBP survey maps are included in **Attachment B**. The complete LBP survey table is included in **Attachment C.** France Environmental Consulting Services' letter report is included in **Attachment D**.

3.0 LEAD IN WATER

Potable water at the Site is provided by an on-site well. Water samples were not collected from the well. Based on the presence of LBP at the site, it is recommended that the potable water be sampled for lead.

4.0 LEAD IN SOIL

As part of the LBP inspection and risk assessment, and in accordance with the Scope of Work (SOW), Amec Foster Wheeler collected two soil samples per exterior structure wall located within five feet (drip line) of the wall. A total of eight soil samples were collected. Samples were collected at the surface (zero inches below ground surface [bgs]) and six inches bgs at each location. The samples were containerized and shipped under standard chain of custody procedures to CT Laboratories, Inc. located in Baraboo, Wisconsin. The samples were submitted for total lead analysis by USEPA SW-846 Method 6010C.

Following receipt of the analytical laboratory report, Amec Foster Wheeler compared the soil analytical results to the USEPA Residential Direct Contact Clean up Level Criterion and the Maryland Department of the Environment (MDE) Residential Cleanup Standard for Soil, both of which are 400 milligram per kilogram (mg/kg) (ppm). Soil analytical results indicate that lead was detected in concentrations ranging between 1.7 mg/kg and 35.2 mg/kg, which do not exceed the USEPA or MDE residential direct contact criteria. The sampling results, findings, and recommendations are included in the *Lead in Soil Sampling Report* prepared by Amec Foster Wheeler dated November 2016.

5.0 LEAD HAZARD LEVELS

Lead is hazardous, especially for children who are six years of age or younger. Lead can reduce intelligence, cause behavior and learning problems, slow growth, and impair hearing. Lead can enter the body through breathing or swallowing lead dust, or by eating soil or paint chips containing lead.

5.1 LEAD-BASED PAINT

Lead-based paint is any paint or surface coating that contains lead equal to or in excess of 1.0 mg/cm^2 or equal to or in excess of 0.5% by weight. Lead-based paint is hazardous when it is:

- On a **friction surface**. The paint on surfaces like window sashes and jambs can break down during normal use and release lead dust. If dust levels on the nearest flat surface exceed acceptable levels, then the friction surface is a hazard.
- On a **chewable surface** that has evidence of teeth marks. These are surfaces, such as window sills, railings, door edges and stair edges that a young child can mouth or chew.
- On an **impact surface** where there is damaged or otherwise deteriorated paint impacted from a related building component (such as a door and door frame banging together).
- **Deteriorated, e.g., peeling, chipping, chalking, or cracking**. When lead paint breaks down or is disturbed due to remodeling, renovating, dry scraping or water damage, paint chips and dust can be released that can contaminate the home and be easily ingested by young children through hand-to-mouth activity.

5.2 LEAD DUST HAZARD LEVELS

Interior component coatings tested were below the detection limit of the XRF lead analyzer; therefore, an exterior dust wipe sample was not necessary. As a general rule lead dust is hazardous under any of the following conditions:

- 40 micrograms per square foot (µg/ft^2) on floors of interior or exterior living areas or on any horizontal surface other than a window sill or trough;
- 250 µg/ft^2 on interior window sills or exterior living area window sills; or,
- 400 µg/ft^2 for window troughs.

5.3 LEAD SOIL HAZARD LEVELS

- 400 mg/kg for bare soil in play areas; or,
- 1200 mg/kg (composite or average) in bare soil in non-play areas.

5.4 WATER HAZARD LEVELS

- 15 parts per billion (ppb) or microgram per liter (µg/L) for lead in drinking water.

6.0 LEAD HAZARD CONTROL METHODS

The methods of controlling lead hazards are listed below:

- **Deteriorated Lead-Based Paint on Non-friction or Non-impact Surfaces:** Examples include interior or exterior walls, ceilings, trim, casings, baseboards, etc.
  a. Removal of the lead-based painted component and replacement with a lead-free component;
  b. Paint removal by separation of the lead-based paint from the substrate using heat guns (operated below eleven hundred degrees Fahrenheit), chemicals, or certain abrasive measures either onsite or offsite;
  c. Enclosure of the lead-based painted component with durable materials. Durable materials include wallboard, drywall, paneling, siding, coil stock and the sealing or caulking of edges and joints so as to prevent or control chalking, flaking, peeling, scaling or loose lead-containing substances from becoming part of house dust or otherwise accessible to children;
  d. Encapsulation of the lead-based painted component by coating and sealing of the component with a durable surface coating approved in rule 3701-32-13 of the Administrative Code;
  e. Paint stabilization as defined in rule 3701-32-01 of the Administrative Code and a written ongoing maintenance and monitoring schedule; or
  f. Any other lead-safe method of permanently removing the lead hazard.
- **Deteriorated Lead-Based Paint on Friction or Impact Surfaces:** Examples include window systems, doors, floors, etc.
  a. Removal of the lead-based painted component and replacement with lead-free components;
  b. Lead-based paint removal by separation of the lead-based paint from the substrate using heat guns (operated below eleven hundred degrees Fahrenheit), chemicals or certain abrasive measures either onsite or offsite;
  c. Enclosure of the impact surfaces with durable materials. Durable materials include wallboard, drywall, paneling, a quarter inch or thicker plywood or other underlayment for floors, coil stock and the sealing or caulking of edges and joints so as to prevent or control chalking, flaking, peeling scaling, or loose lead-containing substances from becoming part of house dust or otherwise accessible to children. The underlayment for floors must be covered with a cleanable, impermeable surface;
  d. Elimination of the friction points or application of a treatment that will prevent abrasion of the friction surface and a written ongoing maintenance and monitoring schedule; or
  e. Any other lead-safe method of permanently removing the lead hazard.

- **Chewable Surfaces:** Examples include window sills, railings and other child-accessible surfaces that show evidence of teeth marks.
  a. **Removal** of the lead-based painted component and replacement with lead-free components;
  b. **Lead-based paint removal** by separation of the lead-based paint from the substrate using heat guns (operated below eleven hundred degrees Fahrenheit), chemicals or certain abrasive measures either onsite or offsite;
  c. **Enclosure** of the lead-based painted component with a material that cannot be penetrated by a child's teeth;
  d. **Encapsulation** of the lead-based painted component by coating and sealing of the component with a durable surface coating approved in rule 3701-32-13 of the Administrative Code; or
  e. Any other lead safe method of permanently removing the lead hazard.
- **Lead-contaminated Dust:**
  a. Elimination or control of the source creating the lead-contaminated dust using an appropriate control method listed above and followed specialized cleaning to eliminate the lead-contaminated dust. Specialized cleaning includes the use of high-efficiency particulate absorption (HEPA) vacuum, wet mopping and/or wet scrubbing; or
  b. Elimination of the lead-contaminated dust when the source creating the lead-contaminated dust cannot be identified through specialized cleaning and a written ongoing maintenance and monitoring schedule. Specialized cleaning includes the use of HEPA vacuum, wet mopping and/or wet scrubbing.
- **Lead-contaminated Soil:**
  a. **Covering** of the lead-contaminated bare soil with a permanent covering such as concrete or asphalt;
  b. **Removal** of the top six inches of lead-contaminated bare soil and replacing it with six inches of new soil having a lead concentration of less than two hundred parts per million;
  c. Covering of the lead-contaminated soil with an impermanent covering and a written ongoing maintenance and monitoring schedule. Impermanent covering includes sod and artificial turf. Gravel and mulch may be used as an impermanent covering if applied at a minimum of six inches in depth; or
  d. Any other lead safe method of permanently removing the lead hazard.

<u>The following practices are **PROHIBITED**</u>:

1. Open flame burning or torching;

2. Machine sanding or grinding without a HEPA local vacuum exhaust tool;
3. Abrasive blasting or sandblasting without a HEPA local vacuum exhaust tool;
4. Use of a heat gun operating above 1,100 degrees Fahrenheit;
5. Charring paint;
6. Dry sanding;
7. Dry scraping, except when done as follows:
   a. In conjunction with a heat gun operating at not more than 1,100 degrees Fahrenheit;
   b. Within one foot of an electrical outlet;
   c. To treat defective paint spots totaling not more than two square feet in an interior room or space or 20 square feet on an exterior surface.
8. Uncontained hydroblasting or high-pressure washing; and
9. Paint stripping in a poorly ventilated space using a volatile stripper that is considered a hazardous substance under 16 CFR 1500.3 or a hazardous chemical under 29 CFR 1910.1200 or 29 CFR 1926.59 in the type of work being performed.

Important Notes:

- Residents, especially children and pregnant women, must be kept away from the lead hazard control area. Proper and thorough cleanup is important so that dust and paint chips are not left behind at the end of the job.
- After lead hazard control work is done, the home must pass a clearance examination, which may include dust wipe samples, to ensure that no lead dust, debris or paint chips are left behind.
- Paint stabilization, interim window treatments and impermanent covering of lead-contaminated soil require a written ongoing maintenance and monitoring schedule and an annual clearance examination. It is recommended that a visual check of past repairs involving painted surfaces should be done annually and at unit turnover.
- Other surfaces that measured below hazard limits should also be addressed to prevent them from becoming hazardous. It is recommended that lead-safe work practices be used when such surfaces are repaired or replaced.

7.0 CONCLUSION AND RECOMMENDATIONS

7.1 CONCLUSION

Two locations at the Site had lead concentrations at or above the USEPA/HUD definition of LBP (at or above 1.0 mg/cm^2): paint on a post and the ceiling of the front porch contained 1.3 and 4.6 mg/cm^2 lead, respectively. Two locations (exterior porch header and crown molding in the laundry room) were documented to have lead concentrations below the USEPA/HUD levels. The painted surfaces appeared to be in good condition with no peeling or flaking. The risk assessment concluded that a LBP hazard is not present.

7.2 RECOMMENDATIONS

The LBP inspection and risk assessment indicated that lead is present at or above the USEPA HUD definition of LBP on tested exterior coatings at the Site. If renovation or demolition activities are planned for the Site, the disturbance of lead-containing painted surfaces should be performed in accordance with the USEPA-Lead; Renovation, Repair and Painting Program (40 CFR 745.80, Subpart E). Other actions may also be required under the USEPA/HUD Residential Lead-Based Paint Hazard Reduction Act of 1992 (Public Law 102-550), the HUD Lead Safe Housing Rule (24 CFR Part 35, Subparts B-R), and/or the Disclosure of Known Lead-Based Paint and/or Lead-Based Paint Hazards Upon Sale or Lease of Residential Property (24 CFR Part 35, Subpart A).

ATTACHMENT A

LBP INSPECTOR'S CERTIFICATION

ATTACHMENT B

LBP SURVEY MAPS

ATTACHMENT C

LBP SURVEY RESULTS TABLE

ATTACHMENT D

FRANCE ENVIRONMENTAL CONSULTING SERVICES LETTER REPORT