

RISK ASSESSMENT AND LEAD INSPECTION REPORT



FOR THE PROPERTY LOCATED AT:

**ABC STREET
ANY CITY MI**

Prepared For:

OWNER

OWNER ADDRESS

OWNER CITY AND STATE

OWNER PHONE

Report Prepared and Submitted by:

Risk Assessor Name

Certified Lead Inspector / Risk Assessor P – number

Company Name

Address

City, State, Zip

Phone:

Email:

Date of Inspection:

DATE

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(1.0) LETTER TO OWNER

Date

Name

Address

City, State, Zip

Dear

The purpose of the lead inspection/risk assessment was to determine the existence of lead-based paint and lead based paint hazards at the subject property and to determine the location, type, and severity of existing or potential health hazards associated with exposures to lead. This report can help Owners develop a plan for eliminating any lead-based paint hazards that were found and aid in establishing an ongoing lead-based paint maintenance and re-evaluation program, if needed.

As part of the assessment, a visual survey of the property and structure was conducted, dust wipe sampling was performed on interior surfaces, and soil samples were collected. In addition, on-site paint testing using a x-ray fluorescence (XRF) analyzer was performed.

The following report details the results of the investigation. The Executive Summary details all of the lead paint hazards, soil hazards and dust wipe hazards found during this investigation. Please consult the appendix for additional information on how to interpret XRF results, definition of terms, measurement standards, site and floor plan, etc.

A copy of this report must be provided to each new lessee (tenant) or purchaser of this property under Federal law (24 CFR part 35 and 40 CFR part 745) before they become obligated under a lease or sales contract. The complete report must also be provided to purchasers and made available to tenants. Landlords (lessors) and sellers are also required to distribute an educational pamphlet approved by the U.S. Environmental Protection Agency (EPA), entitled "Protect Your Family from Lead in Your Home", and include standard warning language in their leases or sales contracts to ensure that parents have the information they need to protect their children from lead-based paint hazards. For more information regarding your obligations under federal lead-based paint regulations, contact 800-424-LEAD (5323).

Sincerely,

Risk Assessor P-_____
Company name and phone number

EXECUTIVE SUMMARY

(2.0) Executive Summary – The purpose of the Executive Summary is to summarize where the lead hazards were found at this property. For each identified paint, soil or dust hazard a recommended corrective action is also provided. The two types of corrective actions are 1 – abatement which is a permanent long term solution or 2 – interim control which is a shorter term solution. For example, painting the exterior of the house is an interim control as paint will need to be re-applied after a few years, however, applying vinyl siding is an abatement measure as it is considered permanent. All identified lead based paint and lead based paint hazards should always be properly addressed by professionally certified lead workers and firms.

(2.1) Existing Lead-based paint hazards and Available Control Options

The following items describe the existing lead-based paint hazards identified at **XYZ street**. They are listed in priority order i.e. what hazards should be addressed first. Each hazard also has corresponding options for corrective actions known as **abatement** (long term) and **interim control** (shorter term) solutions. The owner or owner’s representative must select the most appropriate and affordable solution to address each of the identified hazards. Please note that these hazards may become more severe over time and additional hazards may be created with changing conditions at this property.

LOCATION	COMPONENT	LEVEL OF SEVERITY	ABATEMENT OPTIONS	INTERIM CONTROL OPTIONS
Room # _____				
<i>Description</i>	<i>Insert description</i>		<i>Describe</i>	<i>Describe</i>

NOTE – All contractors performing **abatement activities** are required to be certified by the State of Michigan, ask to see their certification
 NOTE – Most **interim control activities** require an EPA certified renovator; ask to see their certification

Level of Severity: 1 - most sever 2 – very severe 3 – somewhat severe

(2.2) Positive XRF Readings - This table identifies all of the painted surfaces that tested positive for lead-based paint. The paint

condition at the time of testing was determined to be either “intact” or “deteriorated”. All deteriorated paint conditions represent a lead-based paint exposure hazard and are listed in Table 2.1. All deteriorated lead based paint conditions should be corrected immediately. Lead-based paint determined to be intact at the time of testing may become lead-based paint exposure hazardous in the future and therefore require routine monitoring as recommended in Section 5. Use lead safe work practices every time a lead-based paint surface is disturbed.

(see Appendix B, page 23 for an explanation on how to interpret this table)

POSITIVE

XRF Readings
(Model _____ Serial # _____)

Name
Address
City, State, Zip

Date of testing __/__/__

#	Color	Condition	Side	Component	Substrate	Room	Floor	Results	Depth index

(2.3) Table of Dust-lead Hazards and control options.

The following table identifies all dust samples taken and identifies those samples that represent dust lead hazards. Control options are provided for each identified dust hazard. All dust hazards are considered “severe” and should be corrected immediately.

Dust samples are collected from window sills, troughs and floors in rooms where young children might come into contact with dust.

Samples were collected from areas most likely to be lead contaminated if lead-in-dust is present. These samples were collected in accordance with the requirements of ASTM Standard E-1728. Please refer to Appendix C– Dust Wipe Analytical Results for the laboratory reports. Testing data identified as a *hazard* indicates dust lead levels at or above the EPA and HUD allowable levels.

Sample #	Room Location	Surface	Lead Concentration in (ug/ft2)	Hazard Y / N	Abatement Control Option
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

HUD reporting limits – floors, 40 ug/ft2, window sills, 250 ug/ft2, window troughs 400 ug/ft2

BRL – below reporting limits (Add if applicable - Note: window troughs were not readily accessible)

(2.4) Table of Soil lead hazards and control options.

The following table identifies all soil samples collected and identifies those samples that represent soil hazards. Control options are provided for each identified soil hazard. All soil hazards are considered “severe” and should be corrected immediately.

Soil samples were collected at this residence in accordance with the requirements of ASTM Standard E-1727. The samples were collected from bare soil areas only. Please refer to Appendix D– Soil Sample Analytical Data for the detailed analytical reports. Testing data identified as a hazard indicates soil lead levels at or above the EPA and HUD allowable levels.

Sample #	Sample Location	Lead level (ppm)	Hazard Y / N	Abatement Control Options

Note – lead in soil is considered a hazard at 1200 ppm or greater. Play areas for children at 400 ppm. Vegetable garden soil should not have any lead. BRL – below reporting limits

(2.5) Laboratory Information

Laboratory Name:	
Street Address	
City, State Zip	
Phone number:	

(2.6) Table of Potential Lead Hazards and Possible Control Options

The following table lists *potential* lead-based paint hazards identified at the time of inspection. These potential hazards could become lead-paint hazards over time and additional hazards could develop with changing conditions such as from a renovation activity. A control option is provided for each potential lead hazard. Lead safe work practices must be used if any of these surfaces are disturbed.

Location	Component	Abatement Option	Interim Control Option

NOTE – All contractors performing abatement activities are required to be certified by the State of Michigan, ask to see their certification
 NOTE – Most interim control activities require an EPA certified renovator, ask to see their certification

(2.7) Project limitations, difficulties and excluded components

A lead inspection requires testing of every unique painted surface. However, some surfaces could not be tested because of limitations such as inaccessible areas, windows not operable, clutter, unsafe building conditions, etc. All untested components should be assumed to contain lead-based paint. Lead safe work practices should always be used if those surfaces are disturbed.

The following table lists those components and areas which the inspector was not able to test and the reason for which it was not tested.

AREA / LOCATION	COMPONENT	REASON NOT TESTED

(3.0) Site Information and Field Testing

Site information is collected to help the Risk Assessor determine where site specific testing should occur. This information helps the Risk Assessor determine the most likely lead exposure

pathways.

(3.1) General Property Description

Short Narrative – age of property, single family or rental, general condition, type of neighborhood, etc.

Date of construction:	
Apparent building use:	<input type="checkbox"/> SF residential <input type="checkbox"/> rental <input type="checkbox"/> other
Setting:	<input type="checkbox"/> residential neighborhood <input type="checkbox"/> mixed use <input type="checkbox"/> other
Front Entry Faces:	<input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W
Design:	<input type="checkbox"/> 1 story <input type="checkbox"/> 2 story <input type="checkbox"/> duplex <input type="checkbox"/> multi-family <input type="checkbox"/> other
Construction type:	<input type="checkbox"/> brick <input type="checkbox"/> wood <input type="checkbox"/> stucco <input type="checkbox"/> other
Lot Type:	<input type="checkbox"/> small <input type="checkbox"/> narrow <input type="checkbox"/> large <input type="checkbox"/> other
Roof:	<input type="checkbox"/> flat <input type="checkbox"/> asphalt <input type="checkbox"/> tile/slate <input type="checkbox"/> other
Foundation:	<input type="checkbox"/> crawl space <input type="checkbox"/> stone <input type="checkbox"/> cement <input type="checkbox"/> slab
Front lawn condition:	<input type="checkbox"/> good <input type="checkbox"/> poor <input type="checkbox"/> some bare areas <input type="checkbox"/> other
Back lawn condition:	<input type="checkbox"/> good <input type="checkbox"/> poor <input type="checkbox"/> some bare areas <input type="checkbox"/> other
Drip line condition:	<input type="checkbox"/> no bare soil <input type="checkbox"/> some bare soil <input type="checkbox"/> paint chips <input type="checkbox"/> other
Exterior structural condition:	<input type="checkbox"/> OK <input type="checkbox"/> house unsound <input type="checkbox"/> other
Porch(s)	<input type="checkbox"/> front porch <input type="checkbox"/> rear porch <input type="checkbox"/> side porch(es)
Interior structural condition:	<input type="checkbox"/> damaged walls/floors <input type="checkbox"/> windows in poor condition <input type="checkbox"/> doors in poor condition <input type="checkbox"/> other
Overall building/site condition:	<input type="checkbox"/> poor <input type="checkbox"/> marginal <input type="checkbox"/> OK <input type="checkbox"/> well maintained
Garage	<input type="checkbox"/> none <input type="checkbox"/> detached <input type="checkbox"/> attached <input type="checkbox"/> poor condition <input type="checkbox"/> good condition <input type="checkbox"/> other

(3.2) Building Condition Survey

The purpose of the building condition survey is to document and evaluate whether or not the building is in good enough condition to justify the lead hazard control recommendations. Any column marked “yes” represents a major condition that needs to be corrected before lead hazard

control recommendations can be followed. This information provides the Risk Assessor with insight into possible causes of existing or future paint or substrate deterioration. For example, a roof in disrepair should be noted since moisture could cause paint deterioration.

<u>Condition</u>	Yes	No	Comments
Roof missing parts of surface covering?			
Roof has holes or large cracks?			
Gutters or downspouts broken?			
Chimney or masonry cracked, with loose or missing components, out of plumb or otherwise deteriorated?			
Exterior or interior walls have large cracks, or damage requiring more than routine painting or pointing if masonry?			
Exterior siding missing boards, shingles, components?			
Water stains on interior walls or ceilings?			
Walls or ceilings deteriorated?			
More than "very small" amount paint in a room deteriorated?			
Two or more windows or doors missing, broken or boarded up?			
Porch or steps have major elements missing, broken, or boarded up?			
Foundation has major cracks, missing material, structural leans, or visibly unsound.			
Other conditions not listed:			
Total number:			

(3.3) Paint Condition form (visual inspection of selected surfaces)

The purpose of the visual assessment is to locate potential exterior and interior lead-based paint hazards. A visual assessment is conducted in all rooms. The risk assessor also examines other

exterior painted surfaces such as fences, garages, storage sheds and outbuildings that are part of the residential property and built before 1978. The risk assessor also examines the grounds to identify areas of bare soil. The result is a complete inventory of the location and approximate size of each potential lead based paint hazard.

Building Component	Paint Condition (intact or deteriorated)	Area (sq/ft)	Large or small area?	Probable cause of deterioration	Condition is common to all/most similar components	Friction or impact surface	Visible teeth marks? Y / N
Siding							
soffits							
Exterior trim							
Exterior windows							
Exterior doors							
Porch railing/columns							
Porch floor							
Porch ceiling							
Exterior steps							
Interior doors							
Walls							
Ceilings							
Interior windows							
Interior trim							
Interior stairs to upper floors							
Interior basement stairs							
Radiators, ducts							
Kitchen cabinets							
Bathroom cabinets							
Other surfaces							
Bare soil areas							

(4.0) Occupancy Information

Occupant information is necessary to obtain information on family use patterns (e.g. where young children sleep, eat, play; most frequent use of entrances and windows; recent renovations; etc.) to help the risk assessor determine where to collect dust and soil samples. Additionally, the information is useful in educating the owner and residents about risks of possible future exposure to lead in their environment.

(4.1) Resident Questionnaire

A resident questionnaire was completed to help the Client identify particular use patterns of the unit that could contribute to lead hazards. The answers to the questionnaire were obtained during an interview with the occupant(s). Following is a summary of the information obtained during that interview:

(4.1.1) Number of Children, Children’s habits and behavioral factors

1. Do any children under the age of 6 live in the home or visit frequently? ___yes ___no
2. In the chart below give the locations of the rooms/areas where each child sleeps, eats, plays,

	Child 1	Child 2	Child 3	Child 4
Child’s name				
Child’s age				
Location of bedroom				
Child’s eating locations				
Primary interior play area(s):				
Primary exterior play area(s):				
Toy storage areas				
If an apartment, what common areas do the children frequent				

3. Women of child bearing age ___yes ___no
4. Do any children under age 6 take calcium or phosphate supplements? ___yes ___no
5. Do any of the children chew on painted surfaces like window sills, furniture, toys, woodwork, etc. ___yes ___no
 - a. If yes provide location(s) _____
6. Are there any areas of peeling paint? ___yes ___no
 - a. If yes provide location(s) _____

(4.1.2) Children’s dietary risk factors

Does the family use imported canned foods, spices, etc.?	<input type="checkbox"/> yes <input type="checkbox"/> no
Is the food prepared, stored or served in any of the following types of containers?	<input type="checkbox"/> glazed ceramic <input type="checkbox"/> crystal <input type="checkbox"/> pewter <input type="checkbox"/> stoneware <input type="checkbox"/> other
Do you use home remedies, folk medicines, or herbal treatments such as Alarcon, Alkohl, Azarcon, Bali Goli, Coral, Ghasard, Greta, Liga, Pay-loo-ah, Rueda,	<input type="checkbox"/> yes <input type="checkbox"/> no List which ones:

Sindoor, etc.	
Do any of the children under 6 take dolomite, oyster shell or bonemeal as a calcium or phosphorus supplement?	<input type="checkbox"/> yes <input type="checkbox"/> no
Other dietary risk factors	

(4.1.3) Family use patterns

Which entrances are used most frequently?	
Which windows are opened most frequently?	
Do you use a window air conditioner?	<input type="checkbox"/> yes <input type="checkbox"/> no If yes where is it located:
Do you have a vegetable garden?	<input type="checkbox"/> yes <input type="checkbox"/> no If yes where is it located:
Are you planning any landscaping activities?	<input type="checkbox"/> yes <input type="checkbox"/> no If yes explain:
Is there a pet such as cat or dog?	<input type="checkbox"/> yes <input type="checkbox"/> no
How often is the house cleaned?	<input type="checkbox"/> daily <input type="checkbox"/> weekly <input type="checkbox"/> randomly
Which areas of the home get cleaned regularly?	<input type="checkbox"/> kitchen <input type="checkbox"/> bedrooms <input type="checkbox"/> other
What cleaning methods are used?	<input type="checkbox"/> vacuuming <input type="checkbox"/> mopping <input type="checkbox"/> dusting <input type="checkbox"/> other
Did you complete any building renovations within the last year?	<input type="checkbox"/> yes <input type="checkbox"/> no If yes explain what was done:
Was building debris stored in the yard?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> n/a If yes describe where:
Are you planning any building renovations?	<input type="checkbox"/> yes <input type="checkbox"/> no If yes explain:
Do any household members work in a lead related industry or have hobbies that use lead such as fishing weights, welding, stained glass, etc.?	<input type="checkbox"/> yes <input type="checkbox"/> no If yes where are the dirty clothes placed and cleaned?
Please explain where and/or how you feel the child is exposed to lead based paint hazards.	

ADDITIONAL COMMENTS

Please list in the space below other comments not covered by this survey regarding how and where your child might be getting lead-poisoning. Example: child stays at grandmother's home which is old and may have defective paint; child eats dirt, etc.

Who was interviewed for this questionnaire? _____

Relationship to the child? _____

(5.0) Ongoing monitoring and Re-evaluation schedule

All painted components containing or assumed to contain lead-based paint require periodic re-evaluation and monitoring. A visual re-evaluation is typically performed annually by the owner. More frequent re-evaluations may be required depending on site conditions. If the property was HUD assisted then the re-evaluation schedule should comply with the Lead Safe Housing Rule (24CFR35.1355(b)(4)). All painted surfaces must remain in intact condition. Painted surfaces that are peeling, cracking, blistering or causing dust from friction or impact must be corrected immediately to prevent hazardous exposure from possible lead based paint sources. All repairs must follow the lead safe work practices of the HUD Guidelines, EPA Renovation, Repair and Painting rule and State of Michigan regulations for abatement of lead based paint hazards.

(5.1) Maintenance and monitoring schedule for encapsulants and enclosures.

All surfaces encapsulated or enclosed should be re-evaluated no later than two years after

completion of encapsulation or enclosure.

(5.2) Recommendations for Building Operations and Maintenance

Disturbing lead-based paint surfaces may cause new and additional lead hazards. Therefore, building operations and maintenance personnel should always follow the lead safe work practices of the HUD Guidelines, EPA Renovation, Repair and Painting rule and State of Michigan regulations for abatement of lead based paint hazards every time a lead-based paint surface is disturbed.

(6.0) Background information and Educational Information

(6.1) Health Effects of Lead Exposure

Lead is a soft metal, naturally occurring in the Earth's crust. It has been determined, however, that lead has no useful purpose in the human body, and acts as a toxin. It takes the place of essential minerals such as calcium, potassium, and iron, which are vital to the construction and repair of bones, organs and blood. Lead exposures are a major health concern, especially in young children under the age of six.

Children, due to their smaller body mass and higher metabolism, are affected by lead exposures much more severely than adults. They ingest lead through daily hand-to-mouth activities and may develop severe attention deficit disorders, irreversible brain injury, learning disabilities and aggressive behaviors. The symptoms of lead poisoning often mimic other afflictions such as flu, colic or general malaise. It is important to have young children's blood tested for lead burden.

(6.2) Sources of Lead Poisoning

Since lead is ingested by routine daily activities such as eating, playing and working, it is important to understand the sources of lead exposures. The most common places to find lead in household settings are interior and exterior paint, and contaminated dust or soil. Lead-based paint is most hazardous when it is chipping, peeling, cracking, or chalking; or applied to friction surfaces of components such as doors, windows, and floors. The abrasive action of painted surfaces rubbing together causes lead-containing paints to be ground into a fine dust. Lead dust can also be created from decaying vinyl mini blinds. Lead dust then settles on furniture, play area floors, and children's toys, where children are exposed during regular activities.

Several other sources of lead in the home include lead dust brought into the home from occupational exposures, water pipes, fixtures and soldered joints; decorative china, "leaded" crystal, fishing lures and sinkers, firearms ammunition, wine bottles and cosmetics. Some hobbies may also contribute to lead contamination within the home. Exposures to all sources of

lead should be minimized or eliminated.

(6.3) Methods to Reduce Exposure the Lead Hazards

The simplest and often most effective way to reduce lead exposures is through regular washing of hands, toys, and horizontal surfaces in the home with a liquid hand soap or dish soap and water. It is highly recommended that disposable cleaning materials be used to wash surfaces, so as not to re-contaminate them with a used mop or cloth.

Other ways of reducing lead hazards within the home include taking shoes off before entering living areas, letting water run prior to drinking or cooking, covering exposed soil with plant materials, and vacuuming with a High Efficiency Particulate Air (HEPA) filtered vacuum.

For more information regarding lead poisoning and prevention, contact your local health department or the National Lead Information Center (800-424-LEAD (5323)). Contact the Michigan Department of Community Health, Lead Hazard Remediation Program at (866) 691-5323 for information regarding lead hazard remediation or selection of qualified lead professionals.

(7.0) ADDITIONAL RESOURCES

For further information regarding lead-based paint hazards and poisoning prevention, consult the following resources:

(7.1) PHONE CONTACTS

Hearing- or speech-challenged individuals may access the federal agency numbers through TTY by calling the toll-free Federal Relay Service at 800-877-8339; see also <http://www.federalrelay.us/tty>

National Lead Information Center:	800-424-LEAD (5323)
U.S. Department of Housing and Urban Development:	888-532-3547 (LEADLIST)
State of Michigan – Healthy Homes Section....:	866-691-LEAD (5323)
National Lead information Center & Clearinghouse:	1-800-424 LEAD

HUD Office of Healthy Homes and Lead Hazard Control: 202-402-7698
Centers for Disease Control and Prevention Lead Program: 800-232-4636
Consumer Product Safety Commission: 800-638-2772;
TTY 301-595-7054
Environmental Protection Agency Lead Program: 202-566-0500

(7.2) PUBLICATIONS
(available online)

“Lead in Your Home: A Parent’s Reference Guide” U.S. Environmental Protection Agency
“Protect Your Family From Lead in Your Home” U.S. Environmental Protection Agency
“Lead Paint Safety: A Field Guide for Painting, Home Maintenance, and Renovation Work”
U.S. Department of Housing and Urban Development

(7.3) WEB SITES:

- Michigan Dept of Community Health – Healthy Homes Section
www.michigan.gov/leadsafe
- HUD – Office of Healthy Homes and Lead Hazard Control
www.hud.gov/offices/lead
- EPA - www.epa.gov/lead
- National Safety Council - www.nsc.org/issues/lead

(8.0) CERTIFICATION

The information contained in this report is a true and accurate representation of the lead-based paint conditions at the subject property at the time of the investigation, based on the professional judgment of the person(s) who conducted and reported this lead-based paint inspection and risk assessment:

Name _____ **Date** / / _____

State of Michigan Certified Lead Inspector and Risk Assessor, P-number



(8.1) Training Certificates and copies of State Of Michigan certifications

<p style="text-align: center;"><i>Insert</i></p> <p style="text-align: center;">XRF Training Certificate</p>	<p style="text-align: center;"><i>Insert</i></p> <p style="text-align: center;">State Certification</p>
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(9.0)

APPENDIX

Appendix A “LEAD SPEAK:” a brief EPA glossary

Abatement: A measure or set of measures designed to permanently eliminate lead-based paint hazards or lead-based paint. Abatement strategies include the removal of lead-based paint, enclosure, encapsulation, replacement of building components coated with lead-based paint, removal of lead contaminated dust, and removal of lead contaminated soil or overlaying of soil with a durable covering such as asphalt (grass and sod are considered interim control measures). All of these strategies require preparation; cleanup; waste disposal; post-abatement clearance testing; recordkeeping; and, if applicable, monitoring. (For full EPA definition, see 40 CFR 745.223).

Bare soil: Soil not covered with grass, sod, some other similar vegetation, or paving, including the sand in sandboxes.

Chewable surface: An interior or exterior surface painted with lead-based paint that a young child can mouth or chew. A chewable surface is the same as an “accessible surface” as defined in 42 U.S.C. 4851b(2). Hard metal substrates and other materials that cannot be dented by the bite of a young child are not considered chewable.

Deteriorated paint: Any paint coating on a damaged or deteriorated surface or fixture, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligating, cracking, or otherwise becoming separated from the substrate.

Drip line/foundation area: The area within 3 feet out from the building wall and surrounding the perimeter of a building.

Dust-lead hazard: Surface dust in residences that contains an area or mass concentration of lead equal to or in excess of the standard established by the EPA under Title IV of the Toxic Substances Control Act. EPA standards for dust-lead hazards, which are based on wipe samples, are published at 40 CFR 745.65(b); as of the publication of this edition of these *Guidelines*, these are 40 µg/ft² on floors and 250 µg/ft² on interior windowsills. Also called lead-contaminated dust.

Friction surface: Any interior or exterior surface, such as a window or stair tread, subject to abrasion or friction.

Garden area: An area where plants are cultivated for human consumption or for decorative purposes.

Impact surface: An interior or exterior surface (such as surfaces on doors) subject to damage by repeated impact or contact.

Interim controls: A set of measures designed to temporarily reduce human exposure or possible exposure to lead-based paint hazards. Such measures include, but are not limited to, specialized cleaning, repairs, maintenance, painting, temporary containment, and the establishment and operation of management and resident education programs. Monitoring, conducted by owners, and reevaluations, conducted by professionals, are integral elements of interim control. Interim controls include dust removal; paint film stabilization; treatment of friction and impact surfaces; installation of soil coverings, such as grass or sod; and land use controls. Interim controls that disturb painted surfaces are renovation activities under EPA’s Renovation, Repair and Painting Rule.

Lead-based paint: Any paint, varnish, shellac, or other coating that contains lead equal to or greater than 1.0 mg/cm² as measured by XRF or laboratory analysis, or 0.5 percent by weight (5000 mg/g, 5000 ppm, or 5000 mg/kg) as measured by laboratory analysis. (Local definitions may vary.)

Lead-based paint hazard: A condition in which exposure to lead from lead contaminated dust, lead contaminated soil, or deteriorated lead-based paint would have an adverse effect on human health (as established by the EPA at 40 CFR 745.65, under Title IV of the Toxic Substances Control Act). Lead-based paint hazards include, for example, **paint-lead hazards, dust-lead hazards, and soil-lead hazards.**

Paint-lead hazard: Lead-based paint on a friction surface that is subject to abrasion and where a dust-lead hazard is present on the nearest horizontal surface underneath the friction surface (e.g., the window sill, or floor); damaged or otherwise deteriorated lead-based paint on an impact surface that is caused by impact from a related building component; a chewable lead-based painted surface on which there is evidence of teeth marks; or any other deteriorated lead-based paint in any residential building or child-occupied facility or on the exterior of any residential building or child-occupied facility.

Play area: An area of frequent soil contact by children of under age 6 as indicated by, but not limited to, such factors including the following: the presence of outdoor play equipment (e.g., sandboxes, swing sets, and sliding boards), toys, or other children’s possessions, observations of play patterns, or information provided by parents, residents, care givers, or property owners.

Soil-lead hazard: Bare soil on residential property that contains lead in excess of the standard established by the EPA under Title IV of the Toxic Substances Control Act. EPA standards for soil-lead hazards, published at 40 CFR 745.65(c), as of the publication of this edition of these *Guidelines*, is 400 µg/g in play areas and 1,200 µg/g in the rest of the yard. Also called lead-contaminated soil.

Appendix B XRF Analysis

The instrument used for this Risk Assessment was an X-ray fluorescence unit (XRF) manufactured by (Name of Manufacturer) serial number [REDACTED].

HOW TO INTERPRET XRF READINGS:

There are ten columns in the XRF table. The interpretation of each column is as follows:

Column 1 – Number (#): This is simply the shot number that was taken during the inspection. On occasion, the number may not start at “1” if XRF shots from previous inspections are still in the XRF devise.

Column 2 – Color: This is the color of the surface of the component being tested with the XRF. Also listed in this column is the XRF calibration. The XRF must be calibrated before inspection and at the end of the inspection. Additionally, the XRF needs to be calibrated every 4 hours if the

inspection exceeds 4 hours.

Column 3 – Side: This column determines where the item being tested is located in the room. Side A is always the *address side* of the building. Then, proceeding in a clockwise direction the adjacent sides are labeled B, C and D. Sides A,B,C and D are identified on the Floor Plan in Section 9.2. For example, if you were standing in a bedroom that had two windows on different walls these windows would be identified by the side location such as Window Side A and Window Side B.

Column 4 – Surface: This column identifies the surface that was tested. Some examples are doors, door trim, walls, ceiling, exterior siding etc.

Column 5 – Room: This column identifies the room where XRF testing occurred. Rooms are always identified by a number, except for kitchens and bathrooms. Numbers are used because room usage may change i.e. a bedroom may become an office.

Column 6 – Substrate: This column defines what material the paint was applied to. Substrates are most commonly plaster or wood but could be other material such as metal.

Column 7 – Floor: This simply corresponds to the floor of the building. Basements are identified as “floor 0”.

Column 8 – Condition: This column identifies the condition of the paint on the surface being tested. The terms “intact” or “deteriorated” are used to describe the paint condition for HUD funded projects.

Column 9 – Result: This column indicates whether or not the paint tested Positive or Negative for the presence of lead.

Column 10 – Depth Index: The XRF has the capability to detect lead in many layers of paint, not just surface layers. A depth index reading of less than **1.5** indicates that lead is near the surface of the material tested. A depth index reading between **1.6 and 4** indicates that lead was found at a moderate depth. A depth index reading of **4 or higher** indicates that lead was found deeply buried in the material tested.

XRF Readings

(Model _____ Serial #_____

Name

Address

City, State, Zip

Date of testing __/__/__

#	Color	Condition	Side	Component	Substrate	Room	Floor	Results	Depth index

Performance Characteristic Sheet

EFFECTIVE DATE: September 24, 2004

EDITION NO.: 1

MANUFACTURER AND MODEL:

Make: Niton LLC

Tested Model: XLP 300

Source: ¹⁰⁹Cd

Note: This PCS is also applicable to the equivalent model variations indicated below, for the Lead-in-Paint K+L variable reading time mode, in the XLi and XLP series:

XLi 300A, XLi 301A, XLi 302A and XLi 303A.

XLP 300A, XLP 301A, XLP 302A and XLP 303A.

XLi 700A, XLi 701A, XLi 702A and XLi 703A.

XLP 700A, XLP 701A, XLP 702A, and XLP 703A.

Note: The XLi and XLP versions refer to the shape of the handle part of the instrument. The differences in the model numbers reflect other modes available, in addition to Lead-in-Paint modes. The manufacturer states that specifications for these instruments are identical for the source, detector, and detector electronics relative to the Lead-in-Paint mode.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Lead-in-Paint K+L variable reading time mode.

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm² (inclusive)

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 readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION:

For XRF results using Lead-in-Paint K+L variable reading time mode, substrate correction is not needed for:

Brick, Concrete, Drywall, Metal, Plaster, and Wood

INCONCLUSIVE RANGE OR THRESHOLD:

K+L MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm ²)
Results not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

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 in August 2004 on 133 testing combinations. The instruments that were used to perform the testing had new sources; one instrument's was installed in November 2003 with 40 mCi initial strength, and the other's was installed June 2004 with 40 mCi initial strength.

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.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Substrate correction is not needed for brick, concrete, drywall, metal, plaster or wood when using Lead-in-Paint K+L variable reading time mode, the normal operating mode for these instruments. If substrate correction is desired, refer to Chapter 7 of the HUD Guidelines for guidance on correcting XRF results for substrate bias.

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. Use the K+L variable time mode readings.

Conduct XRF retesting at 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:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family housing a result is defined as the average of three readings. In multifamily housing, a result is a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result 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 results.

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

Find the absolute difference of the two averages.

Niton XLP 300, 9/24/2004, ed. 1

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 Lead-in-Paint K+L variable reading time mode, the instrument continues to read until it is moved away from the testing surface, terminated by the user, or the instrument software indicates the reading is complete. The following table provides testing time information for this testing mode. The times have been adjusted for source decay, normalized to the initial source strengths as noted above. Source strength and type of substrate will affect actual testing times. At the time of testing, the instruments had source strengths of 26.6 and 36.6 mCi.

Testing Times Using K+L Reading 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	4	11	19	11	15	11
Metal	4	12	18	9	12	14
Brick Concrete Plaster	8	16	22	15	18	16

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than or equal to the threshold, and negative if they are less than the threshold.

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. 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*.



12950 Haggerty Road
 Belleville, MI 48111
 Ph: (734) 699-1985; Fax: (734) 699-8407

Certificate of Analysis: Lead In Dust Wipe by NIOSH Method 7082

Client :
 AAT Project :
 Attn :
 Sampling Date :
 Phone :
 Email :
 Date Received :
 Fax :
 Date Analyzed :
 Project Location :
 Date Reported :
 Client Project :
 Analyst :
 Comments : Send all reports to Dawn Andrew and Matthew.

Lab Sample ID	Client Code	Sample Description	Length (inch)	Width (inch)	Area (Sq ft)	Results Lead (pg/ft ²)
1	W1	RM1 LIV RM F	12	12	1.00	<10.00
	W2	RM1 LIV RM T	21.25	4	0.59	7275.39
	W3	RM2 DIN RM F	12	12	1.00	<10.00
	W4	RM2 DIN RM S	12.25	3.375	0.29	171.35
	W5	RM4 BDRM F	12	12	1.00	<10.00
	W6	RM4 BDRM S	27.125	3.5	0.66	<15.17
	W7	RM5 BATH F	12	12	1.00	<10.00
	W8	RM5 BATH T	18.75	3.5	0.46	244.58
	W9	RM6 BDRM F	12	12	1.00	<10.00
	W10	RM6 BDRM S	27	3.375	0.63	57.05
	W11	RM7 KIT F	12	12	1.00	<10.00
	W12	RM7 KIT T	35	3.375	0.82	<12.19
	W13	BLANK	N/A	N/A	N/A	N/D

SAMPLE DUST WIPE REPORT



12950 Haggerty Road
 Belleville, MI 48111
 Ph: (734) 699-labs; Fax: (734) 699-8407

Certificate of Analysis: Lead In Soil by EPA SW-846 7420 and 3050B Method

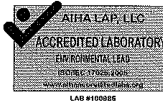
Client :		AAT Project :	
Attn :		Sampling Date :	
Phone :		Date Received :	
	Email :	Date Analyzed :	
	Fax :	Date Reported :	
Project Location :		Analyst :	
Client Project :			

Lab Sample ID	Client Code	Sample Description	Results Lead µg/g (PPM)	Calculated RL µg/g *
1547124	SS1	PERIMETER A	58.96	19.72
1547125	SS2	PERIMETER C	88.45	24.52
1547126	SS3	YARD C	84.84	21.33

Analyst Signature

SAMPLE SOIL LAB REPORT

*RL= Reporting Limit * For true values assume (2) significant figures. The method and batch QC are acceptable unless otherwise stated. Current EPA/HUD Interim Standard for soil samples are: 400 PPM (parts per million) for play area's, 1200 PPM for building Perimeters and 1000 PPM for California Building Perimeters. AAT Internal SOP S204. The laboratory operates in accord with ISO 17025 guidelines and holds limited scopes of accreditation under AIHA and NY State DOH ELAP programs. These results are submitted pursuant to AAT LLC current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. Analytical results relate to the samples as received by the lab. AAT will not assume any liability or responsibility for the manner in which the results are used or interpreted. Reproduction of this document other than in its entirety is not permitted.



AIHA ELAP- Lab ID #100986, NY State DOH ELAP -Lab ID #11064, State of Ohio- Lab ID # 10042

Date Printed: 06/06/2013 5:10PM

AAT Project: 154673

Appendix E Key Units of Measurement

Gram (g or gm): A unit of mass in the metric system. A nickel weighs about 1 gram, as does a 1 cube of water 1 centimeter on each side. A gram is equal to about 35/1000 (thirty-five thousandths of an ounce). Another way to think of this is that about 28.4 grams equal 1 ounce.

ug (microgram): A microgram is 1/1000th of a milligram. To put this into perspective, a penny weighs 2 grams. To get a microgram, you would need to divide the penny into 2 million pieces. A microgram is one of those two million pieces.

ug/dL (microgram per deciliter): used to measure the level of lead in children's and worker's blood to establish whether intervention is needed. A deciliter is a little less than a half a cup.

ug/ft² (micrograms per square feet): the unit used to express levels of lead in dust samples. All reports should report levels of lead in dust in ug/ft².

mg/cm² (milligrams per square centimeter): used to report levels of lead in paint thru XRF testing.

ppm (parts per million): Typically used to express the concentrations of lead in soil. Can also be used to express the amount of lead in a surface coating on a mass concentration basis. This measurement can also be shown as: ug/g, mg/kg or mg/l.

ppb (parts per billion): Typically used to express the amount of lead found in drinking water. This measurement is also sometimes expressed as: ug/L (micrograms per liter).

EPA/HUD Lead-Based Paint and Lead-Based Paint Hazard Standards

Lead-Based Paint (may be determined in either of two ways)

- Surface concentration (mass of lead per area) 1.0 $\mu\text{g}/\text{cm}^2$
- Bulk concentration (mass of lead per volume) 0.5%, 5000 $\mu\text{g}/\text{g}$, or 5000 ppm

Dust-thresholds for Lead-Contamination

- Floors 40 ug/ft^2
- Interior Window Sills 250 ug/ft^2
- Window Troughs (clearance examination only) 400 ug/ft^2

Soil-thresholds for Lead Contamination

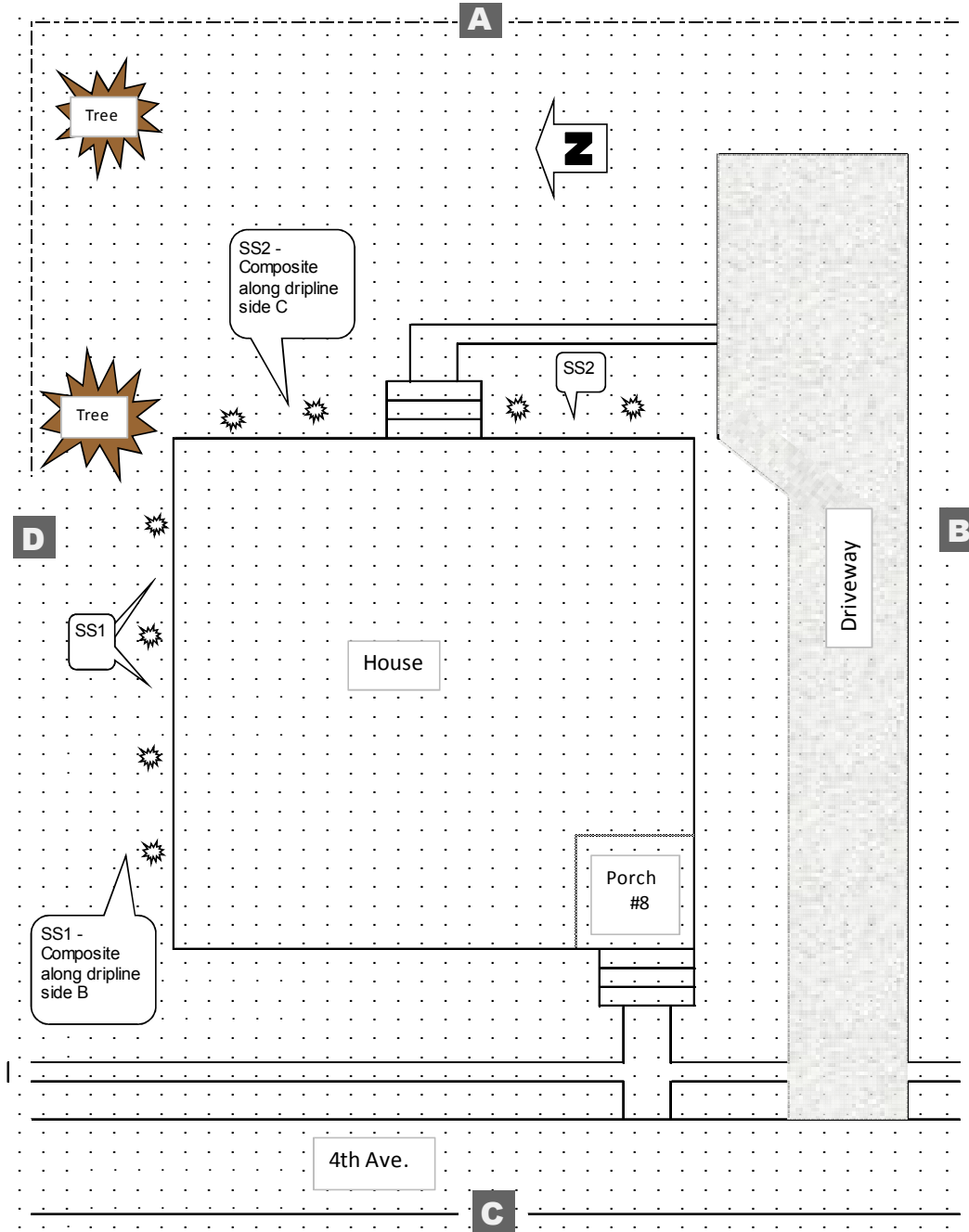
- Play areas used by children under age 6 400 ug/g , or 400 ppm
- Other areas 1200 ug/g , or 1200 ppm
- Vegetable gardens no permissible limit

Appendix F Pictures

Appendix G Site and floor plan

Insert site and floor plans indicating the locations of XRF testing, soil lead and dust lead sampling performed at this property. (Should include compass marque and a legend for

any notations made with the sketch.)



Address:
Drawing not to scale

Date:

Floor/Story 1st

