

**LEAD PAINT INSPECTION AND RISK ASSESSMENT  
SINGLE FAMILY DWELLING**



**2328 OLD KNOXVILLE HIGHWAY  
MARYVILLE, TN  
SEPTEMBER 17, 2013**

**PREPARED FOR:**

**TESTING BY:**

**REPORT BY:**

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## SECTION 1: EXECUTIVE SUMMARY

was retained by to perform a lead-based paint inspection and risk assessment at the property located at 2328 Old Knoxville Highway in Maryville, TN . The single-family home is presently vacant.

used a NITON XLP-300A X-ray fluorescence (XRF) lead paint analyzer to sample paint for lead. XRF Instrument serial #8876 was used. The site inspection was done on September 11, 2013 by (TN Lead Risk Assessor # ).

tested all painted components according to the specifications described in the Single Family Housing Lead-Evaluation Chapters 5 and 7 (2<sup>nd</sup> edition) for lead-based paint testing and risk assessments and the taking of dust wipe and soil samples. All Federal, State and City Regulations governing the inspection of lead based paint for the site of the inspection were followed.

In addition, a surface-by-surface visual inspection of all painted surfaces throughout the entire property was performed in conjunction with the XRF testing to determine which painted surfaces/components were deteriorated. Soil and wipe samples were included in the scope of work.

As a result of the lead based paint inspection and lead hazard risk assessment (to be referred to as "Assessment") conducted on September 11, 2013, it was found that lead based paint and lead based paint hazards were present on the subject property as of the date of the Assessment. The analytical results from this Assessment effort identified the following lead based paint (LBP) and LBP hazards, as defined by EPA and/or HUD standards:

Following is a report of the information collected during this Assessment.

### Intact Lead-Based Paint was found at:

Location or Room	Wall	Component	Feature	Substrate	Color
LAUNDRY	A	WINDOW	SASH	WOOD	WHITE
LAUNDRY	A	DOOR	CASING	WOOD	WHITE
PORCH	A	CEILING		WOOD	TAN

**Paint Hazard Components Identified:**

Location or Room	Wall	Component	Feature	Substrate	Color
LAUNDRY	A	WINDOW	CASING	WOOD	WHITE
LAUNDRY	A	WINDOW	SASH	WOOD	WHITE
PORCH	A	SOFFIT		WOOD	TAN
PORCH	A	COLUMN		WOOD	TAN
EXTERIOR	A	WINDOW	CASING	WOOD	TAN
EXTERIOR	A	WINDOW	SASH	WOOD	TAN
EXTERIOR	A	WINDOW	STOOL	WOOD	TAN
EXTERIOR	A	FACIA		WOOD	TAN
EXTERIOR	A	SOFFIT		WOOD	TAN
EXTERIOR	B	WINDOW	CASING	WOOD	TAN
EXTERIOR	B	WINDOW	SASH	WOOD	TAN
EXTERIOR	B	WINDOW	STOOL	WOOD	TAN
EXTERIOR	B	WALL		WOOD	TAN
EXTERIOR	C	WALL		WOOD	TAN
EXTERIOR	C	WINDOW	CASING	WOOD	TAN
EXTERIOR	C	WINDOW	SASH	WOOD	TAN
EXTERIOR	C	WINDOW	STOOL	WOOD	TAN
EXTERIOR	D	WALL		WOOD	TAN
EXTERIOR	D	WINDOW	CASING	WOOD	TAN
EXTERIOR	D	WINDOW	SASH	WOOD	TAN
EXTERIOR	D	WINDOW	STOOL	WOOD	TAN

**Following is a report of the information collected during this Assessment:**

HAZARD COMPONENT IDENTIFIED	LONG TERM CONTROL OPTION
Porch Side A Soffit and Fascia	Cover with Tyvek and Aluminum Trim
Porch side A Columns (4)	Remove and replace with new upper columns
Exterior Soffit and Fascia A, B, C & D	Cover with Tyvek and Aluminum Trim
Exterior Walls B, C & D	Cover with Tyvek and Vinyl Siding
Exterior Windows A, B, C & D	Replace with Vinyl Windows

**Lead-dust and soil hazards were:**

**The floors in rooms: Living Room, Kitchen, Bedroom, Bedroom 2 and the Bath.  
Window sills in Living Room, Kitchen, Bedroom 1 and Bedroom 2.**

**The composite soil sample was negative for the presence of a lead-soil hazard in the dripline area.**

See Section 2F for more information.

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. Any component with deteriorated paint that is not tested and does not have a painting history similar to a tested component should be considered a Lead Based Paint Hazard under Chapter 5 (Section V.A.2). If the coating on any of the following components is deteriorated when visible, that component must be defined as a Lead Based Paint Hazard.

AREA/LOCATION	COMPONENT	REASON NOT TESTED	PAINT CONDITION
None Reported			

KEY: UNC – Uncoated, INA – Inaccessible, ENCL – Enclosed, FF – Factory Finished

*NOTE: A copy of this report must be provided to new lessees (tenants) and purchasers 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 also must be provided to new purchasers and it must be made available to new tenants. Landlords (lessors) and sellers also are required to distribute an educational pamphlet approved by the United States Environmental Protection Agency and include standard warning language in their leases or sale contracts to ensure that parents have the information they need to protect children from lead-based paint hazards.*

This dwelling does not qualify for the exemption in 24 CFR part 35 and 40 CFR part 745 for target housing being leased/purchased that is free of lead-based paint, as defined in the rule. This report should be kept by the Risk Assessor and should also be kept by the owner and all future owners for the life of the dwelling.

## **SECTION 2: LEAD INSPECTION/RISK ASSESSMENT**

### **A. Site Description**

The residence is a single-family, single story house built prior to 1978. The exterior of the residence has brick and wood siding with wood trim. The doors and windows are wood with wood trim. There is a porch on side A and a detached garage on side C.

### **B. Preface**

\_\_\_\_\_ has been contracted by \_\_\_\_\_ to perform lead-based paint testing, a risk assessment and a visual assessment of the above referenced single family home to determine the possible presence, condition, location and amount of lead paint and dust or soil hazards. The testing was conducted on September 11, 2013.

### **C. Training**

All Risk Assessors utilized by \_\_\_\_\_ have EPA/State licensure, and have completed and passed the HUD Lead Based Paint Visual Assessment Training Course. All technicians utilized by \_\_\_\_\_ have also been trained in the use, calibration and maintenance of the NITON XLP-300A XRF equipment they currently use, along with necessary principles of Radiation Safety.

### **D. Equipment**

Sampling of painted surfaces was performed utilizing a NITON XLP-300A Series Lead Analyzer, serial #8876, operating in the Standard spectrum modes. This equipment is a direct-read analytical device that does not require substrate correction and does not report inconclusive readings. The radioactive source was replaced January 2013.

See Appendix VIII for XRF Performance Characteristic Sheets (PCS).

### **E. Methodology**

The calibration of the NITON XLP-300A is done in accordance with the Performance Characteristic Sheet (PCS) for this instrument. These XRF instruments are calibrated using the calibration standard block of known 1.0 mg/cm<sup>2</sup> lead content. Three calibration readings are taken before and after each home is tested to ensure manufacturer's standards are met. If for any reason the instruments are not maintaining a consistent calibration reading within the manufacturer's standards for performance on the calibration block supplied by the manufacturer, manufacturers recommendations are used to bring the instrument into calibration. If the instrument cannot be brought back into calibration it is taken off the site and sent back to the manufacturer for repair and/or re-calibration.

The data collected by the XRF is located in Appendix IV (Positive XRF Results) and Appendix V (All XRF Results).

Perimeter walls are identified as A, B, C and D. Each room equivalent was orientated so that the wall that the "A Wall" corresponds directly with the main entrance wall. Each room equivalent's side identification follows the scheme for the whole housing unit. A

site sketch designating rooms by expected use (kitchen, bathroom, etc) and walls by orientation (A through D) is located in Appendix II.

## F. Scope of Study

The study was limited to the identification, location, and condition of lead-based paint throughout the interior and exterior of the subject property and outbuildings.

Dust wipe and soil sampling was performed. Results are discussed in section H and the actual laboratory results can be found in Appendix VI.

Per Single Family Housing Lead-Evaluation Protocol, every effort was made to test all interior, exterior and common areas with painted components. Every painted component in every room (which was accessible to the Risk Assessors) was tested including all windows, baseboards, and closet walls. Non-painted components such as ceramic tile and vinyl baseboards were not tested. In addition, items that had been recently replaced with new components were not tested if the Risk Assessor was certain that the component was new. An example is new wood or vinyl double hung windows.

No destructive entry was performed.

## G. Findings

determined that the following components contain lead in amounts greater than or equal to 1.0 mg/cm<sup>2</sup> in paint in the surfaces tested:

### Interior:

Location or Room	Wall	Component	Feature	Paint Condition	Substrate	Color
LAUNDRY	A	WINDOW	CASING	DETERIORATED	WOOD	WHITE
LAUNDRY	A	WINDOW	SASH	DETERIORATED	WOOD	WHITE
LAUNDRY	A	WINDOW	SASH	INTACT	WOOD	WHITE
LAUNDRY	A	DOOR	CASING	INTACT	WOOD	WHITE

### Exterior:

Location or Room	Wall	Component	Feature	Paint Condition	Substrate	Color
PORCH	A	CEILING		INTACT	WOOD	TAN
PORCH	A	SOFFIT		DETERIORATED	WOOD	TAN
PORCH	A	COLUMN		DETERIORATED	WOOD	TAN
EXTERIOR	A	WINDOW	CASING	DETERIORATED	WOOD	TAN
EXTERIOR	A	WINDOW	SASH	DETERIORATED	WOOD	TAN

Location or Room	Wall	Component	Feature	Paint Condition	Substrate	Color
EXTERIOR	A	WINDOW	STOOL	DETERIORATED	WOOD	TAN
EXTERIOR	A	FACIA		DETERIORATED	WOOD	TAN
EXTERIOR	A	SOFFIT		DETERIORATED	WOOD	TAN
EXTERIOR	B	WINDOW	CASING	DETERIORATED	WOOD	TAN
EXTERIOR	B	WINDOW	SASH	DETERIORATED	WOOD	TAN
EXTERIOR	B	WINDOW	STOOL	DETERIORATED	WOOD	TAN
EXTERIOR	B	WALL		DETERIORATED	WOOD	TAN
EXTERIOR	C	WALL		DETERIORATED	WOOD	TAN
EXTERIOR	C	WINDOW	CASING	DETERIORATED	WOOD	TAN
EXTERIOR	C	WINDOW	SASH	DETERIORATED	WOOD	TAN
EXTERIOR	C	WINDOW	STOOL	DETERIORATED	WOOD	TAN
EXTERIOR	D	WALL		DETERIORATED	WOOD	TAN
EXTERIOR	D	WINDOW	CASING	DETERIORATED	WOOD	TAN
EXTERIOR	D	WINDOW	SASH	DETERIORATED	WOOD	TAN
EXTERIOR	D	WINDOW	STOOL	DETERIORATED	WOOD	TAN

Inaccessible painted areas should be assumed to be positive for the presence of lead-based paint. For this house, none was noted.

#### Dust Wipes:

Sample	Room	Surface	Lead Level ( $\mu\text{g}/\text{ft}^2$ )	Corrective Action
1	LR	Floor	83	Clean and Retest
2	LR	Sill	7700	Clean and Retest
3	K	Floor	730	Clean and Retest
4	K	Sill	1200	Clean and Retest
5	BR 1	Floor	440	Clean and Retest
6	BR 1	Sill	1500	Clean and Retest
7	BATH	Floor	140	Clean and Retest
8		Q.C.	<10	

Note: HUD/EPA standards of 40  $\mu\text{g}/\text{ft}^2$  – floors and 250  $\mu\text{g}/\text{ft}^2$  - window sills.

#### Soil Samples:

Type of Area	Location	Lead Level (ppm or mg/Kg)	Corrective Action
Bare Soil	Dripline	210	None Necessary

Note: The HUD/EPA standard is 1200 ppm for driplines and 400 ppm for child-play areas



## H. Conclusions

The above listed components were determined to be positive for lead paint, under the definition of Environmental Protection Agency/Department of Housing and Urban Development (EPA/HUD) as containing lead in concentrations greater than or equal to 1.0 mg/cm<sup>2</sup>. The sample results are located in Appendix IV (Positive XRF Results) and Appendix V (All XRF Results).

Following is a report of the Paint, Dust and Soil Hazard information collected during this Assessment:

HAZARD COMPONENT IDENTIFIED	LONG TERM CONTROL OPTION
Porch Side A Soffit and Fascia	Cover with Tyvek and Aluminum Trim
Porch side A Columns (4)	Remove and replace with new upper columns
Exterior Soffit and Fascia A, B, C & D	Cover with Tyvek and Aluminum Trim
Exterior Walls B, C & D	Cover with Tyvek and Vinyl Siding
Exterior Windows A, B, C & D	Replace with Vinyl Windows

**Lead-dust hazards were detected at all floor and sills tested. Those sills and floors must be cleaned and retested as well as all untested floors and sills.**

**No soil hazards were found.**

The surface conditions ranged from intact to deteriorated at the time of the inspection. In compliance with "HUD's Final Rule", you will need to reduce potential hazards by stabilizing all deteriorated lead-based paint in housing built before 1978 prior to re-occupancy, unless the property is exempt. Upon completion of stabilization, HUD requires a clearance examination to be taken to make certain that the dwelling is lead-safe prior to occupancy.

The Final Rule specifies who can perform stabilization of deteriorated surfaces. The repair contractor must either be supervised by certified lead paint abatement supervisor, or successfully complete one of several courses approved by HUD. A list of contractors who are under the supervision of a certified lead paint abatement supervisor can be located from the State or EPA Lead Control Office. Contractors who are also able to perform the work must be able to document that they have successfully completed a qualifying course.

A clearance examination will include a visual evaluation of all surfaces that were determined to be defective during the initial inspection, and collection of dust samples. It should be determined that the deteriorated paint surfaces have been eliminated and that no settled dust lead hazards exist in the dwelling or unit. A Certified/Licensed Lead Risk Assessor/Risk Assessor must sign the clearance report.

Occupants and/or maintenance workers should be made aware of the locations of the lead based paint, and adopt policies to minimize its disturbance during normal repair work. It should be noted that even the painted surfaces that contain levels of lead below

1.0 mg/cm<sup>2</sup> could create lead dust or lead contaminated soil hazards if the paint is turned into dust by abrasion, scraping, or sanding. If conditions of intact paint surfaces become destabilized, these conditions will need to be addressed in the future. If any construction or modernization work is done on the premises, this report should be given to the contractors as well as the tenants.

Unless otherwise noted, all components and features that are similar to those found to contain lead based paint should be considered to contain lead based paint. For example, if a window trough on Wall D of the exterior was found to contain lead based paint, then all similar window troughs should be considered to contain lead based paint. If a door casing or jamb was found to be positive, the entire doorframe is positive and all similar doorframes should be considered as positive. If a baseboard is found to be positive, all baseboards in that room should be considered to be positive.

## **I. On Going Monitoring**

On-going monitoring will be necessary in this property since lead based paint (LBP) is present. When LBP is present, the potential exists for LBP hazards to develop. Hazards can develop by means such as, but not limited to: the failure of lead hazard control measures; previously intact LBP becoming deteriorated; dangerous levels of lead-in-dust (dust lead) re-accumulating through friction, impact, and deterioration of paint; or, through the introduction of contaminated exterior dust and soil into the interior of the structure.

On-going monitoring typically includes two different activities: re-evaluation and annual visual assessments. A re-evaluation is a risk assessment that includes limited soil and dust sampling and a visual evaluation of paint films and any existing lead hazard controls.

Re-evaluations are supplemented with visual assessments by the property owner, which should be conducted at least once a year, when the property owner or its management agent (if the housing is rented in the future) receives complaints from residents about deteriorated paint or other potential lead hazards, when the residence (or if, in the future, the house will have more than one dwelling unit, any unit that turns over or becomes vacant), or when significant damage occurs that could affect the integrity of hazard control treatments (e.g., flooding, vandalism, fire).

The visual assessment should cover the dwelling unit (if, in the future, the housing will have more than one dwelling unit, each unit and each common area used by residents), exterior painted surfaces, and ground cover (if control of soil-lead hazards is required or recommended). Visual assessments should confirm that all paint with known LBP is not deteriorating, that lead hazard control methods have not failed, and that structural problems do not threaten the integrity of any remaining known or suspected LBP.

Visual assessments do not replace the need for professional re-evaluations by a certified risk assessor. The re-evaluation should include:

1. A review of prior reports to determine where lead-based paint and lead-based paint hazards have been found, what controls were done, and when these findings and controls happened;
2. A visual assessment to identify deteriorated paint, failures of previous hazard controls, visible dust and debris, and bare soil;
3. Environmental testing for lead in dust, newly deteriorated paint, and newly bare soil; and
4. A report describing the findings of the reevaluation, including the location of any lead-based paint hazards, the location of any failures of previous hazard controls, and, as needed, acceptable options for the control of hazards, the repair of previous controls, and modification of monitoring and maintenance practices.

The first reevaluation should be conducted no later than two years after completion of hazard controls, or, if specific controls or treatments are not conducted, two years from the beginning of ongoing lead-based paint monitoring and maintenance activities. Subsequent reevaluations should be conducted at intervals of two years, plus or minus 60 days. If two consecutive reevaluations are conducted two years apart without finding a lead-based paint hazard, reevaluation may be discontinued.

Please refer to your community development agency, housing authority, or other applicable agency for additional local/regional regulations and guidelines governing re-evaluation activities.

## **SECTION 3: DISCLAIMER AND DISCLOSURE STATEMENTS**

### **A. Disclaimer**

This is \_\_\_\_\_ report of a visual survey, and X-Ray Fluorescence (XRF) analysis of the readily accessible areas of this building and tested components. The presence or absence of lead-based paint or lead-based paint hazards applies only to the tested or assessed surfaces on the date of the site visit and it should be understood that conditions might change due to deterioration or maintenance. The results and material conditions noted within this report were accurate at the noted time of the inspection and in no way reflect the conditions at the property after the date of the inspection. Ongoing monitoring by the owner is usually necessary. No other environmental concerns were addressed during this inspection.

Staff of \_\_\_\_\_ have performed the tasks listed above requested by the Client in a thorough and professional manner consistent with commonly accepted standard industry practices, using state of the art practices and best available known technology, as of the date of the assessment. \_\_\_\_\_ cannot guarantee and does not warrant that this Assessment has identified all adverse environmental factors and/or conditions affecting the subject property on the date of the Assessment. \_\_\_\_\_ cannot and will not warrant that the Assessment that was requested by the client will satisfy the dictates of, or provide a legal defense in connection with, any environmental laws or regulations. It is the responsibility of the client to know and abide by all applicable laws, regulations, and standards, including EPA's Renovation, Repair and Painting regulation.

The results reported and conclusions reached by \_\_\_\_\_ are solely for the benefit of the client. The results and opinions in this report, based solely upon the conditions found on the property as of the date of the Assessment, will be valid only as of the date of the Assessment. \_\_\_\_\_ assumes no obligation to advise the client of any changes in any real or potential lead hazards at this residence that may or may not be later brought to our attention. Further conditions and limitations to this contracted report are included in the general terms and conditions supplied to the client with the contract for services.

### **B. Disclosure**

A copy of the summary must be provided to new lessees (tenants) and purchasers 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 new purchasers and it must be made available to new tenants. Landlords (lessors) and sellers are also required to distribute an educational pamphlet 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.

This dwelling does not qualify for the exemption in 24 CFR part 35 and 40 CFR part 745 for target housing being leased/purchased that is free of lead-based paint, as defined in

the rule. This report should be kept by the Risk Assessor and should also be kept by the owner and all future owners for the life of the dwelling.

## **SECTION 4: APPENDICES**

## **APPENDIX I     HUD Risk Assessment Forms**



### Form 5.0 Questionnaire for a Lead Hazard Risk Assessment of an Individual Occupied Dwelling Unit.

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(To be completed by risk assessor via interview with owner-occupant or, if a rental unit, an adult resident and, for questions 15 & 16, the owner.)

Property address 2328 Old Knoxville Hwy. Maryville, TN

~~Apt. No.~~ VACANT Unit is ☐ Owner occupied ☐ Renter occupied

Year of construction N/A Prior LBP testing? ☐ Yes ☐ No

Name of owner interviewed \_\_\_\_\_ Owner interview date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Name of resident interviewed (if rental unit) VACANT Interview date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Name of risk assessor \_\_\_\_\_

#### Children and Children's Habits

1. Do any children under age 6 live in the home or visit frequently? ☐ Yes ☒ No  
(If no children under age 6, skip to Question 5.)

2. If yes, how many? \_\_\_\_\_

3. Please provide the following information about each child under 6 to the extent you can.

	Child 1	Child 2	Child 3	Child 4
(a) Age:				
(b) Blood lead level :				
(c) Month/year of blood lead test:				
(d) Location of bedroom:				
(e) Main room where child eats:				
(f) Main room where child plays:				
(g) Main room where toys are stored:				
(h) Main locations where child plays outdoors:				

(If a resident child under age 6 has had an elevated blood lead level, an environmental investigation may be necessary [see Chapter 16 of the HUD Guidelines].)

4. (a) Do any children tend to chew on any painted surfaces, such as interior window sills? ☐ Yes ☐ No

(b) If yes, where? \_\_\_\_\_

# Form 5.0 Questionnaire for a Lead Hazard Risk Assessment of an Individual Occupied Dwelling Unit.

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Property address 2328 Old Knoxville Hwy. Apt. No. \_\_\_\_\_

## Other Household Information and Family Use Patterns

5. Do women of child-bearing age live in the home? ☐ Yes ☒ No
6. If this home is in a building with other dwelling units, what common areas in the building are used by children?  
NONE
7. (a) Which entrance is used most frequently? VALANT  
(b) What other entrances are used frequently? \_\_\_\_\_
8. Which windows are opened most frequently? \_\_\_\_\_
9. (a) Do you use window air conditioners?\* ☐ Yes ☐ No  
(b) If yes, where? \_\_\_\_\_  
\*Condensation underneath window air conditioners often causes paint deterioration.
10. (a) Do you or any other household members garden? ☐ Yes ☐ No  
(b) If yes, where is the garden? \_\_\_\_\_
11. (a) Are you planning any landscaping activities that will remove grass or ground covering? ☐ Yes ☐ No  
(b) If yes, where? \_\_\_\_\_
12. (a) Which areas of the home get cleaned regularly? \_\_\_\_\_  
(b) Which areas of the home do not get cleaned regularly? \_\_\_\_\_
13. (a) Are any household members exposed to lead at work? ☐ Yes ☐ No  
(If no, go to question 14.)  
(b) If yes, are dirty work clothes brought home? ☐ Yes ☐ No  
(c) If they are brought home, who handles dirty work clothes and where are they placed and cleaned?  
\_\_\_\_\_
14. (a) Do you have pets? ☐ Yes ☐ No  
(b) If yes, do these pets go outdoors? \_\_\_\_\_

## Building Renovations

15. (a) Were any building renovations or repainting done here during the past year? ☐ Yes ☐ No  
(b) If yes, what work was done, and when? \_\_\_\_\_  
(c) Were carpets, furniture and/or family belongings present in the work areas? ☐ Yes ☐ No  
(d) If yes, which items and where were they? \_\_\_\_\_  
(e) Was construction debris stored in the yard? ☐ Yes ☐ No  
(f) If yes, please describe what, where and how was it stored. \_\_\_\_\_
16. (a) Are you conducting or planning any building renovations? ☐ Yes ☐ No  
(b) If yes, what work will be done, and when? \_\_\_\_\_

**Form 5.1 Building Condition Form for Lead Hazard Risk Assessment.**

Property address 232B DOWNSVILLE Hwy Apt. No. \_\_\_\_\_

Name of property owner VACANT

Name of risk assessor \_\_\_\_\_ Date of assessment: 9 / 11 / 13

Condition	Yes	No	Comments
Roof missing parts of surfaces (tiles, boards, shakes, etc.)		X	
Roof has holes or large cracks		X	
Gutters or downspouts broken		X	
Chimney masonry cracked, bricks loose or missing, obviously out of plumb		X	
Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting		X	
Exterior siding has missing boards or shingles		X	
Water stains on interior walls or ceilings	X		DAMAGE FROM WATER HEATER LEAK
Walls or ceilings deteriorated		X	
More than "very small" amount of paint in a room deteriorated	X		
Two or more windows or doors broken, missing, or boarded up	X		
Porch or steps have major elements broken, missing, or boarded up		X	
Foundation has major cracks, missing material, structure leans, or visibly unsound		X	
** Total number			

\* The "very small" amount is the *de minimis* amount under the HUD Lead Safe Housing Rule (24 CFR 35.1350(d)), or the amount of paint that is not "paint in poor condition" under the EPA lead training and certification ("402") rule (40 CFR 745.223).

\*\* If the "Yes" column has any checks, the dwelling is usually considered not to be in good condition for the purposes of a risk assessment, and conducting a lead hazard screen is not advisable. However, specific conditions and extenuating circumstances should be considered before determining the final condition of the dwelling and the appropriateness of a lead hazard screen. If the "Yes" column has any checks, and a lead hazard screen is to be performed, describe, below, the extenuating circumstances that justify conducting a lead hazard screen.

Notes (including other conditions of concern):



Form 5.2 Report of Visual Assessment (for Lead Hazard Risk Assessment).  
Form 6.0 Report of Visual Assessment (for Ongoing Lead-Safe Maintenance).

Property address 2328 20th Avenue E., Maryville, TN Apt. No.      Page 1 of 2

Name of property owner     

Name of risk assessor      Date of assessment 9/11/13

Location of Building Component, Dust or Bare Soil	Area Description	Building Component, Dust, or Bare Soil Play Area/ Non-Play Area	Area (sq. ft.)	Deteriorated Paint		Friction or Impact Surface? (F or I)	Visible Teeth Marks? (Y or N)	Paint Testing Results <sup>4</sup>	Notes [e.g., paint testing (e.g., XRF, lab analysis) indicates paint is or is not lead-based paint; cause(s) of hazard control failures]
				Is Area Small? (Y or N)	Probable Cause(s) of Deterioration if Known <sup>3</sup>				
Exterior	Fascia		150	N	Moisture		N	1.2	LBP
	Soft T's		250	N			N	1.5	LBP
	Walls		400	N			N	2.3	LBP
	Windows	2 windows		N		Friction	N	1.3	LBP
Kitchen	Cabinet	40		N				0.12	
Bath	Cabinet (4)	40		N			N	8.0	LBP
	Soft T	20		N	↓		N	9.0	LBP
	Cabinet	20		N	Moisture		N	0.03	
Living	Baseboard	15		N	White Thicket		N	0.01	
	Window (A)	2 windows		N	Moisture	Friction	N	7.4	LBP

<sup>1</sup> Include room equivalent or exterior side or wall, as appropriate.

<sup>2</sup> Lead-safe work practices and clearance/cleaning verification are not required if work does not disturb painted surfaces that total more than

✦ For assisted housing: HUD's de minimis area of: 20 ft<sup>2</sup> or less on exterior surfaces, 2 ft<sup>2</sup> or less in any one interior room or space, or 10 percent of the total surface area on an interior or exterior type of component with a small surface area (such as trim, window sills, baseboards);

✦ For unassisted housing, and for child-occupied facilities, EPA's minor repair and maintenance activities threshold of: 6 ft<sup>2</sup> or less per room; or 20 ft<sup>2</sup> or less for exterior activities; provided that no prohibited or restricted work practices were used and no window replacement or demolition of painted surface areas is to be done.

<sup>3</sup> Common causes of paint deterioration are: moisture (indicate source if apparent), mildew, friction or abrasion, impact, damaged or deteriorated substrate, and severe heat.

<sup>4</sup> If paint testing results are obtained on site, use this column to record the result. If a paint chip sample is sent to the laboratory, use this column to record the sample number (or other unique identifier) as a reference to another record containing the sampling data and laboratory results.

**Form 5.2 Report of Visual Assessment (for Lead Hazard Risk Assessment).**  
**Form 6.0 Report of Visual Assessment (for Ongoing Lead-Safe Maintenance).**

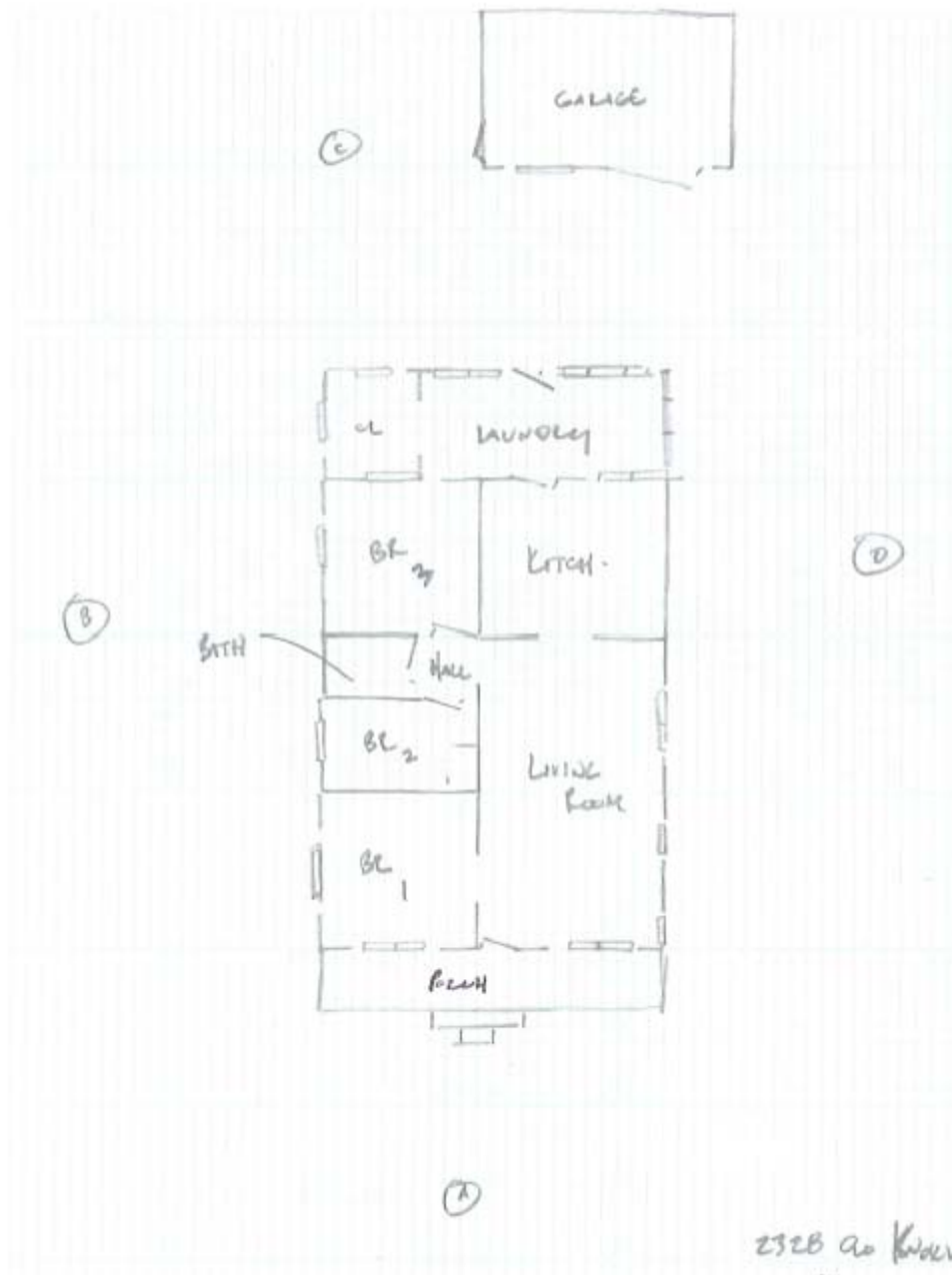
Property address 328 Oak Grove Hwy, Mayaguez, PR Apt. No. 1 Page 2 of 2

Name of property owner \_\_\_\_\_  
 Name of risk assessor \_\_\_\_\_ Date of assessment 7/11/13

Area Description		Deteriorated Paint				Notes [e.g., paint testing (e.g., XRF, lab analysis) indicates paint is or is not lead-based paint; cause(s) of hazard control failures]		
Location of Building Component, Dust or Bare Soil	Building Component, Dust, or Bare Soil Play Area/ Non-Play Area	Area (sq. ft.)	Is Area Small? (Y or N)	Probable Cause(s) of Deterioration if Known <sup>3</sup>	Friction or Impact Surface? (F or I)		Visible Teeth Marks? (Y or N)	Paint Testing Results <sup>4</sup>
Laundry closet	Door (10)	10	Y	Friction	F, I	N	0.0	
	Door frame	10	Y	N	F, I	N	0.0	
Garage	Walls	1000	N	Moisture		N	0.0	
	Baseboard	100	N			N	0.0	
	50 FRT	100	N			N	0.0	
	Door	15	N	↑		N	0.0	

<sup>1</sup> Include room equivalent or exterior side or wall, as appropriate.  
<sup>2</sup> Lead-safe work practices and clearance/cleaning verification are not required if work does not disturb painted surfaces that total more than  
 \* For assisted housing: HUD's de minimis area of: 20 ft<sup>2</sup> or less on exterior surfaces, 2 ft<sup>2</sup> or less in any one interior room or space, or 10 percent of the total surface area on an interior or exterior type of component with a small surface area (such as trim, window sills, baseboards);  
 \* For unassisted housing, and for child-occupied facilities, EPA's minor repair and maintenance activities threshold of: 6 ft<sup>2</sup> or less per room; or 20 ft<sup>2</sup> or less for exterior activities; provided that no prohibited or restricted work practices were used and no window replacement or demolition of painted surface areas is to be done.  
<sup>3</sup> Common causes of paint deterioration are: moisture (indicate source if apparent), mildew, friction or abrasion, impact, damaged or deteriorated substrate, and severe heat.  
<sup>4</sup> If paint testing results are obtained on site, use this column to record the result. If a paint chip sample is sent to the laboratory, use this column to record the sample number (or other unique identifier) as a reference to another record containing the sampling data and laboratory results.

## APPENDIX II Site Orientation Drawings



## **APPENDIX III    Reference Photographs**





A side exterior



B side exterior



C side exterior



D side exterior



Boarded up windows



Deteriorated LBP on exterior windows



Deteriorated LBP on exterior walls



Flaking LBP on porch columns





LBP on exterior windows



Deteriorated LBP on fascia and soffits



Exterior window



Detached garage



Laundry room (moisture damage)



Door casing in laundry room



Door in laundry room



Laundry room windows with LBP

## **APPENDIX IV    Positive XRF Sample Results**

Positive XRF Sample Results  
2328 Old Knowville Hwy Maryville TN.xlsm

Reading ID #	Location or Room	Wall	Component	Feature	Paint Condition	Substrate	Color	Pb (mg/cm2)
381	LAUNDRY	A	WINDOW	CASING	DETERIORATED	WOOD	WHITE	2.00
382	LAUNDRY	A	WINDOW	SASH	DETERIORATED	WOOD	WHITE	7.40
384	LAUNDRY	A	WINDOW	SASH	INTACT	WOOD	WHITE	11.00
386	LAUNDRY	A	DOOR	CASING	INTACT	WOOD	WHITE	7.50
402	PORCH	A	CEILING		INTACT	WOOD	TAN	12.10
403	PORCH	A	SOFFIT		DETERIORATED	WOOD	TAN	9.00
404	PORCH	A	COLUMN		DETERIORATED	WOOD	TAN	8.00
409	EXTERIOR	A	WINDOW	CASING	DETERIORATED	WOOD	TAN	15.20
410	EXTERIOR	A	WINDOW	SASH	DETERIORATED	WOOD	TAN	9.20
411	EXTERIOR	A	WINDOW	STOOL	DETERIORATED	WOOD	TAN	9.50
412	EXTERIOR	A	FACIA		DETERIORATED	WOOD	TAN	17.20
413	EXTERIOR	A	SOFFIT		DETERIORATED	WOOD	TAN	15.50
416	EXTERIOR	B	WINDOW	CASING	DETERIORATED	WOOD	TAN	11.30
417	EXTERIOR	B	WINDOW	SASH	DETERIORATED	WOOD	TAN	9.20
418	EXTERIOR	B	WINDOW	STOOL	DETERIORATED	WOOD	TAN	10.00
419	EXTERIOR	B	WALL		DETERIORATED	WOOD	TAN	2.50
420	EXTERIOR	C	WALL		DETERIORATED	WOOD	TAN	2.80
423	EXTERIOR	C	WINDOW	CASING	DETERIORATED	WOOD	TAN	9.30
424	EXTERIOR	C	WINDOW	SASH	DETERIORATED	WOOD	TAN	8.00
425	EXTERIOR	C	WINDOW	STOOL	DETERIORATED	WOOD	TAN	9.00
429	EXTERIOR	D	WALL		DETERIORATED	WOOD	TAN	2.20
430	EXTERIOR	D	WINDOW	CASING	DETERIORATED	WOOD	TAN	2.60
431	EXTERIOR	D	WINDOW	SASH	DETERIORATED	WOOD	TAN	2.90
432	EXTERIOR	D	WINDOW	STOOL	DETERIORATED	WOOD	TAN	8.80

## **APPENDIX V    All XRF Sample Results**

2328 Old Knoxville Hwy Maryville TN.xlsm  
All XRF Sample Results

Reading ID #	Location or Room	Wall	Component	Feature	Paint Condition	Substrate	Color	Pb (mg/cm2)	Result
287					CALIBRATE			1.00	Positive
288					CALIBRATE			1.10	Positive
289					CALIBRATE			1.00	Positive
290	LIVING ROOM	A	CEILING		INTACT	DRYWALL	WHITE	0.00	Negative
291	LIVING ROOM	D	BASEBOARD		INTACT	WOOD	WHITE	0.00	Negative
292	LIVING ROOM	C	BASEBOARD		INTACT	WOOD	WHITE	0.00	Negative
293	LIVING ROOM	D	WINDOW	CASING	INTACT	WOOD	WHITE	0.07	Negative
294	LIVING ROOM	D	WINDOW	SASH	INTACT	WOOD	WHITE	0.03	Negative
295	LIVING ROOM	D	WINDOW	STOOL	INTACT	WOOD	WHITE	0.02	Negative
296	LIVING ROOM	A	WINDOW	CASING	INTACT	WOOD	WHITE	0.11	Negative
297	LIVING ROOM	A	WINDOW	SASH	INTACT	WOOD	WHITE	0.40	Negative
298	LIVING ROOM	A	WINDOW	STOOL	INTACT	WOOD	WHITE	0.19	Negative
299	LIVING ROOM	B	WALL	TRIM	INTACT	WOOD	WHITE	0.00	Negative
300	LIVING ROOM	A	DOOR	CASING	INTACT	WOOD	WHITE	0.00	Negative
301	LIVING ROOM	C	DOOR	CASING	INTACT	WOOD	WHITE	0.30	Negative
302	LIVING ROOM	C	DOOR	JAMB	INTACT	WOOD	WHITE	0.40	Negative
303	LIVING ROOM	B	DOOR	CASING	INTACT	WOOD	WHITE	0.03	Negative
304	BEDROOM 1	A	WALL		INTACT	DRYWALL	WHITE	0.30	Negative
305	BEDROOM 1	B	WALL		INTACT	DRYWALL	WHITE	0.01	Negative
306	BEDROOM 1	C	WALL		INTACT	DRYWALL	WHITE	0.00	Negative
307	BEDROOM 1	D	WALL		INTACT	DRYWALL	WHITE	0.00	Negative
308	BEDROOM 1	D	CEILING		INTACT	DRYWALL	WHITE	0.00	Negative
309	BEDROOM 1	D	BASEBOARD		INTACT	WOOD	WHITE	0.12	Negative
310	BEDROOM 1	A	WINDOW	CASING	INTACT	WOOD	WHITE	0.02	Negative
311	BEDROOM 1	A	WINDOW	SASH	INTACT	WOOD	WHITE	0.13	Negative
312	BEDROOM 1	A	WINDOW	STOOL	INTACT	WOOD	WHITE	0.09	Negative
313	BEDROOM 1	B	WINDOW	CASING	INTACT	WOOD	WHITE	0.08	Negative
314	BEDROOM 1	B	WINDOW	STOOL	INTACT	WOOD	WHITE	0.04	Negative
315	BEDROOM 1	D	DOOR	CASING	INTACT	WOOD	WHITE	0.13	Negative
316	BEDROOM 1	D	DOOR	JAMB	INTACT	WOOD	WHITE	0.01	Negative
317	BEDROOM 1	D	DOOR	DOOR	INTACT	WOOD	WHITE	0.00	Negative
318	HALL	A	WALL		INTACT	DRYWALL	WHITE	0.01	Negative
319	HALL	B	WALL		INTACT	DRYWALL	WHITE	0.01	Negative
320	HALL	C	WALL		INTACT	DRYWALL	WHITE	0.01	Negative
321	HALL	D	WALL		INTACT	DRYWALL	WHITE	0.02	Negative
322	HALL	D	CEILING		INTACT	DRYWALL	WHITE	0.03	Negative
323	HALL	D	BASEBOARD		INTACT	WOOD	WHITE	0.11	Negative
324	HALL	B	DOOR	CASING	INTACT	WOOD	WHITE	< LOD	Negative
325	HALL	B	DOOR	JAMB	INTACT	WOOD	WHITE	0.01	Negative
326	HALL	D	DOOR	CASING	INTACT	WOOD	WHITE	0.05	Negative
327	BEDROOM 2	A	WALL		INTACT	DRYWALL	WHITE	0.00	Negative
328	BEDROOM 2	B	WALL		INTACT	DRYWALL	WHITE	0.00	Negative
329	BEDROOM 2	C	WALL		INTACT	DRYWALL	WHITE	0.00	Negative
330	BEDROOM 2	D	WALL		INTACT	DRYWALL	WHITE	0.00	Negative
331	BEDROOM 2	D	CEILING		INTACT	DRYWALL	WHITE	0.05	Negative
332	BEDROOM 2	C	BASEBOARD		INTACT	WOOD	WHITE	0.06	Negative
333	BEDROOM 2	B	WINDOW	CASING	INTACT	WOOD	WHITE	0.03	Negative
334	BEDROOM 2	B	WINDOW	SASH	INTACT	WOOD	WHITE	0.18	Negative
335	BEDROOM 2	B	WINDOW	STOOL	INTACT	WOOD	WHITE	0.10	Negative
336	BEDROOM 2	C	DOOR	CASING	INTACT	WOOD	WHITE	0.05	Negative
337	BEDROOM 2	C	DOOR	JAMB	INTACT	WOOD	WHITE	0.14	Negative
338	BEDROOM 2	C	DOOR	DOOR	INTACT	WOOD	WHITE	0.00	Negative
339	BEDROOM 2	D	CABINET	CASING	INTACT	WOOD	WHITE	0.00	Negative
340	BATHROOM	A	WALL		INTACT	DRYWALL	WHITE	0.05	Negative
341	BATHROOM	B	WALL		INTACT	DRYWALL	WHITE	0.00	Negative
342	BATHROOM	C	WALL		INTACT	DRYWALL	WHITE	0.00	Negative
343	BATHROOM	D	WALL		INTACT	DRYWALL	WHITE	0.00	Negative
344	BATHROOM	C	WALL		INTACT	TILE	WHITE	0.02	Negative
345	BATHROOM	D	DOOR	CASING	INTACT	WOOD	WHITE	0.04	Negative
346	BATHROOM	D	DOOR	JAMB	INTACT	WOOD	WHITE	0.11	Negative
347	BATHROOM	D	DOOR	DOOR	INTACT	WOOD	WHITE	0.00	Negative
348	BEDROOM 3	A	WALL		INTACT	DRYWALL	WHITE	0.01	Negative
349	BEDROOM 3	B	WALL		INTACT	DRYWALL	WHITE	0.01	Negative
350	BEDROOM 3	C	WALL		INTACT	DRYWALL	WHITE	< LOD	Negative
351	BEDROOM 3	D	WALL		INTACT	DRYWALL	WHITE	0.01	Negative
352	BEDROOM 3	D	CEILING		INTACT	DRYWALL	WHITE	0.00	Negative
353	BEDROOM 3	D	BASEBOARD		INTACT	WOOD	WHITE	0.19	Negative
354	BEDROOM 3	C	WINDOW	CASING	INTACT	WOOD	WHITE	0.07	Negative
355	BEDROOM 3	C	WINDOW	SASH	INTACT	WOOD	WHITE	0.13	Negative



2328 Old Knoxville Hwy Maryville TN.xlsm  
All XRF Sample Results

Reading ID #	Location or Room	Wall	Component	Feature	Paint Condition	Substrate	Color	Pb (mg/cm2)	Result
356	BEDROOM 3	B	WINDOW	CASING	INTACT	WOOD	WHITE	0.19	Negative
357	BEDROOM 3	B	WINDOW	SASH	INTACT	WOOD	WHITE	0.24	Negative
358	BEDROOM 3	B	WINDOW	STOOL	INTACT	WOOD	WHITE	0.11	Negative
359	BEDROOM 3	A	DOOR	CASING	INTACT	WOOD	WHITE	0.03	Negative
360	BEDROOM 3	A	DOOR	JAMB	INTACT	WOOD	WHITE	0.16	Negative
361	BEDROOM 3	A	DOOR	DOOR	INTACT	WOOD	WHITE	0.00	Negative
362	KITCHEN	A	WALL		INTACT	DRYWALL	OTHER	0.01	Negative
363	KITCHEN	B	WALL		INTACT	DRYWALL	OTHER	0.02	Negative
364	KITCHEN	C	WALL		INTACT	DRYWALL	OTHER	0.00	Negative
365	KITCHEN	D	WALL		INTACT	DRYWALL	OTHER	< LOD	Negative
366	KITCHEN	D	CEILING		DETERIORATED	DRYWALL	WHITE	0.12	Negative
367	KITCHEN	A	BASEBOARD		INTACT	WOOD	WHITE	0.70	Negative
368	KITCHEN	A	DOOR	CASING	INTACT	WOOD	WHITE	0.60	Negative
369	KITCHEN	A	DOOR	JAMB	INTACT	WOOD	WHITE	0.30	Negative
370	KITCHEN	C	DOOR	CASING	INTACT	WOOD	WHITE	0.30	Negative
371	KITCHEN	C	DOOR	DOOR	INTACT	WOOD	WHITE	0.60	Null
372	KITCHEN	C	DOOR	DOOR	INTACT	WOOD	WHITE	0.70	Negative
373	KITCHEN	B	CABINET	CASING	INTACT	WOOD	WHITE	0.02	Negative
374	KITCHEN	B	CABINET	SHELF	INTACT	WOOD	WHITE	0.00	Negative
375	KITCHEN	B	CABINET	DOOR	INTACT	WOOD	WHITE	0.00	Negative
376	LAUNDRY	B	WALL		INTACT	DRYWALL	WHITE	0.01	Negative
377	LAUNDRY	C	WALL		INTACT	DRYWALL	WHITE	0.60	Negative
378	LAUNDRY	D	WALL		INTACT	DRYWALL	WHITE	0.00	Negative
379	LAUNDRY	D	CEILING		DETERIORATED	DRYWALL	WHITE	0.03	Negative
380	LAUNDRY	C	BASEBOARD		DETERIORATED	WOOD	WHITE	0.07	Negative
381	LAUNDRY	A	WINDOW	CASING	DETERIORATED	WOOD	WHITE	2.00	Positive
382	LAUNDRY	A	WINDOW	SASH	DETERIORATED	WOOD	WHITE	7.40	Positive
383	LAUNDRY	A	WINDOW	STOOL	DETERIORATED	WOOD	WHITE	0.18	Negative
384	LAUNDRY	A	WINDOW	SASH	INTACT	WOOD	WHITE	11.00	Positive
385	LAUNDRY	C	WINDOW	SASH	INTACT	WOOD	WHITE	0.50	Negative
386	LAUNDRY	A	DOOR	CASING	INTACT	WOOD	WHITE	7.50	Positive
387	LAUNDRY	A	DOOR		INTACT	WOOD	WHITE	0.23	Null
388	LAUNDRY	A	DOOR	DOOR	INTACT	WOOD	WHITE	0.50	Negative
389	LAUNDRY	B	CLOSET	CASING	DETERIORATED	WOOD	WHITE	0.00	Negative
390	LAUNDRY	B	CLOSET	JAMB	DETERIORATED	WOOD	WHITE	0.00	Negative
391	GARAGE	A	FACIA		DETERIORATED	WOOD	WHITE	0.00	Negative
392	GARAGE	A	SOFFIT		DETERIORATED	WOOD	WHITE	0.01	Negative
393	GARAGE	B	FACIA		DETERIORATED	WOOD	WHITE	0.00	Negative
394	GARAGE	B	SOFFIT		DETERIORATED	WOOD	WHITE	0.00	Negative
395	GARAGE	C	FACIA		DETERIORATED	WOOD	WHITE	0.00	Negative
396	GARAGE	C	SOFFIT		DETERIORATED	WOOD	WHITE	0.00	Negative
397	GARAGE	C	FACIA		DETERIORATED	WOOD	WHITE	0.01	Negative
398	GARAGE	C	SOFFIT		DETERIORATED	WOOD	WHITE	0.01	Negative
399	GARAGE	A	DOOR	CASING	DETERIORATED	WOOD	WHITE	0.00	Negative
400	GARAGE	A	DOOR	DOOR	DETERIORATED	WOOD	WHITE	0.00	Negative
401	GARAGE	A	WALL		DETERIORATED	BRICK	BROWN	0.00	Negative
402	PORCH	A	CEILING		INTACT	WOOD	TAN	12.10	Positive
403	PORCH	A	SOFFIT		DETERIORATED	WOOD	TAN	9.00	Positive
404	PORCH	A	COLUMN		DETERIORATED	WOOD	TAN	8.00	Positive
405	EXTERIOR	A	DOOR	CASING	DETERIORATED	WOOD	WHITE	0.00	Negative
406	EXTERIOR	A	DOOR	JAMB	DETERIORATED	WOOD	STAIN	0.00	Negative
407	EXTERIOR	A	DOOR	DOOR	DETERIORATED	WOOD	STAIN	0.00	Negative
408	PORCH	A	FLOOR		DETERIORATED	CONCRETE	TAN	0.09	Negative
409	EXTERIOR	A	WINDOW	CASING	DETERIORATED	WOOD	TAN	15.20	Positive
410	EXTERIOR	A	WINDOW	SASH	DETERIORATED	WOOD	TAN	9.20	Positive
411	EXTERIOR	A	WINDOW	STOOL	DETERIORATED	WOOD	TAN	9.50	Positive
412	EXTERIOR	A	FACIA		DETERIORATED	WOOD	TAN	17.20	Positive
413	EXTERIOR	A	SOFFIT		DETERIORATED	WOOD	TAN	15.50	Positive
414	EXTERIOR	B	FACIA		INTACT	WOOD	TAN	0.00	Negative
415	EXTERIOR	B	SOFFIT		INTACT	WOOD	TAN	0.01	Negative
416	EXTERIOR	B	WINDOW	CASING	DETERIORATED	WOOD	TAN	11.30	Positive
417	EXTERIOR	B	WINDOW	SASH	DETERIORATED	WOOD	TAN	9.20	Positive
418	EXTERIOR	B	WINDOW	STOOL	DETERIORATED	WOOD	TAN	10.00	Positive
419	EXTERIOR	B	WALL		DETERIORATED	WOOD	TAN	2.50	Positive
420	EXTERIOR	C	WALL		DETERIORATED	WOOD	TAN	2.80	Positive
421	EXTERIOR	C	FACIA		INTACT	WOOD	TAN	0.00	Negative
422	EXTERIOR	C	SOFFIT		INTACT	WOOD	TAN	0.00	Negative
423	EXTERIOR	C	WINDOW	CASING	DETERIORATED	WOOD	TAN	9.30	Positive
424	EXTERIOR	C	WINDOW	SASH	DETERIORATED	WOOD	TAN	8.00	Positive

2328 Old Knoxville Hwy Maryville TN.xlsm  
All XRF Sample Results

Reading ID #	Location or Room	Wall	Component	Feature	Paint Condition	Substrate	Color	Pb (mg/cm2)	Result
425	EXTERIOR	C	WINDOW	STOOL	DETERIORATED	WOOD	TAN	9.00	Positive
426	EXTERIOR	C	DOOR	JAMB	DETERIORATED	WOOD	TAN	0.17	Negative
427	EXTERIOR	C	DOOR	DOOR	INTACT	WOOD	BROWN	0.00	Negative
428	EXTERIOR	C	DOOR	DOOR	INTACT	WOOD	BLUE	0.01	Negative
429	EXTERIOR	D	WALL		DETERIORATED	WOOD	TAN	2.20	Positive
430	EXTERIOR	D	WINDOW	CASING	DETERIORATED	WOOD	TAN	2.60	Positive
431	EXTERIOR	D	WINDOW	SASH	DETERIORATED	WOOD	TAN	2.90	Positive
432	EXTERIOR	D	WINDOW	STOOL	DETERIORATED	WOOD	TAN	8.80	Positive
433	EXTERIOR	D	FACIA		INTACT	WOOD	TAN	0.00	Negative
434	EXTERIOR	D	SOFFIT		INTACT	WOOD	TAN	0.00	Negative
435					CALIBRATE			1.10	Positive
436					CALIBRATE			1.10	Positive
437					CALIBRATE			1.00	Positive

## **APPENDIX VI    Wipe and Soil Sample Analytical Results**



To:

## REQUEST FOR ANALYSIS/CHAIN-OF-CUSTODY RECORD

Client:

Site: 2328 20 Lawrence Hwy. 9/11/13

Date Sampled: Maryville, TN 9/11/13

Sampled By: \_\_\_\_\_

Date Shipped: 9/13/13

Around Time: 24 Hour TAT

From:

Special Instructions

Email results ASAP upon analysis.

Sample No.	Sample Location		Substrate	Sample Area	Analyze For	Analytical Method	Sample Description	Container Description	Results (For GTLO Purposes)
2328-1	LIVING ROOM	Floor	CARPET	144	Lead	SW846-7000B	Wipe	Cylinder	
2328-2	LIVING ROOM	W. SILL	WOOD	64	Lead	SW846-7000B	Wipe	Cylinder	
2328-3	KITCHEN	Floor	LINOLEUM	144	Lead	SW846-7000B	Wipe	Cylinder	
2328-4	KITCHEN	W. SILL	WOOD	64	Lead	SW846-7000B	Wipe	Cylinder	
2328-5	BEDROOM 1	Floor	LINOLEUM	144	Lead	SW846-7000B	Wipe	Cylinder	
2328-6	BEDROOM 1	W. SILL	WOOD	64	Lead	SW846-7000B	Wipe	Cylinder	
2328-7	BATHROOM	Floor	WOOD	144	Lead	SW846-7000B	Wipe	Cylinder	
2328-8	LAVATORY	Floor	WOOD	144	Lead	SW846-7000B	Wipe	Cylinder	
					Lead	SW846-7000B	Wipe	Cylinder	
					Lead	SW846-7000B	Wipe	Cylinder	
					Lead	SW846-7000B	Wipe	Cylinder	

Relinquished By (Sign): \_\_\_\_\_

Received By

SLO

Date/Time: 9/13/13 @ 8:00am

Date/Time: 9/16/13 0800

5087

5087

## REQUEST FOR ANALYSIS / CHAIN-OF-CUSTODY RECORD

To:

Site: 132B ad Exchange Hwy Client: —  
Myrtle, TN  
 Date Sampled: 9/11/13  
 Sampled By:                       
 Date Shipped: 9/13/13  
 Turn Around Time: 24 Hour TAT

From:

**Special Instructions**  
 Email results ASAP upon analysis

Sample No.	Sample Location	Type - Bare Soil, Dripline, Etc.	Analyze For	Analytical Method	Sample Description	Container Description	Results (For GTLO Purposes)
132B-7	A. G. L. D. <u>Capillary</u>	<u>Bare Soil, Dripline</u>	Lead	SW846-7000B	Soil	Cylinder	
			Lead	SW846-7000B	Soil	Cylinder	
			Lead	SW846-7000B	Soil	Cylinder	
			Lead	SW846-7000B	Soil	Cylinder	
			Lead	SW846-7000B	Soil	Cylinder	
			Lead	SW846-7000B	Soil	Cylinder	
			Lead	SW846-7000B	Soil	Cylinder	
			Lead	SW846-7000B	Soil	Cylinder	
			Lead	SW846-7000B	Soil	Cylinder	
			Lead	SW846-7000B	Soil	Cylinder	

 Relinquished By (Sign):                       
 (Sign):                     

Received By

EMSL Order: 021305687  
CustomerID:  
CustomerPO:  
ProjectID:

Attn:

Phone:

Fax:

Received:

Collected:

Project: 2328 Old Knoxville Hwy, Maryville, TN

## Test Report: Lead in Soils by Flame AAS (SW 846 3050B\*/7000B)

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
2328-9	0009	9/16/2013		210 mg/Kg

Reporting limit is 40 mg/kg based on the minimum sample weight per our SOP. The QC data associated with these sample results included in this report meet the method QC requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. Results reported based on dry weight. \*slight modification to methods applied. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request.

Samples analyzed by EMSL Analytical, Inc. Kernersville, NC AIHA-LAP, LLC--ELLAP Accredited #102564

Initial report from 09/17/2013 08:16:00

EMSL Order: 021305687  
CustomerID:  
CustomerPO:  
ProjectID:

Attn:

Phone:

Fax:

Received:

Collected:

Project: 2328 Old Knoxville Hwy, Maryville, TN

## Test Report: Lead in Dust by Flame AAS (SW 846 3050B\*/7000B)

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Area Sampled</i>	<i>Lead Concentration</i>
2328-1	0001	9/16/2013	144 in <sup>2</sup>		83 µg/ft <sup>2</sup>
2328-2	0002	9/16/2013	64 in <sup>2</sup>		7700 µg/ft <sup>2</sup>
2328-3	0003	9/16/2013	144 in <sup>2</sup>		730 µg/ft <sup>2</sup>
2328-4	0004	9/16/2013	64 in <sup>2</sup>		1200 µg/ft <sup>2</sup>
2328-5	0005	9/16/2013	144 in <sup>2</sup>		440 µg/ft <sup>2</sup>
2328-6	0006	9/16/2013	64 in <sup>2</sup>		1500 µg/ft <sup>2</sup>
2328-7	0007	9/16/2013	144 in <sup>2</sup>		140 µg/ft <sup>2</sup>
2328-8	0008	9/16/2013	144 in <sup>2</sup>		<10 µg/ft <sup>2</sup>

Reporting limit is 10 ug/wipe. ug/wipe = ug/ft<sup>2</sup> x area sampled in ft<sup>2</sup>. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities (such as volume sampled) or analytical method limitations. Samples received in good condition unless otherwise noted. QC data associated with this sample set is within acceptable limits, unless otherwise noted. The lab is not responsible for data reported in µg/ft<sup>2</sup> which is dependant on the area provided by non-lab personnel. The test results contained within this report meet the requirements of NELAC unless otherwise noted. \* slight modifications to methods applied. "<" (less than) results signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request.

Samples analyzed by EMSL Analytical, Inc. Kernersville, NC AIHA-LAP, LLC--ELLAP Accredited #102564

Initial report from 09/17/2013 08:16:00

## APPENDIX VII Glossary

### COMMON LEAD-BASED PAINT TERMS

**Lead-Based Paint:** Any paint, varnish, shellac, or other coating that contains lead equal to or greater than 1.0 mg/cm<sup>2</sup> as measured by XRF or laboratory analysis, or 0.5 percent by dry weight (5,000 mg/g, 5,000 ppm, or 5,000 mg/kg) as measured by laboratory analysis.

**Lead-Based Paint Hazards:** Housing conditions that cause human exposure to unsafe levels of lead from paint. These conditions include deteriorated lead-based paint; friction, impact or chewable painted surfaces; lead-contaminated dust; or lead-contaminated soil.

### PHYSICAL TERMS

**Building Component:** Any element of a building that may be painted or have dust on its surface, e.g. walls, stair treads, floors, railings, doors, window sills, etc.

**Building component replacement:** See Replacement.

**Clearance Examination:** Clearance is performed after hazard reduction, rehabilitation or maintenance activities to determine if a unit is safe for occupancy. It involves a visual assessment, analysis of dust and/or soil samples, and preparation of report. A certified risk assessor, paint inspector, or clearance technician (independent from entity/individual conducting paint stabilization or hazard reduction) conducts clearance.

**Deteriorated Lead-Based Paint:** Any lead-based 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, cracking, or otherwise becoming separated from the substrate.

**Paint Testing:** Testing of specific surfaces, by XRF (x-ray fluorescence) or lab analysis, to determine the lead content of these surfaces, performed by a certified lead-based paint Risk Assessor or certified inspector.

**Risk Assessment:** A comprehensive evaluation for lead-based paint hazards that includes paint testing, dust and soil sampling, and a visual evaluation. The risk assessment report identifies lead hazards and appropriate lead hazard reduction methods. A certified risk assessor must conduct the assessment.

**Visual Assessment:** A visual evaluation of interior and exterior painted surfaces to identify specific conditions that contribute to lead-based paint hazards. A certified risk assessor or Housing Quality Standards (HQS) Risk Assessor trained in visual assessment performs the assessment.

## LEAD HAZARD REDUCTION

**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.

**Complete abatement:** Abatement of all lead-based paint inside and outside a dwelling or building and reduction of any lead-contaminated dust or soil hazards. All of these strategies require preparation; cleanup; waste disposal; post-abatement clearance testing; recordkeeping; and, if applicable, reevaluation and on-going monitoring. See also Abatement.

**Cleaning:** The process of using a HEPA vacuum and wet cleaning agents to remove leaded dust; the process includes the removal of bulk debris from the work area. OSHA prohibits the use of compressed air to clean lead-contaminated dust from a surface.

**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.

**Dripline/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/ft<sup>2</sup> on floors and 250 µg/ft<sup>2</sup> on interior windowsills. Also called lead-contaminated dust.

**Encapsulation:** Any covering or coating that acts as a barrier between lead-based paint and the environment, the durability of which relies on adhesion and the integrity of

the existing bonds between multiple layers of paint and between the paint and the substrate. See also Enclosure.

**Enclosure:** The use of rigid, durable construction materials that are mechanically fastened to the substrate to act as a barrier between the lead-based paint and the environment.

**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 Hazard Control:** Activities to control and eliminate lead-based paint hazards, including interim controls, abatement, and complete abatement.

**Maintenance:** Work intended to maintain adequate living conditions in a dwelling, which has the potential to disturb lead-based paint or paint that is suspected of being lead-based.

**Monitoring:** Surveillance to determine (1) that known or suspected lead-based paint is not deteriorating, (2) that lead-based paint hazard controls, such as paint stabilization, enclosure, or encapsulation have not failed, (3) that structural problems do not threaten the integrity of hazard controls or of known or suspected.

**Paint Film Stabilization:** An interim control method that stabilizes painted surfaces and addressed the underlying cause of deterioration. Steps include repairing defective surfaces, wet scraping, priming, and repainting surfaces coated with deteriorated lead-based paint; paint film stabilization includes cleanup and clearance.

**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.

**Paint Removal:** An abatement strategy that entails the removal of lead-based paint from surfaces. For lead hazard control work, this can mean using chemicals, heat guns below 1,100 °F, and certain contained abrasive methods. Open flame burning, open abrasive blasting, sandblasting, water blasting, and extensive dry scraping are prohibited paint removal methods. (Methylene chloride paint removers and dry scraping are also not recommended.)

**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.

**Reevaluation:** In lead hazard control work, the combination of a visual assessment and collection of environmental samples performed by a certified risk assessor to determine if a previously implemented lead-based paint hazard control measure is still effective and if the dwelling remains lead-safe. Also known as reinspection.

**Replacement:** Replacement of existing features can be an appropriate abatement technique if the feature is deteriorated beyond repair or if the feature is of minor significance

**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. In North Carolina, the standard for driplines is 400ppm. Also called lead-contaminated soil.

**Treatment:** In residential lead-based paint hazard control work, any method designed to control lead-based paint hazards. Treatment includes interim controls, abatement, and removal. Hazardous waste "treatment" is a method, technique, or process (such as neutralization) that is designed to change the physical, chemical, or biological character or composition of hazardous waste to neutralize it; render it non-hazardous or less hazardous; recover it; make it safer to transport, store, or dispose; or allow for easier recovery, storage, or volume reduction.

## LEAD POISONING

**Environmental Intervention Blood Lead Level:** The level of lead in blood that requires intervention in a child under age six. This is defined as a blood lead level of 20



$\mu\text{g/dL}$  (micrograms per deciliter) of whole blood or above for a single test or blood lead levels of 15-19  $\mu\text{g/dL}$  in two tests taken at least three months apart. In North Carolina a level of concern is defined as 5  $\mu\text{g/dL}$ .

## LEAD-BASED PAINT – KEY UNITS OF MEASUREMENT

**$\mu\text{g}$  (Microgram):** A Microgram is  $1/1000^{\text{th}}$  of a milligram (or one millionth of a gram). To put this unit 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.

**$\text{ft}^2$  (Square Foot):** One square foot is equal to an area that has a length of one foot (12 inches) and a width of one foot (12 inches).

**$\mu\text{g/dL}$ :** Micrograms per deciliter used to measure the level of lead in children's blood to establish whether intervention is needed. A deciliter ( $1/10^{\text{th}}$  of liter) is a little less than half a cup. As noted above, a microgram is the same weight as one penny divided into two million parts.

**$\text{mg/cm}^2$ :** Milligrams per square centimeter, used for paint by XRF machines.

**percent:** Percent by weight, used usually for lead-based paint (1 percent = 10,000  $\mu\text{g/gram}$ ).

**ppm:** Parts per million by weight, equivalent to  $\mu\text{g/gram}$  (10,000 ppm = 1 percent). Used to measure lead in paint and soil.

## LEAD-BASED PAINT STANDARDS

### Paint – Definition of Lead-Based Paint

Paint that contains at least:

- ★ 1 milligram per centimeters square ( $\text{mg/cm}^2$ ) of lead;
- ★ 0.5 percent lead; or
- ★ 5,000 parts per million (ppm) lead by dry weight.

2328 Old Knoxville Highway  
Maryville, TN

## **APPENDIX VIII Licenses and Performance Characteristics Sheet**



**TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
DIVISION OF RADIOLOGICAL HEALTH  
3RD FLOOR, L&C ANNEX, 401 CHURCH STREET, NASHVILLE, TENNESSEE 37243**

## RADIOACTIVE MATERIAL LICENSE

Pursuant to Tennessee Department of Environment and Conservation Regulations, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess and transfer radioactive material listed below; and to use such radioactive material for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules and regulations of the Tennessee Department of Environment and Conservation and orders of the Division of Radiological Health, now or hereafter in effect and to any conditions specified below.

<p style="text-align: center;"><b>LICENSEE</b></p> <p>1. Name</p> <p>2. Address</p>	<p>3. License number</p> <p>4. Expiration date January 31, 2020</p> <p>5. File no.</p>	
<p>6. Radioactive Material (Element and Mass Number)</p>	<p>8. Chemical and/or physical form</p>	<p>9. Maximum Radioactivity and/or quantity of material which licensee may possess at any one time.</p>
<p><b>See Supplementary Sheets</b></p>		

10. Authorized Use

**See Supplementary Sheets**

### CONDITIONS

11. Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above.

**See Supplementary Sheets**

Date of Issuance: January 14, 2010

Page 1 of 4 Pages

For the Commissioner  
Tennessee Department of Environment and Conservation

By: \_\_\_\_\_

Division of Radiological Health  
Gerald W. Bacon  
Health Physicist



TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
DIVISION OF RADIOLOGICAL HEALTH  
3RD FLOOR, L&C ANNEX, 401 CHURCH STREET, NASHVILLE, TENNESSEE 37243

## RADIOACTIVE MATERIAL LICENSE

### Supplementary Sheet

Page 2 of 4 Pages

License Number R-79312-A20

- |                                                                                       |                                                                                                                                                                              |                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6. Radioactive Material<br>(Element and<br><u>Mass Number</u> )<br><br>A. Cadmium 109 | 8. Chemical<br>and/or<br><u>Physical Form</u><br><br>A. Sealed Sources<br>(QSA Global, Inc.<br>Models CUC.D1 and<br>CUC.P1; Isotope<br>Products Laboratories<br>Model XFB-3) | 9. Maximum Radioactivity<br>and/or Quantity of Material<br>Which Licensee May<br><u>Possess at Any One Time</u><br><br>A. Two (2) sources not to<br>exceed 50 millicuries<br>each. |
|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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10. Authorized Use

- A. To be used in Thermo NITON Model XLp-Series X-Ray Fluorescence Devices.

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Conditions (continued)

12. The licensee shall comply with applicable provisions of 1200-2-4, 1200-2-5, and 1200-2-10, of "State Regulations for Protection Against Radiation."
13. Radioactive material authorized by this license shall be stored at 2574 Sam Cooper Boulevard, Second Floor, Memphis, Tennessee 39112.
14. Radioactive material authorized by this license may be used at temporary job sites of the licensee, in areas not under exclusive Federal jurisdiction, throughout the State of Tennessee. Before radioactive materials can be used at a temporary job site at any Federal facility, the jurisdictional status of the job site must be determined. If the jurisdictional status is unknown, the Federal agency should be contacted to determine if the job site is under exclusive Federal jurisdiction. A response should be obtained in writing or a record should be made of the name and title of the person at the Federal agency who provided the determination and the date that it was provided. Authorization for use of radioactive materials at job sites under exclusive Federal jurisdiction shall be obtained either by: (1) Filing a U.S. Nuclear Regulatory Commission Form-241 in accordance with 10 CFR 150.20(b), "Recognition of Agreement State Licenses," or (2) Applying for a specific U.S. Nuclear Regulatory Commission license.



**TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
DIVISION OF RADIOLOGICAL HEALTH  
3RD FLOOR, L&C ANNEX, 401 CHURCH STREET, NASHVILLE, TENNESSEE 37243**

**RADIOACTIVE MATERIAL LICENSE**

**Supplementary Sheet**

Page 3 of 4 Pages

License Number R-79312-A20

Before radioactive materials can be used at a temporary job site in another State, authorization shall be obtained from the State if it is an Agreement State, or from the U.S. Nuclear Regulatory Commission for any non-Agreement State, either by filing for reciprocity or applying for a specific license.

15. A. Radioactive material authorized by this license shall be used by, or under the supervision and in the physical presence of individuals who have satisfactorily completed a training course provided by a device manufacturer or one approved by the Department, the U.S. Nuclear Regulatory Commission, or another Agreement State and have been instructed in the licensee's operating and emergency procedures. Records of training for each user shall be maintained by the licensee for inspection by the Department.
- B. The Radiation Safety Officer for this license is Raymond Kennedy, III.
16. A. Sealed sources authorized by this license shall be tested for leakage and/or contamination at intervals not to exceed six (6) months. In the absence of a certificate from a transferor indicating that a test has been made within six (6) months prior to transfer, the sealed source shall not be put into use until tested.
- B. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. The test sample shall be taken from the sealed source or from the surface of the device in which the sealed source is permanently mounted or stored on which one might expect contamination to accumulate. Records of leak tests shall be kept in units of microcuries and maintained for inspection by the Department.
- C. If the test reveals the presence of 0.005 microcurie or more of removable contamination, the licensee shall immediately withdraw the sealed source from use and shall cause it to be decontaminated and repaired or to be disposed of in accordance with Department regulations. A report shall be filed within five (5) days of the test with the Division of Radiological Health, Tennessee Department of Environment and Conservation, L&C Annex – Third Floor, 401 Church Street, Nashville, Tennessee 37243, describing the equipment involved, the test results, and the corrective action taken.
- D. The licensee is authorized to use a vendor supplied leak test kit to collect samples for analysis by persons authorized by this Department, the U.S. Nuclear Regulatory Commission, or another Agreement state to perform such services.



**TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
DIVISION OF RADIOLOGICAL HEALTH  
3RD FLOOR, L&C ANNEX, 401 CHURCH STREET, NASHVILLE, TENNESSEE 37243**

**RADIOACTIVE MATERIAL LICENSE**

**Supplementary Sheet**

**Page 4 of 4 Pages**

**License Number R-79312-A20**

17. The licensee shall not open sealed sources containing radioactive material or remove sealed sources from their respective source holders.
18. Any cleaning, maintenance, or repair of the devices that requires removal of the source from the device shall be performed only by the manufacturer or other persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.
19. Installation, replacement, removal from services, and disposal of sealed sources containing radioactive material used in devices shall be performed only by the respective device manufacturer or by other persons specifically authorized by this Department, the U.S. Nuclear Regulatory Commission, or another Agreement State, as appropriate, to perform such services.
20. Each portable device shall have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position. The device or its container must be locked when in transport, storage, or when not under the direct surveillance of an authorized user.
21. The licensee shall conduct a physical inventory every six (6) months to account for all sources and/or devices received and possessed under this license. Records of inventories shall be maintained for inspection by the Department.
22. The licensee is authorized to receive, possess, and use any radioactive material distributed under a general license, issued by the U.S. Nuclear Regulatory Commission or another Agreement State, without being specifically referenced in Items 6, 8, 9, and 10 of this license. Notwithstanding any other conditions of this license, the general licensee may possess and use radioactive material received under the provisions of "State Regulations for Protection Against Radiation," 1200-2-10 in accordance with the requirements provided at the time of transfer of the radioactive material under the terms of the general license.
23. No provision of this license relieves the licensee from compliance with other Federal, State and local laws, ordinances, and regulations applicable to the licensee's activities.
24. Except as specifically provided otherwise by this license, the licensee shall possess and use radioactive material described in Items 6, 8, and 9 of this license in accordance with statements, representations, and procedures contained in the following:
  - Application dated December 17, 2009, with attachments
  - Letter dated January 13, 2010.



# THE STATE OF TENNESSEE



By virtue of the certification requirements in Rule Chapter 1200-01-18



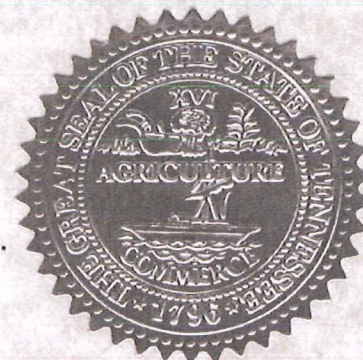
Is hereby certified as a lead-based paint activity firm:

Certification Number	Effective	Expires
FTN-2009-1987-4126R	12/6/2012	12/31/2015
Type: ReCertification		

Under the Seal of the State of Tennessee

This 06 day of December 2012 .

Department of Environment and Conservation





# THE STATE OF TENNESSEE



By virtue of the authority vested in me, I hereby certify

To conduct lead-based paint activities in the discipline(s) of:

Discipline	Type	Certification Number	Effective	Expires
Inspector	Initial		9/27/2010	9/29/2013
Risk Assessor	Initial		9/27/2010	9/29/2013

Given under my hand and the Seal  
of the State of Tennessee in Nashville,

This 28 day of September 2010 .

James H. Fyke, Commissioner  
Department of Environment and Conservation





# THE STATE OF TENNESSEE



By virtue of the certification requirements in Rule Chapter 1200-01-18

Is hereby certified to conduct lead-based paint activities in the discipline(s) of:

Discipline	Type	Certification Number	Effective	Expires
Risk Assessor	ReCertification		5/7/2012	5/31/2015



Under the Seal of the State of Tennessee

This 07 day of May 2012.

Department of Environment and Conservation

## Performance Characteristic Sheet

EFFECTIVE DATE: September 24, 2004

EDITION NO.: 1

### MANUFACTURER AND MODEL:

Make: Niton LLC

Tested Model: XLp 300

Source:  $^{109}\text{Cd}$ 

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/cm<sup>2</sup> (inclusive)

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm<sup>2</sup> in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm<sup>2</sup> 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 <sup>2</sup> )
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.

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)						
	All Data			Median for laboratory-measured lead levels (mg/cm <sup>2</sup> )		
Substrate	25 <sup>th</sup> Percentile	Median	75 <sup>th</sup> 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*.