



**ENVIRONMENTAL  
TESTING SERVICES LLC.**

**Lead-Based Paint Inspection  
for  
Miscellaneous contents in home**

**112 Main St. Cherry Hill, NJ 08002**

**Date of Inspection: September 17th, 2012**

**Report Prepared for:**

**Mr. Home Owner**

**Property Owner:**

**Mr. Home Owner  
112 Main St.  
Cherry Hill, NJ 08002**

**Inspection Company:**

**Environmental Testing Services LLC.  
619 Wills Ave.  
Deptford, NJ 08096  
856-432-6688  
[www.lead@ets-enviro.com](http://www.lead@ets-enviro.com)**

**Inspector:**

**John Doe  
License # NJ-5551212**

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All recommendations, findings, and conclusions stated in this report are based upon facts and circumstances as they existed at the time of the inspection and at the time that this report was prepared. **Quantities are approximate. Contractor shall field verify amount/size of lead-based paint components/surfaces.**



September 17th, 2012

Dear Mr. Home Owner:

Please find enclosed the lead inspection report for miscellaneous contents for the residents located at **112 Main St. Cherry Hill, NJ 08002**. The XRF survey was performed within the current acceptable industry guidelines, Housing and Urban Development (HUD) Guidelines Chapter 7 (Revised 1997) and State Regulations.

ETS conducted the miscellaneous contents lead paint inspection at the above-referenced site on **September 17th, 2012**. The components in this inspection were identified under of the direction by Mr. Home Owner and his wife.

ETS used Niton XLP 300A X-Ray fluorescence (XRF) lead paint analyzer to sample paint for lead. XRF Instrument serial # 184 was used on this job.

Licensed PA Lead Inspector **John Doe** (License # 5551212), expiration date December 14<sup>th</sup>, 2012 performed the inspection.

**ETS has determined that there are items in the residence that contain lead-based paint.**

If you have any questions or concerns regarding this report, please feel free to contact us at (856) 432-4468.

**Sincerely,**

**John Doe  
President**

## II

# Lead

Lead-based paint (LBP) is a concern in most homes built before 1978. In the U.S., White Lead was used extensively as a pigment in paint until the rising cost of lead in the 1960s prompted the use of alternative pigments. The growing awareness of lead poisoning resulted in the eventual ban of lead-based paint in 1978 when the U.S. Consumer Product Safety Commission (CPSC) banned the sale and distribution of residential paint containing lead. Before the decline in use and eventual ban of lead-based paint, it was considered a high quality and durable paint. It is estimated that over 80% of the homes built before 1978 contain some lead-based paint.

### a. Exposure to Lead Paint in the Home

The primary concern with having lead-based paint in the home is lead poisoning from inhaling lead dust, ingesting lead dust from placing hands or other objects covered with lead dust in the mouth or even ingesting lead paint chips. Lead paint produces a white, chalky film of lead dust over time and, like all paints, will peel and chip when not maintained. Friction on painted surfaces such as doors and windows can also produce lead dust.

Particularly at risk are young children under the age of six years. Their innate and indiscriminate habits of putting objects in their mouths make them most susceptible to ingesting lead dust or paint chips. Their proportionally smaller body mass allows dangerously high concentrations of lead to develop more easily with minimal exposure. According to the Centers for Disease Control, an estimated 10 percent of U.S. preschoolers suffer from high enough levels of lead in their blood to poison their systems. Also at risk from exposure to lead-based paint are pregnant women. Please note that some states or local authorities require some action if a child is found to have lead poisoning or is at risk of lead poisoning. Consult your state agency to see if state or local laws apply to you.

Although banned in 1978, Lead continues to be a hazard in 25% of U.S. homes with kids under age 6. ***However, about 30% of the childhood lead poison cases followed by the CDC are not caused by paint. Many experts believe that the culprit is lead in toys and jewelry.*** During the past 14 months, the CPSC has overseen 31.7 million voluntary recalls, of which nearly 4 million were due to excessive lead in toys. **The overwhelming majority of those toys were made in China, which manufactures 80% of the toys sold in this country.**

Jewelry, also frequently made in China, has been the target of even more recalls. Since 2004, manufacturers have recalled more than 45 jewelry products involving 170 million units due to excessive lead. Even non-recalled jewelry, however -- including some labeled "lead-free" --has proven to be dangerous.

## **b. What is a Lead Inspection?**

Lead inspections determine the presence of lead in paint and other possible lead-based and contaminated areas. This inspection, measures lead in both deteriorated and intact paint. The procedure involves taking readings from representative surfaces and items throughout the testing area or room. The most common primary analytical method for detecting lead in paint is X-Ray Fluorescence (XRF). The XRF instrument is used because of its demonstrated abilities to accurately determine the amount of lead that is present without disturbing the painted surfaces as well as their high speed and relatively low cost per sample.

## **c. How do I interpret the results?**

ETS inspectors use instruments that are operated with guidance from the Performance Characteristic Sheet published by the US Department of HUD. **The results classified as positive or negative based on the HUD action level of 1.00 mg/cm<sup>2</sup>. Results less than 1.00 mg/cm<sup>2</sup> are considered negative and results greater than 1.00 mg/cm<sup>2</sup> are considered positive.** Any inconclusive results should be considered positive. For renovation purposes as well as OSHA implications, it should be noted that lead present in levels less than 1.00 mg/cm<sup>2</sup> could generate dusts that exceed acceptable levels depending on the renovation or demolition being performed.

### III Executive Summary

Environmental Testing Services LLC was authorized by Mr. Home Owner, to perform a Miscellaneous contents lead-based paint (LBP) inspection of a single Family home located at **112 Main St. Cherry Hill, NJ 08002**. ETS tested miscellaneous contents under the direction and supervision of Mr. Home Owner and his wife for the presence of lead based paint. The miscellaneous contents were tested according to the specifications described in the protocols for Lead Based Paint testing in the Housing and Urban Development (HUD) Guidelines Chapter 7 (revised 1997) and any applicable Federal, State, and Local regulations.

ETS tested a total of **Ninety Four (94) components via XRF analysis and six (6) calibrations. Ten (10) surfaces were found to contain lead at levels above the regulatory level of 1.0 mg/cm<sup>2</sup>**. These components surfaces are identified in Section III: G. This report represents field data, observations and findings related to the lead inspection performed in the above referenced property. The results, assessments and findings stated in this report are representative of the conditions observed in this property at the time of the inspection. Lead inspections determine the presence of lead in paint and other possible lead-based and contaminated areas. This inspection, measures lead in both deteriorated and intact paint. The procedure involves taking readings from representative surfaces and or components throughout the testing area or room. The most common primary analytical method for detecting lead in paint is X-Ray Fluorescence (XRF). The XRF instrument is used because of its demonstrated abilities to accurately determine the amount of lead that is present without disturbing the painted surfaces as well as their high speed and relatively low cost per sample.

## **IV Scope of Inspection**

### **A. Building Background**

The property located at **112 Main St. Cherry Hill, NJ 08002** a Single Family home (1 unit).

### **B. Preface**

ETS was authorized Mr. Home Owner and his wife to perform a Miscellaneous contents lead-based paint (LBP) inspection of a single Family home located at **112 Main St. Cherry Hill, NJ 08002**. The testing was conducted on **September 17th, 2012**.

### **C. Training**

All inspectors utilized by Environmental Testing Services LLC. have EPA/State licensure and are licensed Lead Risk Assessors, or Inspectors who have passed the "HUD Visual Assessment Course". All technicians utilized by Summit Construction and Environmental Services have also been trained in the use, calibration and maintenance of the X-Ray Fluorescence (XRF) equipment they currently use, along with necessary principles of Radiation Safety.

### **D. Equipment**

The instrument was purchased or serviced after **December 1<sup>st</sup>, 2006**. Niton XLP 300A X-Ray fluorescence (XRF) lead paint analyzer, serial # 13035 was used on this job. Source material is **CD109**.

### **E. Inspection Company**

The inspection was performed by an inspector employed by ETS, 619 Wills Ave, Deptford, NJ 08096. Telephone number (856) 432-4468.

### **F. Methods**

The calibration of the Niton XLP 300A X-Ray fluorescence (XRF) is done in accordance with the Performance Characteristic Sheet (PCS) for this instrument. These XRF instruments are calibrated using a calibration standard block of known lead content. Three calibration readings are taken before and after each property is tested to insure manufacturer's standards are met. If the inspection is longer than 4 hours, a set of 3 calibration readings must be taken before the 4 hours expires, and then an additional 3 calibration readings taken at the end of the inspection. 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, manufacturer's 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.

## G. Findings

112 Main St. Cherry Hill, NJ 08002

ETS tested a total of **Ninety Four (94)** components via XRF analysis and **six (6)** calibrations. **Eleven (11)** surfaces were found to contain lead at levels above the regulatory level of 1.0 mg/cm<sup>2</sup>.

Reading No	COMPONENT	Results	PbC
4	gold elephant	Positive	3.7
6	Yellow Dish	Positive	3.7
7	Orange cup	Positive	4.3
9	Red cup	Positive	5.6
76	Gold Religious item	Positive	1.1
77	Gold Religious item	Positive	1
78	Gold Religious item	Positive	1.7
79	Gold Religious item	Positive	1.7
80	Gold Religious item	Positive	1.2
96	Christmas cup	Positive	1.7
97	Gold dish	Positive	3.7

## H. Conclusions

The above listed components were determined to be positive for lead paint, as defined by Environmental Protection Agency/Department of Housing and Urban Development (EPA/HUD) as containing lead in concentrations greater or equal to 1.0 mg/cm<sup>2</sup>.

Given that the lead evaluation results indicate the presence of lead-based paint, the owner may wish to obtain *at the owner's expense*, additional services of a lead-based paint inspector or risk assessor, certified for the State in which the property is located, to help understand the positive results. This person would review this report and might make additional recommendations about lead hazard control actions.

Interpretations and possible actions may vary when only a few readings indicate the presence of lead-based paint.



## V. Paint Stabilization Recommendations and Cost Estimate

112 Main St. Cherry Hill, NJ 08002

At the specific time and date of the inspection services, the following components may be deemed as lead hazards and should not be used or touched, resulting in exposure to lead dust and the harmful effects it may cause.

Reading No	COMPONENT	Results	PbC
4	gold elephant	Positive	3.7
6	Yellow Dish	Positive	3.7
7	Orange cup	Positive	4.3
9	Red cup	Positive	5.6
76	Gold Religious item	Positive	1.1
77	Gold Religious item	Positive	1
78	Gold Religious item	Positive	1.7
79	Gold Religious item	Positive	1.7
80	Gold Religious item	Positive	1.2
96	Christmas cup	Positive	1.7
97	Gold dish	Positive	3.7

All recommendations, findings, and conclusions stated in this report are based upon facts and circumstances as they existed at the time of the inspection and at the time that this report was prepared.

## **VI. DISCLOSURE RESPONSIBILITY AND DISCLAIMER**

### **Disclaimer**

This is our report of a visual survey, and X-Ray Fluorescence (XRF) analysis of the miscellaneous components tested directed by Mr. Home Owner and his wife. The presence or absence of lead-based paint or lead-based paint hazards applies only to the tested or assessed components on the date of the field visit and it should be understood that conditions noted within this report were accurate at the time of the inspection. Ongoing monitoring by the owner is usually necessary. No other environmental concerns were addressed during this inspection.

## VII: XRF Results

SAMPLE

<b>Inspection Date:</b>	September 17th, 2012	<b>112 Main St. Cherry Hill, NJ 08002</b>
<b>Report Date:</b>	September 17th, 2012	
<b>Abatement Level:</b>	1.0	
<b>Report No:</b>		
<b>Total Readings:</b>	(94) Actionable (0)	

Reading No	COMPONENT	Results	PbC
1	Cali		1
2	Cali		1
3	Cali		1
<b>4</b>	<b>gold elephant</b>	<b>Positive</b>	<b>3.7</b>
5	Flower Plate	Negative	0
<b>6</b>	<b>Yellow Dish</b>	<b>Positive</b>	<b>3.7</b>
<b>7</b>	<b>Orange cup</b>	<b>Positive</b>	<b>4.3</b>
8	Gold Bowl	Negative	0
<b>9</b>	<b>Red cup</b>	<b>Positive</b>	<b>5.6</b>
10	Brown cup	Negative	0.01
11	spice	Negative	0
12	Picture	Negative	0.03
13	Chicken	Negative	0
14	Toy dog	Negative	0
15	big red cup	Negative	0.6
16	Red cereal bowl	Negative	0
17	Butterfly bowl	Negative	0.02
18	Misc. item	Negative	0.01
19	Misc. item	Negative	0
20	Misc. item	Negative	0
21	Misc. item	Negative	0.03
22	Misc. item	Negative	0.26
23	Misc. item	Negative	0.27
24	Misc. item	Negative	0.23
25	Misc. item	Negative	0.01
26	Misc. item	Negative	0
27	Misc. item	Negative	0
28	Misc. item	Negative	0.01
29	Misc. item	Negative	0
30	Misc. item	Negative	0
31	Misc. item	Negative	0
32	Misc. item	Negative	0

33	Misc. item	Negative	0.02
34	Misc. item	Negative	0
35	Misc. item	Negative	0.01
36	Misc. item	Negative	-0.08
37	Misc. item	Negative	-0.02
38	Misc. item	Negative	0
39	Misc. item	Negative	0.03
40	Misc. item	Negative	0
41	Misc. item	Negative	0
42	Misc. item	Negative	0
43	Misc. item	Negative	0
44	Misc. item	Negative	0
45	Misc. item	Negative	0
46	Misc. item	Negative	0.04
47	Misc. item	Negative	0
48	Misc. item	Negative	-0.02
49	Misc. item	Negative	0.16
50	Misc. item	Negative	0
51	Misc. item	Negative	0.06
52	Misc. item	Negative	0
53	Misc. item	Negative	0
54	Misc. item	Negative	0
55	Misc. item	Negative	-0.01
56	Misc. item	Negative	0
57	Misc. item	Negative	0
58	Misc. item	Negative	0
59	Misc. item	Negative	0
60	Misc. item	Negative	0
61	Misc. item	Negative	0
62	Misc. item	Negative	0
63	Misc. item	Negative	0.06
64	Misc. item	Negative	0.07
65	Misc. item	Negative	0.04
66	Misc. item	Negative	0.01
67	Misc. item	Negative	0
68	Misc. item	Negative	0
69	Misc. item	Negative	0
70	Misc. item	Negative	0.01
71	Misc. item	Negative	0
72	Misc. item	Negative	0.02
73	Misc. item	Negative	0
74	Misc. item	Negative	0
75	Misc. item	Negative	0.13
<b>76</b>	<b>Gold Religious item</b>	<b>Positive</b>	<b>1.1</b>

<b>77</b>	<b>Gold Religious item</b>	<b>Positive</b>	<b>1</b>
<b>78</b>	<b>Gold Religious item</b>	<b>Positive</b>	<b>1.7</b>
<b>79</b>	<b>Gold Religious item</b>	<b>Positive</b>	<b>1.7</b>
<b>80</b>	<b>Gold Religious item</b>	<b>Positive</b>	<b>1.2</b>
81	Misc. item	Negative	0
82	Misc. item	Negative	0
83	Misc. item	Negative	0.03
84	Misc. item	Negative	0.24
85	Misc. item	Negative	-0.02
86	Misc. item	Negative	0
87	Misc. item	Negative	0
88	Misc. item	Negative	0.01
89	Misc. item	Negative	0
90	Misc. item	Negative	0.24
91	Misc. item	Negative	0
92	Misc. item	Negative	0
93	Misc. item	Negative	-0.02
94	Misc. item	Negative	0.01
95	Misc. item	Negative	0
<b>96</b>	<b>Christmas cup</b>	<b>Positive</b>	<b>1.7</b>
<b>97</b>	<b>Gold dish</b>	<b>Positive</b>	<b>3.7</b>
98	Cali		1.1
99	Cali		1
100	Cali		1.1

**VIII. License/Certification**

**John Doe License**

SAMPLE

### IX. Pictures / Diagrams



4	gold elephant	Positive	3.7
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9	Red cup	Positive	5.6
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7	Orange cup	Positive	4.3
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*Plate was negative. Most shiny gold items had lead in prayer room.*

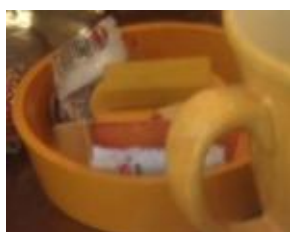
76	Gold Religious item	Positive	1.1
77	Gold Religious item	Positive	1
78	Gold Religious item	Positive	1.7
79	Gold Religious item	Positive	1.7
80	Gold Religious item	Positive	1.2



96	Christmas cup	Positive	1.7
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97	Gold dish	Positive	3.7
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6	Yellow dish	Positive	3.7
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**X: Performance Characteristic (PCS) Sheet**

SAMPLE

## Performance Characteristic Sheet

EFFECTIVE DATE: September 24, 2004

EDITION NO.: 1

### MANUFACTUREER 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:

Xli300A, Xli301A, Xli302A and Xli303A.

XLp300A, XLp301A, XLp302A, and XLp303A.

Xli700A, Xli701A, Xli702A, and Xli703A.

XLp700A, XLp701A, XLp702A, and XLp703A.

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 RANGTE 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 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 40mCi 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 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 the 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 the 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 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 K + L Reading Mode (seconds)						
Substrate	All Data			Median for laboratory-measured lead levels (mg/cm <sup>2</sup> )		
	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*.

**XI: GLOSSARY**

SAMPLE

# **GLOSSARY**

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**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, 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. See also **Complete abatement** and **Interior controls**.

**Accreditation:** A formal recognition certifying that an organization, such as a laboratory, is competent to carry out specific tasks or types of tests.

**Accuracy:** The degree of agreement between an observed value and an accepted reference value (a “true” value); a data quality indicator. Accuracy includes a combination of random errors (precision) and systematic errors (bias) due to sampling an analysis.

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

**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, windowsills, etc.

**Certification:** The process of testing and evaluating against certain specifications the competence of a person, organization, or other entity in performing a function or service, usually for a specified period of time.

**Certified:** The designation for Contractors who have completed training and other requirements to safely allow them to undertake risk assessments, inspections, or abatement work, risk assessors, inspectors, and Abatement Contractors should be certified by the appropriate local, State, or Federal agency.

**Chewable surface:** See chewed surface.

**Chewed surface:** Any painted surface that shows evidence of having been chewed or mouthed by a young child. A chewed surface is usually a protruding, horizontal part of a building, such as an interior windowsill.

**Cleaning:** The process of using a 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.

**Clearance examination:** Visual examination and collection of environmental samples by an inspector or risk assessor, or, in some circumstances, a Sampling Technician, and analysis by an accredited laboratory upon completion of an abatement project, interim control intervention, or maintenance job that disturbs lead-based paint (or paint suspected of being lead-based). The clearance examination is performed to ensure that lead exposure levels do not exceed standards established by the EPA Administrator pursuant to Title IV of the toxic Substances Control Act, and that any cleaning following such work adequately meets those standards.

**Common area:** A room or area that is accessible to all residents in a community (e.g., hallways or lobbies); in general, any area not kept locked.

**Composite sample:** A single sample made up of individual subsamples. Analysis of a composite sample produces the arithmetic mean of all subsamples.

**Containment:** A process to protect workers and the environment by controlling exposures to the lead-contaminated dust and debris created during abatement.

**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, chalking, alligating, cracking, or otherwise becoming separated from the substrate.

**Disposal (of waste):** The discharge, deposit, injection, dumping, spilling, leaking, or placement of solid or liquid waste on land or in water so that none of its constituents can pollute the environment by being emitted into the air or discharged into a body of water, including groundwater.

**Environmental Intervention Blood-Lead Level (EIBL) child:** A child who has a blood lead level at or above 20 ug/dL (micrograms of lead per deciliter of blood) in a single test or at 15-19 ug/dL in two tests taken at least 3 months apart.

**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.

**Evaluation:** Risk assessment, paint inspection, reevaluation, investigation, clearance examination, or risk assessment screen.

**Examination:** See Clearance examination.

**Federal Register (FR):** A daily Federal publication that contains proposed and final regulations, rules, and notices.

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

**Inspection (of paint):** A surface-by-surface investigation to determine the presence of lead-based paint (In some cases including dust and soil sampling) and a report of the results.

**Interim controls:** A set of measures designed to temporarily reduce human exposure or possible exposure to lead-based paint hazards. Such measures include specialized cleaning, repairs, maintenance, painting, temporary containment, and 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. See also Monitoring, Reevaluation, and Abatement.

**Interior windowsill:** The portion of the horizontal window ledge that protrudes into the interior of the room, adjacent to the window sash when the window is closed; often called the window stool.

**Latex:** A waterborne emulsion paint made with synthetic binders, such as 100 percent acrylic, vinyl acrylic, terpolymer, or styrene acrylic; a stable emulsion of polymers and pigment in water.

**Lead:** Lead includes metallic lead and inorganic and organic compounds of lead.

**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> (milligrams of lead per square centimeter of surface) as measured by XRF or laboratory analysis, or 0.5 percent by weight (5,000 ug/g, 5,000 ppm (parts per million), or 5,000 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 Administration under Title IV of the Toxic Substances Control Act). Lead-based paint hazards include, for example, deteriorated lead-based paint, leaded dust levels above applicable standards, and bare leaded soil above applicable standards.

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

**Lead-contaminated dust:** Surface dust in residences that contain an area concentration of lead in excess of the standard established by the EPA Administration, pursuant to Title IV of the Toxic Substances Control Act. EPA standards for leaded dust for risk assessments are 40 ug/ft<sup>2</sup> (micrograms of lead per square foot) on floors and 250 ug/ft<sup>2</sup> on interior windowsills. The EPA standards for clearance are 40 ug/ft<sup>2</sup> on floors, 250 ug/ft<sup>2</sup> on interior windowsills and 400 ug/ft<sup>2</sup> on window troughs. The recommended standard for lead hazard screens for floors is 25 ug/ft<sup>2</sup> and for windowsills is 125 ug/ft<sup>2</sup>.

**Lead-contaminated soil:** Bare soil on residential property that contains lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. The standard is 400 ug/g in play areas and 1200 ug/g in the rest of the yard.

**Leaded dust:** See Lead-contaminated dust.



**Licensed:** Holding a valid license or certification issued by EPA or by an EPA-approved State program pursuant to Title IV of the Toxic Substances Control Act. The license is based on certification for lead-based paint hazard control work. See also Certified.

**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.

**Mean:** The arithmetic average of a series of numerical data values; for example, the algebraic sum of the data values divided by the number of data values.

**Microgram (ug):** 1/1,000,000 of a gram; used to measure weight.

**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; and (3) that structural problems do not threaten the integrity of hazard controls or of known or suspected.

**Owner:** A person, firm, corporation, guardian, receiver, trustee, executor, government agency or entity, or other judicial officer who, alone or with others, owns, holds, or controls the freehold or leasehold title or part of the title to property, with or without actually possessing it. This definition includes a vendee who possesses the title, but does not include a mortgagee or an Owner of a reversionary interest under a ground real lease.

**Paint inspector:** An individual who has completed training from an accredited program and been licensed or certified by the appropriate State or local agency to (1) perform inspections to determine and report the presence of lead-based paint on a surface-by-surface basis through onsite testing, (2) report the findings of such an inspection, (3) collect environmental samples for laboratory analysis, (4) perform clearance testing, and optionally (5) document successful compliance with lead-based paint hazard control requirements or standards.

**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, extensive dry scraping, and stripping in a poorly ventilated space using a volatile stripper are prohibited paint removal methods. Hydroblasting is not recommended.

**Plastic:** See Polyethylene plastic.

**Polyethylene plastic:** All references to polyethylene plastic refer to 6mil plastic sheeting or polyethylene bags (or doubled bags if using 4 mil polyethylene bags), or any other thick plastic material shown to demonstrate at least equivalent dust contaminated performance. Plastic used to contain waste should be capable of completely containing the waste and, after being properly sealed, should remain leak tight with no visible signs of discharge during movement or relocation.

**Polyurethane:** An exceptionally hard and wear-resistant coating (created by the reaction of polyols with a multifunctional isocyanate); often used to seal wood floors following lead-based paint hazard control work and cleaning.

**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.

**Removal:** See Paint removal.

**Renovation:** Work that involves construction and/or home or building improvement measures such as window replacement, weatherization, remodeling, and repainting.

**Replacement:** A strategy of abatement that entails the removal of building components coated with lead-based paint (such as windows, doors, and trim) and the installation of new components free of lead-based paint.

**Resident:** A person who lives in a dwelling.

**Risk assessment:** An onsite investigation of a residential dwelling to discover any lead-based paint hazards. Risk assessments include an investigation of the age, history, management, and maintenance of the dwelling, and the number of children under age 6 and women of childbearing age who are residents; a visual assessment; limited environmental sampling (i.e., collection of dust wipe

samples, soil samples, and deteriorated paint samples); and preparation of a report identifying acceptable abatement and interim control strategies based on specific conditions.

**Risk assessor:** A certified individual who has completed training with an accredited training program and who has been certified to (1) perform risk assessments, (2) identify acceptable abatement and interim control strategies for reducing identified lead-based paint hazards, (3) perform clearance testing and reevaluations, and (4) document the successful completion of lead-based paint hazard control activities.

**Site:** The land or body of water where a facility is located or an activity is conducted. The site includes adjacent land used in connection with the facility or activity.

**Soil:** See Bare soil.

**Spectrum analyzer:** A type of XRF analyzer that provides the operator with a plot of the energy and intensity, or counts of both K and L x-ray spectra, as well as a calculated lead concentration. See also XRF analyzer.

**Standard deviation:** A measure of the precision of a reading; the spread of the deviation from the mean. The smaller the standard of deviation, the more precise the analysis. The standard deviation is calculated by first obtaining the mean, or the arithmetic average, of all of the readings. A formula is then used to calculate how much the individual values vary from the mean- the standard deviation is the square root of the arithmetic average of the squares of the deviation from the mean. Many hand calculators have an automatic standard deviation function. See also Mean.

**Subsample:** A representative portion of a sample. A subsample may be either a field sample or a laboratory sample. A subsample is often combined with other subsamples to produce a composite sample. See also Composite sample.

**Substrate:** A surface on which paint, varnish, or other coating has been applied or may be applied. Examples of substrates include wood, plaster, metal, and drywall.

**Substrate effect:** The radiation returned to an XRF analyzer by the paint, substrate, or underlying material, in addition to the radiation returned by any lead present. This radiation, when counted as lead x-rays by an XRF analyzer contributes to substrate equivalent lead (bias). The inspector may have to compensate for this effect when using XRF analyzers. See also XRF analyzer.

**Substrate Equivalent Lead (SEL):** The XRF measurement taken on an unpainted surface; used to calculate the corrected lead concentration on a surface by using the following formula:  $\text{Apparent Lead Concentration} - \text{Substrate Equivalent Lead} = \text{Corrected Lead Concentration}$ . See also XRF analyzer.

**Target housing:** Any residential unit constructed before 1978, except dwellings that do not contain bedrooms or dwellings that were developed specifically for the elderly or persons with disabilities- unless a child younger than 6 resides or is expected to reside in the dwelling. In the case of jurisdictions that banned the sale or use of lead-based paint before 1978, the Secretary of HUD may designate an earlier date for defining target housing.

**Test location:** A specific area on a testing combination where XRF instruments will test for lead-based paint.

**Trained:** Successful completion of a training course in a particular discipline. For lead hazard control work, the training course must be accredited by EPA or by an EPA-approved State program, pursuant to Title IV of the Toxic Substances Control Act.

**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.

**Trough:** See Window trough.

**Windowsill:** See interior windowsill.

**Window trough:** For a typical double-hung window, the portion of the exterior windowsill between the interior windowsill (or stool) and the frame of the storm window. If there is no storm window, the window trough is the area that receives both the upper and lower window sashes when they are both lowered. Sometimes inaccurately called the window "well".

**Worker:** An individual who has completed training in an accredited program to perform Lead-based paint hazard control in housing.

**Worksite:** Any interior or exterior area where lead-based paint hazard control work takes place.

**XRF analyzer:** An instrument that determines lead concentration in milligrams per square centimeter ( $\text{mg}/\text{cm}^2$ ) using the principle of x-ray fluorescence (XRF). Two types of field portable XRF analyzers are used- direct readers and spectrum analyzers. For this lead-based paint inspection, the term XRF analyzer only refers to portable instruments manufactured to analyze paint that have a HUD Performance Characteristic Sheet, and are interpreted in accordance with the Performance Characteristic Sheet; it does not refer here to laboratory grade units or portable instruments designed to analyze soil.

SAMPLE