ENVIRONMENTAL CONSULTING SERVICES, INC.

ECS

LEAD-BASED PAINT TESTING

Prepared for The City of Avondale Neighborhood and Family Services

Testing Date: January 10, 2020 **Report Date**: January 14, 2020

PERFORMED AT	PREPARED FOR	PREPARED BY
Commercial Property Paleterias La Michoakana (Owner) 105 East Western Avenue Avondale, Arizona 85353-2328	Marsha D. Chavez The City of Avondale Neighborhood and Family Services 1007 South 3rd Street Avondale, Arizona 85323-2809	Environmental Consulting Services, Inc. EPA Certification # LBP-15473-1 Jim Begin LBP-R-13604-1 US EPA Certified Lead Risk Assessor

Building Description
The property tested is a single-story commercial building. The exterior consists of stucco walls* Testing was limited to the North wall. The interior consists of block and drywall walls and ceilings; metal doors with metal door frames; with wood cabinetry.

4727 East Bell Road • Suite 45-250 • Phoenix, AZ 85032-2308
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info@ecs-environmentalservices.com • www.ecs-environmentalservices.com

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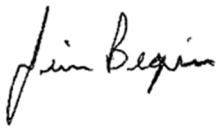
ENVIRONMENTAL CONSULTANT

Environmental Consulting Services, Inc.



January 10, 2020

Signature of Risk Assessor — Testing Date

Executive Summary

As a result of the Lead-Based Paint Testing (Assessment) conducted on January 10, 2020, it was found that **NO LEAD-BASED PAINT WAS DETECTED.**

Following is a report of the information collected during this testing:

Identifying Information and Purpose of Assessment

A Lead-Based Paint Testing was conducted at 105 East Western Avenue in Phoenix, Arizona for Paleterias La Michoakana (Homeowner) on January 10, 2020. The testing was conducted by Environmental Consulting Services, Inc. located at 4727 East Bell Road, Suite 45-250, Phoenix, Arizona 85032-2308. Jim Begin, US EPA Certified Lead Risk Assessor, conducted the testing. The purpose of the testing was to identify the presence of lead hazards inside and outside the residence, as well as to identify the presence of deteriorated lead-based paint (LBP.) Based upon conversations with the Owner and The City of Avondale Neighborhood and Family Services (Client), to the knowledge of this Assessor, there has not been any previous LBP testing at this home.

As a part of the Assessment, on-site paint testing using an x-ray fluorescence (XRF) lead-in-paint analyzer was performed. **A detailed summary of all XRF sample readings is located in Appendix B**.

The Assessment was contracted for by The City of Avondale Neighborhood and Family Services in Phoenix, Arizona (Telephone 623-333-2700) Further information concerning this project can be obtained from this contracting agency.

Identified Lead Hazards

While the building and its paint was generally in good condition during the Assessment, the XRF results from the deteriorated paint that was tested showed that LBP hazards **DO NOT** exist, as defined in the Residential LBP Hazard Reduction Act of 1192 (Title X) and as defined by the Environmental Protection Agency (EPA) regulation published in the January 5, 2001 Federal Register.

Disclosure Regulations

The results of this testing indicate that no lead in amounts greater than or equal to 1.0 mg/cm² in paint was found on any building components, using the testing protocol in chapter 7 of the *HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (current Revision as of the date of the testing.)* However, some painted surfaces may contain levels of lead below 1.0 mg/cm², which could create lead dust or lead-contaminated soil hazards if the paint is turned into dust by abrasion, scraping, or sanding. This report should be kept by the inspector and the owner, and all future owners for the life of the dwelling. EPA regulations require the inspector to keep the testing report for at least 3 years.

Paint Condition Survey

Please note: EPA and HUD have provided a specific definition for the term "deteriorated paint." Deteriorated paint is defined as "any interior or exterior paint or other coating that is peeling, chipping, chalking or cracking, or any paint or coating located on an interior or exterior surface or fixture that is otherwise damaged or separated from the substrate." This definition is most typically associated with surface conditions only. Usage of this term in describing conditions other than those associated with surface coatings are not known to be defined by EPA or HUD.

Identified Deteriorated Paint, Paint Conditions, Lead Content, and Most Apparent Cause of Deterioration:

- **NO LEAD HAZARDS FOUND**

The remaining paint exhibited no apparent signs of deterioration, as of the date of Assessment.

Paint Sampling and XRF Testing

Conforming with HUD regulation 24 CRF 35.930(c), (d) a Lead-Based Paint Testing was conducted at this residence on the interior and exterior surfaces utilizing an x-ray fluorescence analyzer. A total of 13 tests (assays) samples were collected. The testing was conducted on January 10, 2020. **No inconclusive XRF readings were detected; therefore no paint chip samples were collected.**

Some of the remaining test locations exhibited lead-in-paint levels below HUD levels, but in great enough quantities to be detectable by our XRF analyzer. It should be noted that lead concentrations (in paint) that are less than the levels that identify a surface coating as LBP still have the potential of causing lead poisoning.

Testing was performed by Jim Begin, a US EPA Certified Lead Risk Assessor, using the Protec x-ray fluorescence analyzer. Please refer to the appendices for the detailed XRF report.

Conditions and Limitations

Staff of Environmental Consulting Services, Inc. has 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. Environmental Consulting Services, Inc. cannot guarantee and does not warrant that this Lead-Based Paint Testing/Risk Assessment has identified all adverse environmental factors and/or conditions affecting the subject property on the date of the Assessment. Environmental Consulting Services, Inc. cannot and will not warrant that the Lead-Based Paint Testing/Risk Assessment that was requested by the client will satisfy the dictates of, or provided 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 Renovations, Repair and Painting regulation.

The results reported and conclusions reached by Environmental Consulting Services, Inc. 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. Environmental Consulting Services, Inc. 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.

Appendix A

Floor Plan / Site Map

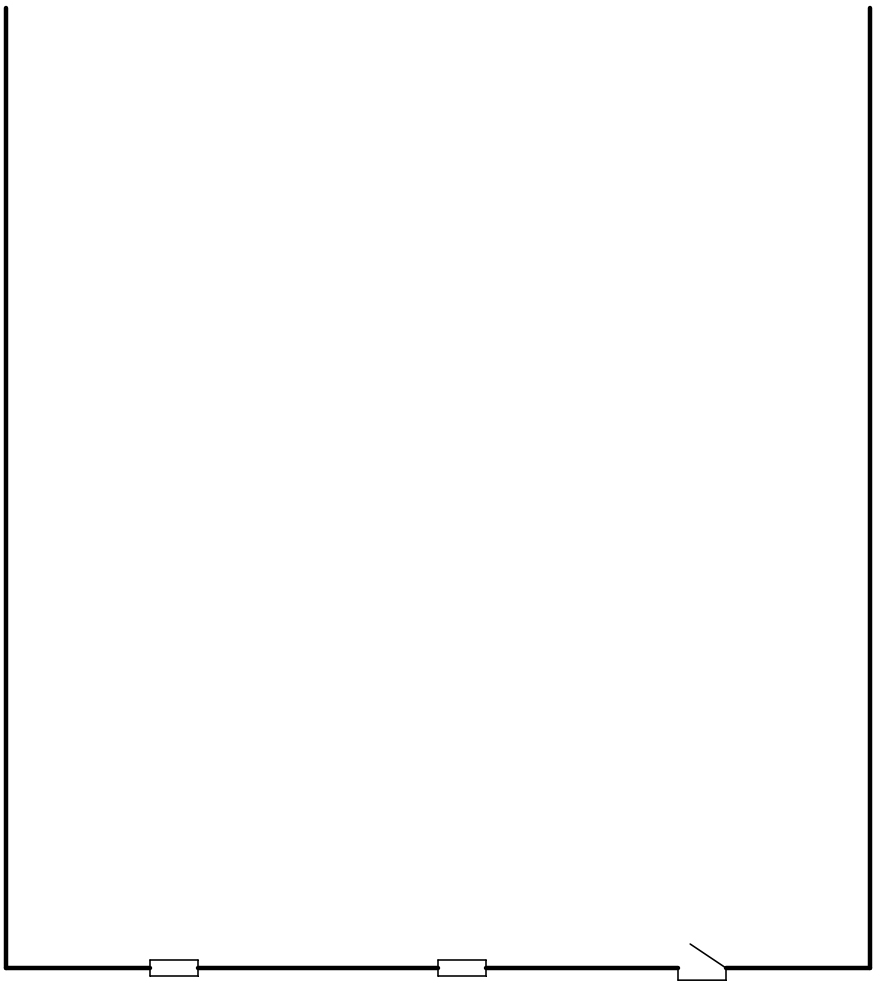
105 EAST WESTERN AVENUE
AVONDALE, ARIZONA 85323-2328

C

not to scale

B

D



X = where soil was sampled.

A

01-EXTERIOR

ENVIRONMENTAL CONSULTING SERVICES, INC.
LEAD-BASED PAINT TESTING

JANUARY 10, 2020

Appendix B

XRF Lead-Based Paint Testing Results/Detailed XRF Summary & Calibration Form

XRF DETAILED TESTING DATA SHEETS

Address: 105 East Western Avenue, Avondale, Arizona 85353-2328

Sample	Area	Room Equivalent	Side Tested	Component	Substrate	Condition	Color	Lead	Results	Quantities (Including Sides) Per Area	Comments
1	Exterior	01 Exterior	A	Wall	Stucco	Deteriorated	Orange	0.10	Negative		
2	Exterior	01 Exterior	B	Wall	Stucco	Deteriorated	Orange	0.20	Negative		
3	Exterior	01 Exterior	C	Wall	Stucco	Deteriorated	Orange	0.10	Negative		
4	Exterior	01 Exterior	A	Door	Metal	Deteriorated	White	0.10	Negative		
5	Exterior	01 Exterior	A	Door Jamb	Metal	Deteriorated	White	0.20	Negative		
6	Exterior	01 Exterior	A	Window Sill	Wood	Deteriorated	White	0.20	Negative		
7	Exterior	01 Exterior	A	Window Sash	Metal	Deteriorated	White	0.10	Negative		
8	Interior	02 North Side	A	Wall	Drywall	Deteriorated	White	0.20	Negative		
9	Interior	02 North Side	B	Wall	Drywall	Deteriorated	Orange	0.30	Negative		
10	Interior	02 North Side	D	Wall	Drywall	Deteriorated	White	0.20	Negative		
11	Interior	02 North Side	A	Baseboard	Wood	Deteriorated	White	0.20	Negative		
12	Interior	02 North Side	A	Window Sill	Wood	Deteriorated	White	0.10	Negative		
13	Interior	02 North Side	A	Window Sash	Metal	Deteriorated	White	0.20	Negative		

XRF CALIBRATION FORM

Address/Unit:	105 East Western Avenue, Avondale, Arizona 85353-2328	
Device:	LPA-1B	S/N - 4104
Date:	1/9/2020	
Inspector:	Jim Begin	

First Calibration Check **Time:** 9:30 AM

1st Reading	2nd Reading	3rd Reading	**1st Average**
0.80	**1.00**	**0.90**	**0.90**

Second Calibration Check **Time:** 10:30 AM

1st Reading	2nd Reading	3rd Reading	**2nd Average**
0.90	**0.90**	**1.00**	**0.93**

Third Calibration Check (If Needed) **Time:**

1st Reading	2nd Reading	3rd Reading	**3rd Average**
			#DIV/0!

Key Units of Measurement

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

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

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

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

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

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

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

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

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

- Surface concentration (mass of lead per area) — 1.0 µg/cm²
- Bulk concentration (mass of lead per volume) — 0.5%, 5000 µg/g, or 5000 ppm

Dust-thresholds for Lead-Contamination

- Floors — 10 µg/ft²
- Interior Window Sills — 100 µg/ft²
- Window Troughs — 100 µg/ft²

Soil-thresholds for Lead-Contamination

- Play Areas used by children under age 6 — 400 µg/g, or 400 ppm
- Other Areas — 1,200 µg/g, or 1,200 ppm

Resources For Additional Information On Lead-Based Paint and Lead-Based Paint Hazard Standards:

National Lead Information Center & Clearinghouse:
1-800-424-LEAD
www.epa.gov/lead/pubs/nlic.htm

Center for Disease Control and Prevention Lead Program:
www.cdc.gov/lead
Toll-free CDC Contact Center: 800-CDC-INFO, TTY 888-232-6348

Consumer Product Safety Commission
www.cpsc.gov
Toll-free Customer Hotline: 800-638-2772, TTY 301-595-7054

Environmental Protection Agency Lead Program:
www.epa.gov/lead
202-566-0500

HUD Office of Healthy Homes and Lead Hazard Control:
www.hud.gov/offices/lead
202-402-7698

Department of Public Health Childhood Lead Poisoning Prevention
www.dhs.ca.gov/childlead
Toll-free: 800-597-5323

Appendix D
Copy of Risk Assessor's License/Certification

United States Environmental Protection Agency

This is to certify that

James M Begin

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires January 21, 2021

LBP-R-13604-1
Certification #

December 18, 2017
Issued On

Adrienne Priselac, Manager, Toxics Office
Land Division

Appendix E
Copy of Firm's Lead Activity License/Certification

United States Environmental Protection Agency

This is to certify that

Environmental Consulting Services Inc.

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires July 05, 2022

LBP-15473-2

Certification #

December 13, 2018

Issued On

Michelle Price, Chief

Lead, Heavy Metals, and Inorganics Branch

Appendix F
Copy of XRF Training Certificate and XRF Performance Characteristic Sheet

Certificate of Achievement

This is to certify that

James Begin

ECS

on the 9th of November, 2015 successfully completed the factory training for

Protec Instrument Corporation XRF Lead Paint Inspection System

Including, but not limited to, the topics of Radiation Safety,.DOT Regulations, Haz-Mat Security Awareness and the Proper Use of the Instrument.

Verena Streber, President
Protec Instrument Corporation
38 Edge Hill Road, Waltham, MA 02451

Performance Characteristic Sheet

EFFECTIVE DATE: **October 25, 2006** **EDITION NO.: 5**

MANUFACTURER AND MODEL:

Make: ***Radiation Monitoring Devices***
Model: ***LPA-1***
Source: ^{57}***Co***
Note: This sheet supersedes all previous sheets for the XRF instrument of the make, model, and source shown above ***for instruments sold or serviced after June 26, 1995. For other instruments, see prior editions.***

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Quick mode or 30-second equivalent standard (Time Corrected) mode readings.

XRF CALIBRATION CHECK LIMITS:

0.7 to 1.3 mg/cm^2 (inclusive)

SUBSTRATE CORRECTION:

For XRF results below 4.0 mg/cm^2, substrate correction is recommended for:

Metal using 30-second equivalent standard (Time Corrected) mode readings.
None using quick mode readings.

Substrate correction is not needed for:

Brick, Concrete, Drywall, Plaster, and Wood using 30-second equivalent standard (Time Corrected) mode readings
Brick, Concrete, Drywall, Metal, Plaster, and Wood using quick mode readings

THRESHOLDS:

30-SECOND EQUIVALENT STANDARD MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Results corrected for substrate bias on metal substrate only	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	0.9
	Plaster	1.0
	Wood	1.0

QUICK MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Readings 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 on approximately 150 test locations in July 1995. The instrument that performed testing in September had a new source installed in June 1995 with 12 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.

XRF CALIBRATION CHECK:

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

Chapter 7 of the HUD Guidelines provides guidance on correcting XRF results for substrate bias. Supplemental guidance for using the paint film nearest 1.0 mg/cm^2 for substrate correction is provided:

XRF results are corrected for substrate bias by subtracting from each XRF result a correction value determined separately in each house for single-family housing or in each development for multifamily housing, for each substrate. The correction value is an average of XRF readings taken over the NIST SRM paint film nearest to 1.02 mg/cm^2 at test locations that have been scraped bare of their paint covering. Compute the correction values as follows:

> Using the same XRF instrument, take three readings on a bare substrate area covered with the NIST SRM paint film nearest 1 mg/cm^2. Repeat this procedure by taking three more readings on a second bare substrate area of the same substrate covered with the NIST SRM.
>
> Compute the correction value for each substrate type where XRF readings indicate substrate correction is needed by computing the average of all six readings as shown below.
>
> For each substrate type (the 1.02 mg/cm^2 NIST SRM is shown in this example; use the actual lead loading of the NIST SRM used for substrate correction):
>
> $$\text{Correction value} = (1^{st} + 2^{nd} + 3^{rd} + 4^{th} + 5^{th} + 6^{th}\ \textit{Reading}) / 6 - 1.02\ \text{mg/cm}^2$$
>
> Repeat this procedure for each substrate requiring substrate correction in the house or housing development.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use either the Quick Mode or 30-second equivalent standard (Time Corrected) Mode readings.

Conduct XRF re-testing 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 and multi-family housing, a result is defined as 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.

BIAS AND PRECISION:

Do not use these bias and precision data to correct for substrate bias. These bias and precision data were computed without substrate correction from samples with reported laboratory results less than 4.0 mg/cm^2 lead. The data which were used to determine the bias and precision estimates given in the table below have the following properties. During the July 1995 testing, there were 15 test locations with a laboratory-reported result equal to or greater than 4.0 mg/cm^2 lead. Of these, one 30-second standard mode reading was less than 1.0 mg/cm^2 and none of the quick mode readings were less than 1.0 mg/cm^2. The instrument that tested in July is representative of instruments sold or serviced after June 26, 1995. These data are for illustrative purposes only. Actual bias must be determined on the site. Results provided above already account for bias and precision. Bias and precision ranges are provided to show the variability found between machines of the same model.

30-SECOND STANDARD MODE READING MEASURED AT	SUBSTRATE	BIAS (mg/cm^2)	PRECISION* (mg/cm^2)
0.0 mg/cm^2	Brick	0.0	0.1
	Concrete	0.0	0.1
	Drywall	0.1	0.1
	Metal	0.3	0.1
	Plaster	0.1	0.1
	Wood	0.0	0.1
0.5 mg/cm^2	Brick	0.0	0.2
	Concrete	0.0	0.2
	Drywall	0.0	0.2
	Metal	0.2	0.2
	Plaster	0.0	0.2
	Wood	0.0	0.2
1.0 mg/cm^2	Brick	0.0	0.3
	Concrete	0.0	0.3
	Drywall	0.0	0.3
	Metal	0.2	0.3
	Plaster	0.0	0.3
	Wood	0.0	0.3
2.0 mg/cm^2	Brick	-0.1	0.4
	Concrete	-0.1	0.4
	Drywall	-0.1	0.4
	Metal	0.1	0.4
	Plaster	-0.1	0.4
	Wood	-0.1	0.4

*Precision at 1 standard deviation.

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than the upper boundary of the inconclusive range, and negative if they are less than the lower boundary of the inconclusive range, or inconclusive if in between. The inconclusive range includes both its upper and lower bounds. Earlier editions of this *XRF Performance Characteristics Sheet* did not include both bounds of the inconclusive range as "inconclusive." While this edition of the Performance Characteristics Sheet uses a different system, the specific XRF readings that are considered positive, negative, or inconclusive for a given XRF model and substrate remain unchanged, so previous inspection results are not affected.

DOCUMENTATION:

An EPA 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. A HUD document titled *A Nonparametric Method for Estimating the 5th and 95th Percentile Curves of Variable-Time XRF Readings Based on Monotone Regression* provides supplemental information on the methodology for variable-time XRF instruments. A copy of this document can be obtained from the HUD lead web site, www.hud.gov/offices/lead.

This XRF Performance Characteristic Sheet was developed by QuanTech, Inc., under a contract from the U.S. Department of Housing and Urban Development (HUD). 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*.

Appendix G
“LEAD SPEAK” A Brief Glossary

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

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

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

Deteriorated paint: Any paint coating on a damaged or deteriorated surface or fixture, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligatoring, 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 the building.

Dust-lead hazard: Surface dust in residence 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-lust hazards, which are based on wipe samples, are published at 40 CFR 745.65(b); as of the publication of this edition of these *Guidelines*, these are 40 µg/ft² on floors and 250 µg/ft² on interior window sills. Also, called lead-contaminated dust.

Friction surface: Any interior or exterior surface, such as 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 the owners, and reevaluations, conducted by professional, are integral elements of interim control. Interior 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 Repainting Rule.

Lead-based paint: Any paint, varnish, shellac, or other coating that contains lead equal to or greater than 1.0 mg/cm² as measured by XRF or laboratory analysis, or 0.5 percent by weight (5,000 ppm, 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 at 40 CFR 745.65, under Title IV of the Toxic Substances Control Act.) Lead-based paint hazards include, for example, paint-lead hazards, dust-lead hazards, and soil-lead hazards.

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

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

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

ENVIRONMENTAL CONSULTING SERVICES, INC.

ECS

LEAD-BASED PAINT TESTING

Prepared for The City of Avondale Neighborhood and Family Services

Testing Date: January 10, 2020 **Report Date**: January 14, 2020

PERFORMED AT	PREPARED FOR	PREPARED BY
Commercial Property Alliance Notary (Owner) 111 East Western Avenue Avondale, Arizona 85353-2328	Marsha D. Chavez The City of Avondale Neighborhood and Family Services 1007 South 3rd Street Avondale, Arizona 85323-2809	Environmental Consulting Services, Inc. EPA Certification # LBP-15473-1 Jim Begin LBP-R-13604-1 US EPA Certified Lead Risk Assessor

Building Description
The property tested is a single-story commercial building. The exterior consists of wood and stucco walls; metal doors with metal door frames; fixed windows with wood window frames.* Testing was limited to the North wall. The interior consists of drywall walls and ceilings; wood and metal doors with wood door frames with wood cabinetry.

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Table of Contents

ENVIRONMENTAL CONSULTANT

Environmental Consulting Services, Inc.

January 10, 2020

Signature of Risk Assessor | Testing Date

Executive Summary

As a result of the Lead-Based Paint Testing (Assessment) conducted on January 10, 2020, it was found that **NO LEAD-BASED PAINT WAS DETECTED.**

Following is a report of the information collected during this testing:

Identifying Information and Purpose of Assessment

A Lead-Based Paint Testing was conducted at 111 East Western Avenue in Phoenix, Arizona for Alliance Notary (Homeowner) on January 10, 2020. The testing was conducted by Environmental Consulting Services, Inc. located at 4727 East Bell Road, Suite 45-250, Phoenix, Arizona 85032-2308. Jim Begin, US EPA Certified Lead Risk Assessor, conducted the testing. The purpose of the testing was to identify the presence of lead hazards inside and outside the residence, as well as to identify the presence of deteriorated lead-based paint (LBP.) Based upon conversations with the Owner and The City of Avondale Neighborhood and Family Services (Client), to the knowledge of this Assessor, there has not been any previous LBP testing at this home.

As a part of the Assessment, on-site paint testing using an x-ray fluorescence (XRF) lead-in-paint analyzer was performed. **A detailed summary of all XRF sample readings is located in Appendix B**.

The Assessment was contracted for by The City of Avondale Neighborhood and Family Services in Phoenix, Arizona (Telephone 623-333-2700) Further information concerning this project can be obtained from this contracting agency.

Identified Lead Hazards

While the building and its paint was generally in good condition during the Assessment, the XRF results from the deteriorated paint that was tested showed that LBP hazards **DO NOT** exist, as defined in the Residential LBP Hazard Reduction Act of 1192 (Title X) and as defined by the Environmental Protection Agency (EPA) regulation published in the January 5, 2001 Federal Register.

Disclosure Regulations

The results of this testing indicate that no lead in amounts greater than or equal to 1.0 mg/cm² in paint was found on any building components, using the testing protocol in chapter 7 of the *HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (current Revision as of the date of the testing.)* However, some painted surfaces may contain levels of lead below 1.0 mg/cm², which could create lead dust or lead-contaminated soil hazards if the paint is turned into dust by abrasion, scraping, or sanding. This report should be kept by the inspector and the owner, and all future owners for the life of the dwelling. EPA regulations require the inspector to keep the testing report for at least 3 years.

Paint Condition Survey

Please note: EPA and HUD have provided a specific definition for the term "deteriorated paint." Deteriorated paint is defined as "any interior or exterior paint or other coating that is peeling, chipping, chalking or cracking, or any paint or coating located on an interior or exterior surface or fixture that is otherwise damaged or separated from the substrate." This definition is most typically associated with surface conditions only. Usage of this term in describing conditions other than those associated with surface coatings are not known to be defined by EPA or HUD.

Identified Deteriorated Paint, Paint Conditions, Lead Content, and Most Apparent Cause of Deterioration:

- **NO LEAD HAZARDS FOUND**

The remaining paint exhibited no apparent signs of deterioration, as of the date of Assessment.

Paint Sampling and XRF Testing

Conforming with HUD regulation 24 CRF 35.930(c), (d) a Lead-Based Paint Testing was conducted at this residence on the interior and exterior surfaces utilizing an x-ray fluorescence analyzer. A total of 29 tests (assays) samples were collected. The testing was conducted on January 10, 2020. **No inconclusive XRF readings were detected; therefore no paint chip samples were collected.**

Some of the remaining test locations exhibited lead-in-paint levels below HUD levels, but in great enough quantities to be detectable by our XRF analyzer. It should be noted that lead concentrations (in paint) that are less than the levels that identify a surface coating as LBP still have the potential of causing lead poisoning.

Testing was performed by Jim Begin, a US EPA Certified Lead Risk Assessor, using the Protec x-ray fluorescence analyzer. Please refer to the appendices for the detailed XRF report.

Conditions and Limitations

Staff of Environmental Consulting Services, Inc. has 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. Environmental Consulting Services, Inc. cannot guarantee and does not warrant that this Lead-Based Paint Testing/Risk Assessment has identified all adverse environmental factors and/or conditions affecting the subject property on the date of the Assessment. Environmental Consulting Services, Inc. cannot and will not warrant that the Lead-Based Paint Testing/Risk Assessment that was requested by the client will satisfy the dictates of, or provided 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 Renovations, Repair and Painting regulation.

The results reported and conclusions reached by Environmental Consulting Services, Inc. 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. Environmental Consulting Services, Inc. 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.

Appendix A

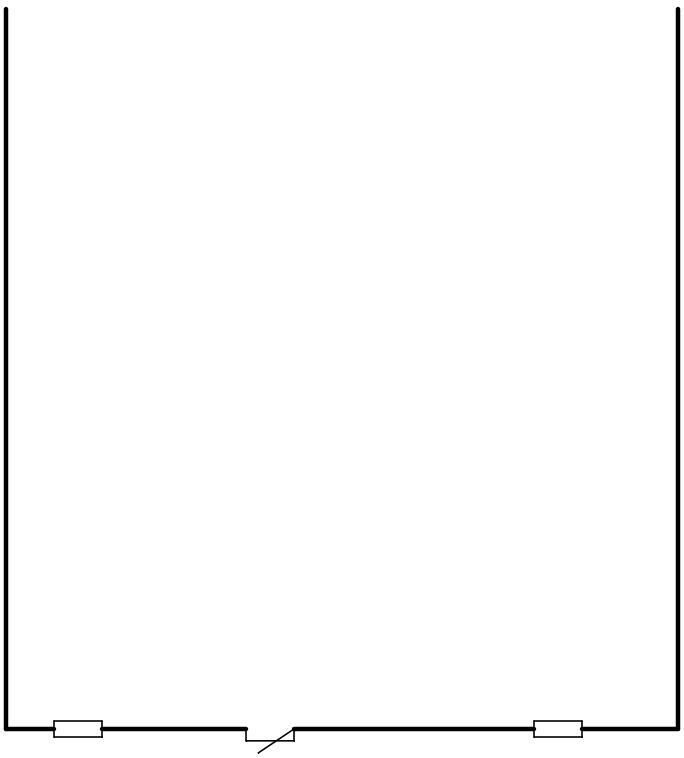
Floor Plan / Site Map

111 EAST WESTERN AVENUE
AVONDALE, ARIZONA 85323-2328

C

not to scale

(NORTH WALL)



B

D

X = where soil was sampled.

A

01-EXTERIOR

Appendix B

XRF Lead-Based Paint Testing Results/Detailed XRF Summary & Calibration Form

XRF DETAILED TESTING DATA SHEETS

Address: 111 East Western Avenue, Avondale, Arizona 85323-2328

Sample	Area	Room Equivalent	Side Tested	Component	Substrate	Condition	Color	Lead	Results	Quantities (Including Sides) Per Area	Comments
1	Exterior	01 Exterior	A	Wall	Wood	Deteriorated	Gray	0.200	Negative		
2	Exterior	01 Exterior	B	Wall	Stucco	Deteriorated	Gray	0.100	Negative		
3	Exterior	01 Exterior	D	Wall	Stucco	Deteriorated	Gray	0.200	Negative		
4	Exterior	01 Exterior	A	Wall	Wood	Deteriorated	White	0.200	Negative		
5	Exterior	01 Exterior	A	Door	Metal	Deteriorated	Brown	0.200	Negative		
6	Exterior	01 Exterior	A	Door Casing	Wood	Deteriorated	White	0.100	Negative		
7	Exterior	01 Exterior	A	Door Jamb	Wood	Deteriorated	White	0.200	Negative		
8	Exterior	01 Exterior	A	Window Bars	Metal	Deteriorated	Black	0.200	Negative		
9	Exterior	01 Exterior	A	Window Sill	Wood	Deteriorated	Black	0.100	Negative		
10	Exterior	01 Exterior	A	Window Sash	Wood	Deteriorated	Black	0.200	Negative		
11	Exterior	01 Exterior	A	Window Casing	Wood	Deteriorated	White	0.200	Negative		
12	Exterior	01 Exterior	A	Window Jamb	Wood	Deteriorated	Black	0.200	Negative		
13	Exterior	01 Exterior	B	Vent Casing	Wood	Deteriorated	White	0.200	Negative		
14	Exterior	01 Exterior	B	Vent Casing	Metal	Deteriorated	White	0.100	Negative		
15	Exterior	01 Exterior	A	Eaves	Wood	Deteriorated	Gray	0.200	Negative		
16	Exterior	01 Exterior	A	Trim	Wood	Deteriorated	White	0.200	Negative		
17	Exterior	01 Exterior	A	Mail Box	Metal	Deteriorated	Black	0.200	Negative		
18	Interior	02 Interior 111	A	Wall	Drywall	Deteriorated	Gray	0.200	Negative		
19	Interior	02 Interior 111	B	Wall	Drywall	Deteriorated	Gray	0.100	Negative		
20	Interior	02 Interior 111	C	Wall	Drywall	Deteriorated	Gray	0.200	Negative		
21	Interior	02 Interior 111	-	Ceiling	Drywall	Deteriorated	White	0.100	Negative		
22	Interior	02 Interior 111	A	Baseboard	Wood	Deteriorated	White	0.100	Negative		
23	Interior	02 Interior 111	A	Door	Metal	Deteriorated	Brown	0.100	Negative		
24	Interior	02 Interior 111	A	Door Casing	Wood	Deteriorated	White	0.100	Negative		
25	Interior	02 Interior 111	A	Door Jamb	Metal	Deteriorated	Brown	0.100	Negative		
26	Interior	02 Interior 111	A	Window Sill	Wood	Deteriorated	White	0.200	Negative		
27	Interior	02 Interior 111	A	Window Sash	Wood	Deteriorated	White	0.100	Negative		
28	Interior	02 Interior 111	A	Window Casing	Wood	Deteriorated	White	0.200	Negative		
29	Interior	02 Interior 111	A	Window Jamb	Wood	Deteriorated	White	0.200	Negative		

XRF CALIBRATION FORM

Address/Unit:	111 East Western Avenue, Avondale, Arizona 85323-2328	
Device:	LPA-1B	S/N - 4104
Date:	1/10/2020	
Inspector:	Jim Begin	

First Calibration Check **Time:** 10:35 AM

1st Reading	2nd Reading	3rd Reading	**1st Average**
0.80	**0.90**	**0.80**	**0.83**

Second Calibration Check **Time:** 11:30 AM

1st Reading	2nd Reading	3rd Reading	**2nd Average**
1.00	**0.90**	**0.80**	**0.90**

Third Calibration Check (If Needed) **Time:**

1st Reading	2nd Reading	3rd Reading	**3rd Average**
			#DIV/0!

Appendix C

Additional Lead and Lead Safety Resource Data

Key Units of Measurement

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

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

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

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

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

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

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

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

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

- Surface concentration (mass of lead per area) 1.0 µg/cm²
- Bulk concentration (mass of lead per volume) 0.5%, 5000 µg/g, or 5000 ppm

Dust-thresholds for Lead-Contamination

- Floors 10 µg/ft²
- Interior Window Sills 100 µg/ft²
- Window Troughs 100 µg/ft²

Soil-thresholds for Lead-Contamination

- Play Areas used by children under age 6 400 µg/g, or 400 ppm
- Other Areas 1,200 µg/g, or 1,200 ppm

Resources For Additional Information On Lead-Based Paint and Lead-Based Paint Hazard Standards:

National Lead Information Center & Clearinghouse:
1-800-424-LEAD
www.epa.gov/lead/pubs/nlic.htm

Center for Disease Control and Prevention Lead Program:
www.cdc.gov/lead
Toll-free CDC Contact Center: 800-CDC-INFO, TTY 888-232-6348

Consumer Product Safety Commission
www.cpsc.gov
Toll-free Customer Hotline: 800-638-2772, TTY 301-595-7054

Environmental Protection Agency Lead Program:
www.epa.gov/lead
202-566-0500

HUD Office of Healthy Homes and Lead Hazard Control:
www.hud.gov/offices/lead
202-402-7698

Department of Public Health Childhood Lead Poisoning Prevention
www.dhs.ca.gov/childlead
Toll-free: 800-597-5323

Appendix D
Copy of Risk Assessor's License/Certification

United States Environmental Protection Agency

This is to certify that

James M Begin

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires January 21, 2021

LBP-R-13604-1
Certification #

December 18, 2017
Issued On

Adrienne Priselac, Manager, Toxics Office
Land Division

Appendix E
Copy of Firm's Lead Activity License/Certification

United States Environmental Protection Agency

This is to certify that

Environmental Consulting Services Inc.

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires July 05, 2022

LBP-15473-2

Certification #

December 13, 2018

Issued On

Michelle Price, Chief

Lead, Heavy Metals, and Inorganics Branch

Appendix F
Copy of XRF Training Certificate and XRF Performance Characteristic Sheet

Certificate of Achievement

This is to certify that

James Begin

ECS

on the 9th of November, 2015 successfully completed the factory training for

Protec Instrument Corporation XRF Lead Paint Inspection System

Including, but not limited to, the topics of Radiation Safety,.DOT Regulations, Haz-Mat Security Awareness and the Proper Use of the Instrument.

Verena Streber, President
Protec Instrument Corporation
38 Edge Hill Road, Waltham, MA 02451

Performance Characteristic Sheet

EFFECTIVE DATE: **October 25, 2006** **EDITION NO.: 5**

MANUFACTURER AND MODEL:

Make: ***Radiation Monitoring Devices***
Model: ***LPA-1***
Source: ^{57}***Co***
Note: This sheet supersedes all previous sheets for the XRF instrument of the make, model, and source shown above ***for instruments sold or serviced after June 26, 1995. For other instruments, see prior editions.***

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Quick mode or 30-second equivalent standard (Time Corrected) mode readings.

XRF CALIBRATION CHECK LIMITS:

0.7 to 1.3 mg/cm^2 (inclusive)

SUBSTRATE CORRECTION:

For XRF results below 4.0 mg/cm^2, substrate correction is recommended for:

Metal using 30-second equivalent standard (Time Corrected) mode readings.
None using quick mode readings.

Substrate correction is not needed for:

Brick, Concrete, Drywall, Plaster, and Wood using 30-second equivalent standard (Time Corrected) mode readings
Brick, Concrete, Drywall, Metal, Plaster, and Wood using quick mode readings

THRESHOLDS:

30-SECOND EQUIVALENT STANDARD MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Results corrected for substrate bias on metal substrate only	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	0.9
	Plaster	1.0
	Wood	1.0

QUICK MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Readings 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 on approximately 150 test locations in July 1995. The instrument that performed testing in September had a new source installed in June 1995 with 12 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.

XRF CALIBRATION CHECK:

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

Chapter 7 of the HUD Guidelines provides guidance on correcting XRF results for substrate bias. Supplemental guidance for using the paint film nearest 1.0 mg/cm^2 for substrate correction is provided:

XRF results are corrected for substrate bias by subtracting from each XRF result a correction value determined separately in each house for single-family housing or in each development for multifamily housing, for each substrate. The correction value is an average of XRF readings taken over the NIST SRM paint film nearest to 1.02 mg/cm^2 at test locations that have been scraped bare of their paint covering. Compute the correction values as follows:

> Using the same XRF instrument, take three readings on a bare substrate area covered with the NIST SRM paint film nearest 1 mg/cm^2. Repeat this procedure by taking three more readings on a second bare substrate area of the same substrate covered with the NIST SRM.
>
> Compute the correction value for each substrate type where XRF readings indicate substrate correction is needed by computing the average of all six readings as shown below.
>
> For each substrate type (the 1.02 mg/cm^2 NIST SRM is shown in this example; use the actual lead loading of the NIST SRM used for substrate correction):
>
> $$\text{Correction value} = (1^{st} + 2^{nd} + 3^{rd} + 4^{th} + 5^{th} + 6^{th}\ \textit{Reading}) / 6 - 1.02\ \text{mg/cm}^2$$
>
> Repeat this procedure for each substrate requiring substrate correction in the house or housing development.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use either the Quick Mode or 30-second equivalent standard (Time Corrected) Mode readings.

Conduct XRF re-testing 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 and multi-family housing, a result is defined as 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.

BIAS AND PRECISION:

Do not use these bias and precision data to correct for substrate bias. These bias and precision data were computed without substrate correction from samples with reported laboratory results less than 4.0 mg/cm^2 lead. The data which were used to determine the bias and precision estimates given in the table below have the following properties. During the July 1995 testing, there were 15 test locations with a laboratory-reported result equal to or greater than 4.0 mg/cm^2 lead. Of these, one 30-second standard mode reading was less than 1.0 mg/cm^2 and none of the quick mode readings were less than 1.0 mg/cm^2. The instrument that tested in July is representative of instruments sold or serviced after June 26, 1995. These data are for illustrative purposes only. Actual bias must be determined on the site. Results provided above already account for bias and precision. Bias and precision ranges are provided to show the variability found between machines of the same model.

30-SECOND STANDARD MODE READING MEASURED AT	SUBSTRATE	BIAS (mg/cm^2)	PRECISION* (mg/cm^2)
0.0 mg/cm^2	Brick	0.0	0.1
	Concrete	0.0	0.1
	Drywall	0.1	0.1
	Metal	0.3	0.1
	Plaster	0.1	0.1
	Wood	0.0	0.1
0.5 mg/cm^2	Brick	0.0	0.2
	Concrete	0.0	0.2
	Drywall	0.0	0.2
	Metal	0.2	0.2
	Plaster	0.0	0.2
	Wood	0.0	0.2
1.0 mg/cm^2	Brick	0.0	0.3
	Concrete	0.0	0.3
	Drywall	0.0	0.3
	Metal	0.2	0.3
	Plaster	0.0	0.3
	Wood	0.0	0.3
2.0 mg/cm^2	Brick	-0.1	0.4
	Concrete	-0.1	0.4
	Drywall	-0.1	0.4
	Metal	0.1	0.4
	Plaster	-0.1	0.4
	Wood	-0.1	0.4

*Precision at 1 standard deviation.

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than the upper boundary of the inconclusive range, and negative if they are less than the lower boundary of the inconclusive range, or inconclusive if in between. The inconclusive range includes both its upper and lower bounds. Earlier editions of this *XRF Performance Characteristics Sheet* did not include both bounds of the inconclusive range as "inconclusive." While this edition of the Performance Characteristics Sheet uses a different system, the specific XRF readings that are considered positive, negative, or inconclusive for a given XRF model and substrate remain unchanged, so previous inspection results are not affected.

DOCUMENTATION:

An EPA 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. A HUD document titled *A Nonparametric Method for Estimating the 5th and 95th Percentile Curves of Variable-Time XRF Readings Based on Monotone Regression* provides supplemental information on the methodology for variable-time XRF instruments. A copy of this document can be obtained from the HUD lead web site, www.hud.gov/offices/lead.

This XRF Performance Characteristic Sheet was developed by QuanTech, Inc., under a contract from the U.S. Department of Housing and Urban Development (HUD). 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*.

Appendix G
“LEAD SPEAK” A Brief Glossary

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

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

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

Deteriorated paint: Any paint coating on a damaged or deteriorated surface or fixture, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligatoring, 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 the building.

Dust-lead hazard: Surface dust in residence 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-lust hazards, which are based on wipe samples, are published at 40 CFR 745.65(b); as of the publication of this edition of these *Guidelines*, these are 40 µg/ft² on floors and 250 µg/ft² on interior window sills. Also, called lead-contaminated dust.

Friction surface: Any interior or exterior surface, such as 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 the owners, and reevaluations, conducted by professional, are integral elements of interim control. Interior 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 Repainting Rule.

Lead-based paint: Any paint, varnish, shellac, or other coating that contains lead equal to or greater than 1.0 mg/cm² as measured by XRF or laboratory analysis, or 0.5 percent by weight (5,000 ppm, 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 at 40 CFR 745.65, under Title IV of the Toxic Substances Control Act.) Lead-based paint hazards include, for example, paint-lead hazards, dust-lead hazards, and soil-lead hazards.

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

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

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

ENVIRONMENTAL CONSULTING SERVICES, INC.

ECS

LEAD-BASED PAINT TESTING

Prepared for The City of Avondale Neighborhood and Family Services

Testing Date: January 9, 2020

Report Date: January 14, 2020

PERFORMED AT	PREPARED FOR	PREPARED BY
Commercial Property S&S Southwestern Management, LLC (Owner) 607 East Western Avenue Avondale, Arizona 85353-2423	Marsha D. Chavez The City of Avondale Neighborhood and Family Services 1007 South 3rd Street Avondale, Arizona 85323-2809	Environmental Consulting Services, Inc. EPA Certification # LBP-15473-1 Jim Begin LBP-R-13604-1 US EPA Certified Lead Risk Assessor

Building Description
The property tested is a single-story commercial building. The exterior consists of block walls; metal doors with wood door frames; fixed windows with metal window frames. The interior consists of drywall walls and ceilings; with wood cabinetry.

4727 East Bell Road • Suite 45-250 • Phoenix, AZ 85032-2308
Phone: (800) 511-6364 • Fax: (480) 719-4465
info@ecs-environmentalservices.com • www.ecs-environmentalservices.com

Table of Contents

ENVIRONMENTAL CONSULTANT

Environmental Consulting Services, Inc.

January 9, 2020

Signature of Risk Assessor | Testing Date

Executive Summary

As a result of the Lead-Based Paint Testing (Assessment) conducted on January 9, 2020, it was found that **NO LEAD-BASED PAINT WAS DETECTED.**

Following is a report of the information collected during this testing:

Identifying Information and Purpose of Assessment

A Lead-Based Paint Testing was conducted at 607 East Western Avenue in Phoenix, Arizona for S & S Southwestern Management, LLC(Homeowner) on January 9, 2020. The testing was conducted by Environmental Consulting Services, Inc. located at 4727 East Bell Road, Suite 45-250, Phoenix, Arizona 85032-2308. Jim Begin, US EPA Certified Lead Risk Assessor, conducted the testing. The purpose of the testing was to identify the presence of lead hazards inside and outside the residence, as well as to identify the presence of deteriorated lead-based paint (LBP.) Based upon conversations with the Owner and The City of Avondale Neighborhood and Family Services (Client), to the knowledge of this Assessor, there has not been any previous LBP testing at this home.

As a part of the Assessment, on-site paint testing using an x-ray fluorescence (XRF) lead-in-paint analyzer was performed. **A detailed summary of all XRF sample readings is located in Appendix B**.

The Assessment was contracted for by The City of Avondale Neighborhood and Family Services in Phoenix, Arizona (Telephone 623-333-2700) Further information concerning this project can be obtained from this contracting agency.

Identified Lead Hazards

While the building and its paint was generally in good condition during the Assessment, the XRF results from the deteriorated paint that was tested showed that LBP hazards **DO NOT** exist, as defined in the Residential LBP Hazard Reduction Act of 1192 (Title X) and as defined by the Environmental Protection Agency (EPA) regulation published in the January 5, 2001 Federal Register.

Disclosure Regulations

The results of this testing indicate that no lead in amounts greater than or equal to 1.0 mg/cm² in paint was found on any building components, using the testing protocol in chapter 7 of the *HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (current Revision as of the date of the testing.)* However, some painted surfaces may contain levels of lead below 1.0 mg/cm², which could create lead dust or lead-contaminated soil hazards if the paint is turned into dust by abrasion, scraping, or sanding. This report should be kept by the inspector and the owner, and all future owners for the life of the dwelling. EPA regulations require the inspector to keep the testing report for at least 3 years.

Paint Condition Survey

Please note: EPA and HUD have provided a specific definition for the term "deteriorated paint." Deteriorated paint is defined as "any interior or exterior paint or other coating that is peeling, chipping, chalking or cracking, or any paint or coating located on an interior or exterior surface or fixture that is otherwise damaged or separated from the substrate." This definition is most typically associated with surface conditions only. Usage of this term in describing conditions other than those associated with surface coatings are not known to be defined by EPA or HUD.

Identified Deteriorated Paint, Paint Conditions, Lead Content, and Most Apparent Cause of Deterioration:

- **NO LEAD HAZARDS FOUND**

The remaining paint exhibited no apparent signs of deterioration, as of the date of Assessment.

Paint Sampling and XRF Testing

Conforming with HUD regulation 24 CRF 35.930(c), (d) a Lead-Based Paint Testing was conducted at this residence on the interior and exterior surfaces utilizing an x-ray fluorescence analyzer. A total of 31 tests (assays) samples were collected. The testing was conducted on January 9, 2020. **No inconclusive XRF readings were detected; therefore no paint chip samples were collected.**

Some of the remaining test locations exhibited lead-in-paint levels below HUD levels, but in great enough quantities to be detectable by our XRF analyzer. It should be noted that lead concentrations (in paint) that are less than the levels that identify a surface coating as LBP still have the potential of causing lead poisoning.

Testing was performed by Jim Begin, a US EPA Certified Lead Risk Assessor, using the Protec x-ray fluorescence analyzer. Please refer to the appendices for the detailed XRF report.

Conditions and Limitations

Staff of Environmental Consulting Services, Inc. has 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. Environmental Consulting Services, Inc. cannot guarantee and does not warrant that this Lead-Based Paint Testing/Risk Assessment has identified all adverse environmental factors and/or conditions affecting the subject property on the date of the Assessment. Environmental Consulting Services, Inc. cannot and will not warrant that the Lead-Based Paint Testing/Risk Assessment that was requested by the client will satisfy the dictates of, or provided 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 Renovations, Repair and Painting regulation.

The results reported and conclusions reached by Environmental Consulting Services, Inc. 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. Environmental Consulting Services, Inc. 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.

Appendix A

Floor Plan / Site Map

607 EAST WESTERN AVENUE
AVONDALE, ARIZONA 85323-2423

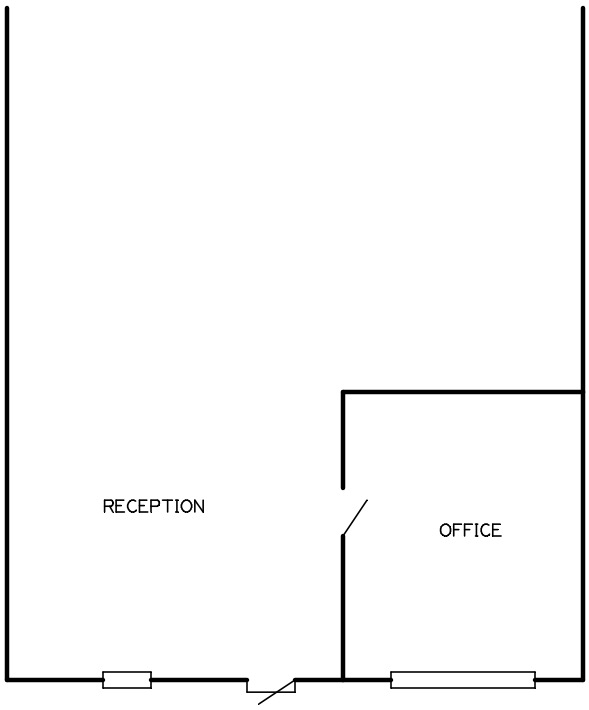
C

not to scale

(NORTH WALL)

B

D



X = where soil was sampled.

A

01-EXTERIOR

ENVIRONMENTAL CONSULTING SERVICES, INC.
LEAD-BASED PAINT TESTING

JANUARY 09, 2020

Appendix B

XRF Lead-Based Paint Testing Results/Detailed XRF Summary & Calibration Form

XRF DETAILED TESTING DATA SHEETS

Address: 607 East Western Avenue, Avondale, Arizona 85323-2423

Sample	Area	Room Equivalent	Side Tested	Component	Substrate	Condition	Color	Lead	Results	Quantities (Including Sides) Per Area	Comments
1	Exterior	01 Exterior	A	Wall	Concrete Block	Deteriorated	Orange	0.20	Negative		
2	Exterior	01 Exterior	B	Wall	Concrete Block	Deteriorated	Orange	0.30	Negative		
3	Exterior	01 Exterior	D	Wall	Concrete Block	Deteriorated	Orange	0.30	Negative		
4	Exterior	01 Exterior	A	Door	Metal	Deteriorated	Orange	0.20	Negative		
5	Exterior	01 Exterior	A	Door	Metal	Deteriorated	Brown	0.10	Negative		
6	Exterior	01 Exterior	A	Door Jamb	Metal	Deteriorated	Orange	0.10	Negative		
7	Exterior	01 Exterior	A	Window Sill	Concrete Block	Deteriorated	Orange	0.20	Negative		
8	Exterior	01 Exterior	A	Window Sash	Metal	Deteriorated	Brown	0.10	Negative		
9	Exterior	01 Exterior	A	Window Lintel	Metal	Deteriorated	Orange	0.30	Negative		
10	Exterior	01 Exterior	A	Over Hang Eaves	Wood	Deteriorated	Brown	0.20	Negative		
11	Exterior	01 Exterior	A	Rafter	Wood	Deteriorated	Brown	0.10	Negative		
12	Exterior	01 Exterior	A	Fascia	Wood	Deteriorated	Brown	0.10	Negative		
13	Exterior	01 Exterior	A	Eaves Strap	Metal	Deteriorated	Orange	0.20	Negative		
14	Interior	02 Reception	A	Wall	Drywall	Deteriorated	White	0.10	Negative		
15	Interior	02 Reception	B	Wall	Drywall	Deteriorated	White	0.20	Negative		
16	Interior	02 Reception	C	Wall	Drywall	Deteriorated	Brown	0.20	Negative		
17	Interior	02 Reception	D	Wall	Drywall	Deteriorated	White	0.10	Negative		
18	Interior	02 Reception	A	Baseboard	Wood	Deteriorated	White	0.10	Negative		
19	Interior	02 Reception	A	Crown Molding	Wood	Deteriorated	White	0.10	Negative		
20	Interior	02 Reception	A	Door	Wood	Deteriorated	White	0.10	Negative		
21	Interior	02 Reception	A	Door Casing	Wood	Deteriorated	White	0.20	Negative		
22	Interior	02 Reception	A	Door Jamb	Metal	Deteriorated	White	0.10	Negative		
23	Interior	02 Reception	A	Window Sash	Metal	Deteriorated	Brown	0.20	Negative		
24	Interior	03 Office	A	Wall	Drywall	Deteriorated	White	0.10	Negative		
25	Interior	03 Office	B	Wall	Drywall	Deteriorated	White	0.20	Negative		
26	Interior	03 Office	C	Wall	Drywall	Deteriorated	White	0.20	Negative		
27	Interior	03 Office	D	Wall	Drywall	Deteriorated	White	0.10	Negative		
28	Interior	03 Office	A	Crown Molding	Wood	Deteriorated	White	0.10	Negative		
29	Interior	03 Office	B	Door	Wood	Deteriorated	White	0.10	Negative		
30	Interior	03 Office	B	Door Casing	Wood	Deteriorated	White	0.20	Negative		
31	Interior	03 Office	B	Door Jamb	Wood	Deteriorated	White	0.10	Negative		

XRF CALIBRATION FORM

Address/Unit:	607 East Western Avenue, Avondale, Arizona 85323-2423	
Device:	LPA-1B	S/N - 4104
Date:	1/9/2020	
Inspector:	Jim Begin	

First Calibration Check **Time:** 12:00 PM

1st Reading	2nd Reading	3rd Reading	**1st Average**
0.80	**0.80**	**1.00**	**0.87**

Second Calibration Check **Time:**

1st Reading	2nd Reading	3rd Reading	**2nd Average**
1.00	**1.00**	**0.90**	**0.97**

Third Calibration Check (If Needed) **Time:**

1st Reading	2nd Reading	3rd Reading	**3rd Average**
			#DIV/0!

Appendix C

Additional Lead and Lead Safety Resource Data

Key Units of Measurement

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

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

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

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

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

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

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

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

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

- Surface concentration (mass of lead per area) 1.0 µg/cm²
- Bulk concentration (mass of lead per volume) 0.5%, 5000 µg/g, or 5000 ppm

Dust-thresholds for Lead-Contamination

- Floors 10 µg/ft²
- Interior Window Sills 100 µg/ft²
- Window Troughs 100 µg/ft²

Soil-thresholds for Lead-Contamination

- Play Areas used by children under age 6 400 µg/g, or 400 ppm
- Other Areas 1,200 µg/g, or 1,200 ppm

Resources For Additional Information On Lead-Based Paint and Lead-Based Paint Hazard Standards:

National Lead Information Center & Clearinghouse:
1-800-424-LEAD
www.epa.gov/lead/pubs/nlic.htm

Center for Disease Control and Prevention Lead Program:
www.cdc.gov/lead
Toll-free CDC Contact Center: 800-CDC-INFO, TTY 888-232-6348

Consumer Product Safety Commission
www.cpsc.gov
Toll-free Customer Hotline: 800-638-2772, TTY 301-595-7054

Environmental Protection Agency Lead Program:
www.epa.gov/lead
202-566-0500

HUD Office of Healthy Homes and Lead Hazard Control:
www.hud.gov/offices/lead
202-402-7698

Department of Public Health Childhood Lead Poisoning Prevention
www.dhs.ca.gov/childlead
Toll-free: 800-597-5323

Appendix D
Copy of Risk Assessor's License/Certification

United States Environmental Protection Agency

This is to certify that

James M Begin

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires January 21, 2021

LBP-R-13604-1
Certification #

December 18, 2017
Issued On

Adrienne Priselac, Manager, Toxics Office
Land Division

Appendix E
Copy of Firm's Lead Activity License/Certification

United States Environmental Protection Agency

This is to certify that

Environmental Consulting Services Inc.

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires July 05, 2022

LBP-15473-2

Certification #

December 13, 2018

Issued On

Michelle Price, Chief

Lead, Heavy Metals, and Inorganics Branch

Appendix F
Copy of XRF Training Certificate and XRF Performance Characteristic Sheet

Certificate of Achievement

This is to certify that

James Begin

ECS

on the 9th of November, 2015 successfully completed the factory training for

Protec Instrument Corporation XRF Lead Paint Inspection System

Including, but not limited to, the topics of Radiation Safety,.DOT Regulations, Haz-Mat Security Awareness and the Proper Use of the Instrument.

Verena Streber, President
Protec Instrument Corporation
38 Edge Hill Road, Waltham, MA 02451

Performance Characteristic Sheet

EFFECTIVE DATE: **October 25, 2006** **EDITION NO.: 5**

MANUFACTURER AND MODEL:

Make: ***Radiation Monitoring Devices***
Model: ***LPA-1***
Source: ^{57}***Co***
Note: This sheet supersedes all previous sheets for the XRF instrument of the make, model, and source shown above ***for instruments sold or serviced after June 26, 1995. For other instruments, see prior editions.***

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Quick mode or 30-second equivalent standard (Time Corrected) mode readings.

XRF CALIBRATION CHECK LIMITS:

0.7 to 1.3 mg/cm^2 (inclusive)

SUBSTRATE CORRECTION:

For XRF results below 4.0 mg/cm^2, substrate correction is recommended for:

Metal using 30-second equivalent standard (Time Corrected) mode readings.
None using quick mode readings.

Substrate correction is not needed for:

Brick, Concrete, Drywall, Plaster, and Wood using 30-second equivalent standard (Time Corrected) mode readings
Brick, Concrete, Drywall, Metal, Plaster, and Wood using quick mode readings

THRESHOLDS:

30-SECOND EQUIVALENT STANDARD MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Results corrected for substrate bias on metal substrate only	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	0.9
	Plaster	1.0
	Wood	1.0

QUICK MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Readings 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 on approximately 150 test locations in July 1995. The instrument that performed testing in September had a new source installed in June 1995 with 12 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.

XRF CALIBRATION CHECK:

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

Chapter 7 of the HUD Guidelines provides guidance on correcting XRF results for substrate bias. Supplemental guidance for using the paint film nearest 1.0 mg/cm^2 for substrate correction is provided:

XRF results are corrected for substrate bias by subtracting from each XRF result a correction value determined separately in each house for single-family housing or in each development for multifamily housing, for each substrate. The correction value is an average of XRF readings taken over the NIST SRM paint film nearest to 1.02 mg/cm^2 at test locations that have been scraped bare of their paint covering. Compute the correction values as follows:

> Using the same XRF instrument, take three readings on a bare substrate area covered with the NIST SRM paint film nearest 1 mg/cm^2. Repeat this procedure by taking three more readings on a second bare substrate area of the same substrate covered with the NIST SRM.
>
> Compute the correction value for each substrate type where XRF readings indicate substrate correction is needed by computing the average of all six readings as shown below.
>
> For each substrate type (the 1.02 mg/cm^2 NIST SRM is shown in this example; use the actual lead loading of the NIST SRM used for substrate correction):
>
> $$\text{Correction value} = (1^{st} + 2^{nd} + 3^{rd} + 4^{th} + 5^{th} + 6^{th}\ \textit{Reading}) / 6 - 1.02\ \text{mg/cm}^2$$
>
> Repeat this procedure for each substrate requiring substrate correction in the house or housing development.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use either the Quick Mode or 30-second equivalent standard (Time Corrected) Mode readings.

Conduct XRF re-testing 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 and multi-family housing, a result is defined as 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.

BIAS AND PRECISION:

Do not use these bias and precision data to correct for substrate bias. These bias and precision data were computed without substrate correction from samples with reported laboratory results less than 4.0 mg/cm^2 lead. The data which were used to determine the bias and precision estimates given in the table below have the following properties. During the July 1995 testing, there were 15 test locations with a laboratory-reported result equal to or greater than 4.0 mg/cm^2 lead. Of these, one 30-second standard mode reading was less than 1.0 mg/cm^2 and none of the quick mode readings were less than 1.0 mg/cm^2. The instrument that tested in July is representative of instruments sold or serviced after June 26, 1995. These data are for illustrative purposes only. Actual bias must be determined on the site. Results provided above already account for bias and precision. Bias and precision ranges are provided to show the variability found between machines of the same model.

30-SECOND STANDARD MODE READING MEASURED AT	SUBSTRATE	BIAS (mg/cm^2)	PRECISION* (mg/cm^2)
0.0 mg/cm^2	Brick	0.0	0.1
	Concrete	0.0	0.1
	Drywall	0.1	0.1
	Metal	0.3	0.1
	Plaster	0.1	0.1
	Wood	0.0	0.1
0.5 mg/cm^2	Brick	0.0	0.2
	Concrete	0.0	0.2
	Drywall	0.0	0.2
	Metal	0.2	0.2
	Plaster	0.0	0.2
	Wood	0.0	0.2
1.0 mg/cm^2	Brick	0.0	0.3
	Concrete	0.0	0.3
	Drywall	0.0	0.3
	Metal	0.2	0.3
	Plaster	0.0	0.3
	Wood	0.0	0.3
2.0 mg/cm^2	Brick	-0.1	0.4
	Concrete	-0.1	0.4
	Drywall	-0.1	0.4
	Metal	0.1	0.4
	Plaster	-0.1	0.4
	Wood	-0.1	0.4

*Precision at 1 standard deviation.

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than the upper boundary of the inconclusive range, and negative if they are less than the lower boundary of the inconclusive range, or inconclusive if in between. The inconclusive range includes both its upper and lower bounds. Earlier editions of this *XRF Performance Characteristics Sheet* did not include both bounds of the inconclusive range as "inconclusive." While this edition of the Performance Characteristics Sheet uses a different system, the specific XRF readings that are considered positive, negative, or inconclusive for a given XRF model and substrate remain unchanged, so previous inspection results are not affected.

DOCUMENTATION:

An EPA 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. A HUD document titled *A Nonparametric Method for Estimating the 5th and 95th Percentile Curves of Variable-Time XRF Readings Based on Monotone Regression* provides supplemental information on the methodology for variable-time XRF instruments. A copy of this document can be obtained from the HUD lead web site, www.hud.gov/offices/lead.

This XRF Performance Characteristic Sheet was developed by QuanTech, Inc., under a contract from the U.S. Department of Housing and Urban Development (HUD). 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*.

Appendix G
“LEAD SPEAK” A Brief Glossary

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

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

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

Deteriorated paint: Any paint coating on a damaged or deteriorated surface or fixture, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligatoring, 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 the building.

Dust-lead hazard: Surface dust in residence 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-lust hazards, which are based on wipe samples, are published at 40 CFR 745.65(b); as of the publication of this edition of these *Guidelines*, these are 40 µg/ft² on floors and 250 µg/ft² on interior window sills. Also, called lead-contaminated dust.

Friction surface: Any interior or exterior surface, such as 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 the owners, and reevaluations, conducted by professional, are integral elements of interim control. Interior 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 Repainting Rule.

Lead-based paint: Any paint, varnish, shellac, or other coating that contains lead equal to or greater than 1.0 mg/cm² as measured by XRF or laboratory analysis, or 0.5 percent by weight (5,000 ppm, 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 at 40 CFR 745.65, under Title IV of the Toxic Substances Control Act.) Lead-based paint hazards include, for example, paint-lead hazards, dust-lead hazards, and soil-lead hazards.

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

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

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