

**LEAD-BASED PAINT SURVEY**

**THE STRUCTURES LOCATED AT  
100 ANGELA STREET  
KEY WEST, FLORIDA**

**Prepared For:**

**PM ENVIRONMENTAL  
2131 HOLLYWOOD BOULEVARD, UNIT NO. 503  
HOLLYWOOD, FLORIDA 33020**

**Prepared By:**

**Professional Service Industries, Inc.  
7950 NW 64th Street  
Miami, Florida 33166**

**PSI Project Number: 07841150**

**July 18, 2013**



June 18, 2013

Ms. Candace Chin Fatt  
Project Manager  
PM Environmental  
2131 Hollywood Boulevard, unit No. 503  
Hollywood, Florida 33020

**SUBJECT: Lead-Based Paint Survey  
Structures located at  
100 Angela Street  
Key West, Florida  
PSI Project No.: 07841150**

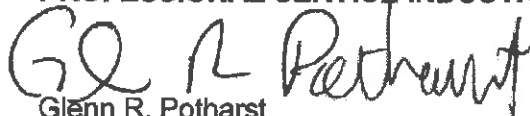
Dear Ms. Chin Fatt:

Professional Service Industries, Inc. (PSI) is pleased to provide you with two copies of the final report for the above referenced project.

We appreciate the opportunity to provide our services on this project and would be pleased to continue our role as your consultant for future investigations. If we can be of any further assistance, or if you have any questions regarding this report, please feel free to contact us.

Respectfully submitted,

**PROFESSIONAL SERVICE INDUSTRIES, INC.**



Glenn R. Potharst  
Department Manager –  
Environmental Services



(For)

Andrew S. Richmond  
Principal Consultant

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## 1.0 INTRODUCTION

### 1.1 General Information

Professional Service Industries, Inc. (PSI) was retained by PM Environmental to conduct a lead-based paint (LBP) survey of the structures located at 100 Angela Street in Key West, Florida. This project encompassed five single-story structures, with the survey being conducted July 10, 2013.

According to the Monroe County Property Appraiser's office the structures were constructed in late 1890's. In 1978, the Consumer Product Safety Commission banned the sale of lead-based paint to consumers, and its application to areas where consumers have direct access to painted surfaces. As a result of this ban, buildings painted prior to 1978 are suspected of containing leaded paint.

### 1.2 Authorization

Authorization to perform this asbestos survey was given by a signed contract between PM Environmental and PSI, dated July 11, 2013.

### 1.3 Purpose

The purpose of the lead-based paint testing was to identify painted surfaces or other surface coatings containing an excess of 1.0 mg/cm<sup>2</sup> lead by XRF testing or through laboratory analysis.

### 1.4 Warranty

The information contained in this report is based upon the data furnished by PM Environmental and Engineering Services, observations and test results obtained by PSI. These observations and results are time dependent, are subject to changing site conditions, and revisions to Federal, state, and local regulations. The client recognizes that future changes in building use may affect the conclusions/findings presented in this report.

PSI warrants that these findings have been promulgated after being prepared in accordance with generally accepted practices in the lead-based paint testing and abatement industry.

As directed by the client, PSI did not provide any service to investigate or detect the presence of moisture, mold or other biological contaminants in or around any structure, or any service that was designed or intended to prevent or lower the risk of the occurrence of the amplification of the same. Client acknowledges that mold is ubiquitous to the environment with mold amplification occurring when building materials are impacted by moisture.

Client further acknowledges that site conditions are outside of PSI's control, and that mold amplification will likely occur, or continue to occur, in the presence of moisture. As such, PSI cannot and shall not be held responsible for the occurrence or recurrence of mold amplification.

No other warranties are implied or expressed.

This report has been prepared for the exclusive use of PM Environmental. This report should be read in its entirety, including detailed information, which is contained in other sections and appendices.

## 2.0 SCOPE OF SERVICES

The scope of services for this project included the following:

- Step 1: Interview with client contacts to determine the approximate construction date and painting history of the buildings and areas to be tested. Preliminary walk-through and inspection of accessible areas documenting painted, varnished, stained or otherwise coated surfaces.
- Step 2: Development and implementation of testing protocol for suspect LBPs, as discussed in Section 4.0.
- Step 3: Performance of quality-assurance XRF testing of a percentage of accessible surface coatings located both on exterior and interior areas of the buildings for the presence of LBP.
- Step 4: Preparation and submission of this report, which includes:
- a. Conclusions and Recommendations (Section 5.0)
  - b. Results of field XRF testing (Appendix A)
  - c. Inspector Certification (Appendix B)
  - d. Definitions of Key Terms (Appendix C)

### 3.0 METHODOLOGY

#### 3.1 Field Survey

The LBP survey procedure consists of a complete visual inspection of both interior and exterior accessible building surfaces for the presence of paints, varnishes or other surface coatings suspected of containing lead. The survey was conducted by PSI's Mr. Glenn R. Potharst; an EPA trained and certified LBP Inspector.

The condition of painted surfaces are classified as intact or deteriorated based on the following table:

Type of Building Component	Total area of deteriorated paint on each component	
	Intact	Deteriorated
Exterior components with large surface areas (walls, doors)	Entire surface is intact or less than or equal to 20 square feet	More than 20 square feet
Interior components with large surface areas (walls, ceilings, floors, doors)	Entire surface is intact or less than or equal to 2 square feet	More than 2 square feet
Interior and exterior components with small surface areas	Entire surface is intact or less than or equal to 10% of the total surface area of the component	More than 10% of the total surface area of the component

#### 3.2 XRF Testing

X-Ray Fluorescence (XRF) testing of interior and exterior components was performed in general accordance with the U.S. Department of Housing and Urban Development (HUD) *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*, (2012 edition).

XRF field-testing was performed with the LPA-1 manufactured by Radiation Monitoring Devices. The use of a portable, non-destructive testing device is advantageous when numerous tests must be performed because of its brief testing time and relatively low cost compared to laboratory methods.

XRF test data, including calibration checks against standards, and confirmation paint-chip samples was recorded on an inspection worksheet(s) to generate a permanent record of the field findings.

Placing the scanner on the test surface and exposing the lead paint film to gamma radiation collects XRF values. XRF analyzers are usually capable of penetrating up to 25 layers of paint to determine lead content. At the conclusion of each test, the shutter is closed and the display on the control console shows the lead concentration in mg/cm<sup>2</sup> for manual tabulation.

The accuracy and precision of any measurement is determined by the length of each test, instrument calibration checks against known standards or control blocks, measurement conditions, and mathematical laws of random error. Even when XRF equipment is properly operated within the manufacturer's specification, unusual substrates, paint additives, uneven paint applications, electrical fields, lead components in wall cavities, and many other variables may cause significant fluctuations in apparent test values.

Due to the limitations and inherent problems associated with XRF field-testing, confirmation sampling and assessment of XRF data is recommended before major abatement activities are started.

### **3.3 Interpretation of XRF Results**

When the LPA-1 XRF is used in the "quick mode", readings of 1.0 mg/cm<sup>2</sup> or greater are considered positive (lead-based paint) and readings below 1.0 mg/cm<sup>2</sup> are considered negative (not lead-based paint). The XRF testing data is included in Appendix A.

### **3.4 Confirmation Laboratory Samples**

The collection of paint-chip samples is required when an irregular or unusually small surface was encountered which cannot be assayed with an XRF device. No paint-chip samples were collected during this assessment.



## 4.0 FINDINGS

### 4.1 General Summary

Building components were found to be coated with a coating containing lead in excess of the standard, 1.0 mg/cm<sup>2</sup>, as established by the Lead-Based Paint Poisoning Prevention Act, Section 302, and the HUD guidelines.

A total of 110 readings were collected from various components on the interior and exterior of the buildings. 57 of the XRF readings indicated a lead concentration equal to or in excess of 1.0 mg/cm<sup>2</sup>.

### 4.2 Summary of Lead-Based Paint

The metal door, I-beams and cross beams located in building 1 were determined to be lead containing.

The walls, beams, piping, window frames, doors, metal tank frames, tanks, engine exhaust, stairs, top of engine, hand rails, concrete base for switch gear, and ceiling beams located in building 2 were determined to be lead containing.

The walls, doors, door frames, window frames, beams, air compressor and tanks located in building 3 were determined to be lead containing.

On the exterior of these three structures, the doors, exhaust, piping and window frames were determined to be lead containing.

The window frames, beams and door frames located in the black smith building were determined to be lead containing.

The door and window frame located in the machine shop building were determined to be lead containing.

These structures are scheduled for renovation.

The XRF test results are summarized in the table in Appendix A.

## 5.0 CONCLUSIONS and RECOMMENDATIONS

Based on the tasks undertaken for the LBP testing survey, PSI has developed the following conclusions and recommendations:

1. LBP, as defined by HUD, was found to be present as a result of this investigation. The structures are scheduled to be renovated.
2. PSI recommends that lead-containing finishes be removed using the same LBP abatement procedures (i.e., removal and disposal) outlined in the HUD Guidelines.
3. The finishes found within the structures determined to be lead containing, should be removed using lead safe work practices by a contractor with properly trained workers, prior to the renovation activities.
4. The U.S. Occupational Safety and Health Administration (OSHA) has established a Permissible Exposure Limit (PEL) of 50 micrograms per cubic meter and an Action Level (AL) of 30 micrograms per cubic meter for workers covered by the OSHA Lead Construction Standard. OSHA requires a negative exposure assessment for workers who disturb painted surfaces containing any detectable concentration of lead. A negative exposure assessment can be obtained by collecting air samples from the breathing zone of workers during an 8-hour shift.

**APPENDIX A**  
**XRF TEST RESULTS**

**LBP SURVEY XRF TESTING LOG**

Client: PM Environmental		Date: 07/10/13	Page 1 of 5		
XRF Serial No.: 1456		Inspector: G. Potharst			
Project Site: Key West Structures		Project No.: 07841150			
Sample Number	Component Description	Component Location	BGS	PC	XRF Reading (mg/cm <sup>2</sup> )
-	RMD 1.0 mg/cm <sup>2</sup> Reference Sample		W	I	0.8
01	Wall A, Wall (white)	Building 1	P	D	0.4
02	Wall A, Wall (green)	Building 1	P	D	0.1
03	I-Beams	Building 1	M	I	-0.0
04	Wall B, Wall	Building 1	P	D	-0.1
05	Wall B, Wall	Building 1	P	D	-0.0
06	Wall C, Wall	Building 1	P	D	-0.0
07	Wall C, Wall	Building 1	P	D	-0.3
08	I-Beams	Building 1	M	I	-0.1
09	Door	Building 1	M	D	5.4
10	Piping	Building 1	M	D	-0.1
11	Engine	Building 1	M	I	-0.2
12	Air Compressor	Building 1	M	D	0.2
13	Wall A, Wall (white)	Shower Room	P	D	0.1
14	Wall A, Wall (yellow)	Shower Room	P	D	0.0
15	Wall A, Wall (black)	Shower Room	P	D	-0.1
16	Wall B, Wall (white)	Shower Room	P	D	0.5
17	Wall B, Wall (yellow)	Shower Room	P	D	0.2
18	Wall B, Wall White	Shower Room	T	D	0.4
19	Door Jamb	Shower Room	W	D	0.0
20	Wall C, Wall (white)	Shower Room	P	D	0.1
21	Wall C, Wall (green)	Shower Room	P	D	-0.0
22	Wall D, Wall (white)	Shower Room	P	D	0.0
23	Wall D, Wall (green)	Shower Room	P	D	0.1
24	Wall D, Wall (white)	Shower Room	B	D	0.3
25	Wall D, Wall (green)	Shower Room	B	D	0.3
26	Door	Shower Room	M	D	6.0

PC = Paint Condition: I = Intact, D = Defective

BGS = Background Substrate: M = Metal, W = Wood, P = Plaster, T = Tile, C = Concrete, D = Drywall, B = ???

**LBP SURVEY XRF TESTING LOG**

Client: PM Environmental		Date: 07/10/13	Page 2 of 5		
XRF Serial No.: 1456		Inspector: G. Potharst			
Project Site: Key West Structures		Project No.: 07841150			
Sample Number	Component Description	Component Location	BGS	PC	XRF Reading (mg/cm <sup>2</sup> )
27	I-Beams (gray)	Shower Room	M	I	4.0
28	I-Beams (silver)	Shower Room	M	I	5.0
29	Cross Beams	Shower Room	M	I	3.3
30	Fuel Tank	Shower Room	M	I	0.1
31	Fuse Box	Shower Room	M	I	-0.1
32	Door	Shower Room	M	D	6.0
33	Piping	Shower Room	M	D	0.1
34	Wall A, Wall	Building 2	B	D	4.3
35	Door	Building 2	W	D	2.1
36	I-Beams	Building 2	M	I	7.0
37	Piping	Building 2	M	D	1.8
38	Window Frame	Building 2	W	D	4.3
39	Wall B, Wall	Building 2	B	D	1.2
40	Wall C, Wall	Building 2	B	D	0.4
41	Window Frame	Building 2	W	D	3.7
42	I-Beams	Building 2	M	I	> 9.9
43	Door	Building 2	M	D	4.8
44	Wall D, Wall	Building 2	B	D	> 9.9
45	Door	Building 2	M	D	5.1
46	Metal Frame	Building 2	M	I	> 9.9
47	Large Tank	Building 2	M	D	1.2
48	Small Metal Tank	Building 2	M	D	0.1
49	Cross Beams	Building 2	M	I	> 9.9
50	Pipe Valves	Building 2	M	D	2.0
51	Piping	Building 2	M	D	2.6
52	Engine	Building 2	M	I	0.4
53	Engine Exhaust	Building 2	M	D	3.2

PC = Paint Condition: I = Intact, D = Defective

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**LBP SURVEY XRF TESTING LOG**

Client: PM Environmental		Date: 07/10/13	Page 3 of 5		
XRF Serial No.: 1456		Inspector: G. Potharst			
Project Site: Key West Structures		Project No.: 07841150			
Sample Number	Component Description	Component Location	BGS	PC	XRF Reading (mg/cm <sup>2</sup> )
54	Engine Stairs	Building 2	M	I	1.2
55	Tanks	Building 2	M	D	3.2
56	Top of Engine	Building 2	M	I	7.2
57	Concrete Base	Building 2, Switch Gear	C	D	5.3
58	Hand Rail	Building 2, Switch Gear	M	I	2.1
59	Panels	Building 2, Switch Gear	M	I	0.3
60	Ceiling Beams	Building 2	W	I	> 9.9
61	Wall A, Wall (off-white)	Building 3	B	D	4.8
62	Wall A, Wall (green)	Building 3	B	D	3.4
63	Door	Building 3	W	D	2.8
64	Door Frame	Building 3	W	D	2.6
65	Window Frame	Building 3	W	D	1.4
66	Wall B, Wall	Building 3	B	D	4.2
67	Wall B, Wall	Building 3	B	D	3.2
68	Wall C, Wall	Building 3	B	D	3.8
69	Wall C, Wall	Building 3	B	D	3.4
70	Window Panels	Building 3	M	D	0.1
71	Window Frame	Building 3	W	D	1.2
72	Wall D, Wall	Building 3	B	D	4.2
73	Wall D, Wall	Building 3	B	D	3.4
74	Window Frame	Building 3	M	D	1.6
75	I-Beams	Building 3	M	D	4.9
76	Engine	Building 3	M	I	-0.0
77	Top of Engine	Building 3	M	I	0.1
78	Air Compressor	Building 3	M	D	1.2
79	Tanks	Building 3	M	D	1.2
80	Engine Stairs	Building 3	M	I	-0.1

PC = Paint Condition: I = Intact, D = Defective

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**LBP SURVEY XRF TESTING LOG**

Client: PM Environmental		Date: 07/10/13	Page 4 of 5		
XRF Serial No.: 1456		Inspector: G. Potharst			
Project Site: Key West Structures		Project No.: 07841150			
Sample Number	Component Description	Component Location	BGS	PC	XRF Reading (mg/cm <sup>2</sup> )
81	Door	Exterior	W	D	3.4
82	Exhaust	Exterior	M	D	1.2
83	Piping	Exterior	M	D	1.8
84	Tank	Exterior	M	D	0.1
85	Tank Frame	Exterior	M	D	0.2
86	Window Frame	Exterior	M	D	6.8
87	Wall C, Exhaust	Exterior	M	D	9.8
88	Tanks	Exterior	M	D	-0.1
89	Tank Frames	Exterior	M	D	-0.2
90	Piping	Exterior	M	D	-0.1
91	Wall A, Door	Black Smith Shop	M	D	-0.2
92	Wall B, Window Frame	Black Smith Shop	M	I	> 9.9
93	Beam	Black Smith Shop	M	I	9.3
94	Door	Exterior	M	I	0.3
95	Door Frame	Exterior	M	I	2.2
96	Beam	Exterior	M	I	2.2
97	Wall A, Wall (white)	Machine Shop	B	D	0.3
98	Wall A, Wall (green)	Machine Shop	B	D	0.1
99	Door	Machine Shop	W	D	1.2
100	Wall B, Wall	Machine Shop	B	D	0.2
101	Wall B, Wall	Machine Shop	B	D	0.6
102	Wall C, Wall	Machine Shop	B	D	0.3
103	Wall C, Wall	Machine Shop	B	D	-0.4
104	Door	Machine Shop	W	D	>9.9
105	Window Frame	Machine Shop	W	D	0.7
106	Wall D, Wall	Machine Shop	B	D	0.2

PC = Paint Condition: I = Intact, D = Defective

BGS = Background Substrate: M = Metal, W = Wood, P = Plaster, T = Tile, C = Concrete, D = Drywall

**LBP SURVEY XRF TESTING LOG**

Client: PM Environmental and Engineering Services		Date: 07/10/13	Page 5 of 5		
XRF Serial No.: 1456		Inspector: G. Potharst			
Project Site: The Surf Club		Project No.: 07841116			
Sample Number	Component Description	Component Location	BGS	PC	XRF Reading (mg/cm <sup>2</sup> )
107	Wall D, Wall	Machine Shop	B	D	0.1
108	Beam	Machine Shop	W	I	0.0
109	Wall A, Door	Exterior	W	D	0.6
110	Window Frame	Exterior	W	D	2.9
-	RMD 1.0 mg/cm <sup>2</sup> Reference Sample		W	I	0.9

PC= Paint Condition: I = Intact, D = Defective  
BGS = Background Substrate: M = Metal, W = Wood, P = Plaster, T = Tile, C = Concrete, D = Drywall



**APPENDIX B**  
**INSPECTOR'S CERTIFICATIONS**

# Asbestos Consulting & Training Systems

39956.4964CER7/BIR

900 N.W. 5TH Avenue, Fort Lauderdale, Florida 33311

(954) 24-7208

**This is to Certify that  
Glenn Potharst**



XXXXXXXXXX-5408

7324 SW 112th Court, Miami, FL

Processed By:

## Seagull

To Authenticate Certificate:  
[www.seagulltraining.com](http://www.seagulltraining.com)

1-800-366-9993

**has successfully completed an English**

**Asbestos Building Inspection Refresher**

24-May-13

TO

24-May-13

Individual above has completed the requisite training for accreditation under TSCA Title II

Meets state requirements of FL49-0001020CN-0008273 and UT (8.0 core).

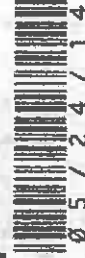
NDAAC Provider #451

Trainer(s): Mark Knick

Training Address: 900 NW 5 AV, Fort Lauderdale, FL 33311

Successful course completion based on exam score on: 24-May-13

**This Certificate Expires:**



24-May-14

05 / 24 / 14



James F. Stump, Course Sponsor

Certificate Number ..... 157129

Course Number SE1321

**APPENDIX C**  
**DEFENITIONS**

**Abatement** - a comprehensive process of eliminating exposure or potential exposure to lead paint and lead-containing soil and dust which must include testing, measures for worker protection, containment of dust and debris, cleanup and disposal of waste, and clearance testing.

**Action Level** - the point at which something needs to be done to correct or eliminate the presence of the hazard (e.g. lead).

**Apparent Lead Concentration (ALC)** - for direct reading XRFs, is the average of at least 3 XRF single cycle readings on a painted surface. For spectrum analyzers, the ALC is a single reading.

**Atomic Absorption** - is a method of measuring elements such as lead. The lead is vaporized at high temperature, usually several thousand degrees, and light of a very specific wavelength is shined through the vapor.

**CFR** - The Code of Federal Regulations - a codification of the regulations of the various Federal Agencies.

**Corrected Lead Concentrations, CLC** - the difference between the Apparent Lead Concentration (ALC) and the Substrate Equivalent Lead Concentration (SEL).

**Containment** - is a process for protecting the environment by controlling exposures to lead dust and debris created during abatement.

**Detection Limit** - the minimum amount of a component that a method can reliably measure.

**Direct Reading XRF** - is an X-Ray Fluorescence analyzer which provides the operator with a display of an estimated lead concentration, usually calculated from the lead "K" x-ray intensity, but sometimes from the "L" x-ray intensity.

**Dwelling Unit** - refers to the room or group of rooms within residential premises used or intended for use by one family or household for living, sleeping, cooking and eating. "Dwelling Unit" includes a condominium.

**Encapsulation** - involves resurfacing or covering surfaces, and sealing or caulking with durable materials, so as to prevent or control chalking, flaking lead-containing substances from becoming part of house dust or accessible to children. Painting or wallpapering is not considered to be encapsulation.

**Engineering Controls** - are measures implemented at the work site to contain, control and/or otherwise reduce worker exposure to, and environmental releases of, lead dust and debris.

**Final Inspection** - inspection by a qualified inspector, industrial hygienist, or local public health official to determine whether abatement and cleanup are complete.

**HEPA or High Efficiency Particle Air Filter** - means a filter capable of filtering out particles of 0.3 microns or greater from a body of air at 99.97% efficiency or greater.

**Intact Surface** - refers to a surface with no loose paint.

**Landfill** - a disposal facility or part of a facility where solid or hazardous waste is placed in or on land and which is not a land treatment facility, a surface impoundment, or an injection well.

**Micrograms** - one millionth of a gram: g: The prefix "micro-" means "1/1,000,000 of" (one millionth of). Since there are 453 grams in one pound and 16 ounces in one pound, one gram equals 0.035 ounces. A microgram is equal to about 35/1,000,000,000 (thirty-five billionths) of an ounce.

**Off-Site Paint Removal** - the removal of paint at a site away from the abatement project such as the stripping of lead paint from the surface of a component at the facilities of a commercial paint-stripping operation occurring in chemical tanks.

**On-Site Paint Removal** - the removal of lead-based paint down to the bare substrate usually through heat, chemical or mechanical means. The affected component remains in-place on the premises during this removal process.

**Pigments** - are chemicals, which have color, or properties that affect color.

**ppm** - stands for "parts per million," meaning the weight of one part per weight of the total amount of material. For example, a lead concentration of 1 ppm expresses the ratio of one gram of lead dissolved into one million (1,000,000) grams of water. Equivalent to micrograms per gram (ug/g) or milligrams per kilogram (mg/kg).

**Precision** - the degree of variation in a series of successive measurements of the same phenomenon. Commonly measured by standard deviation.

**Public Housing Agency (PHA)** - any State, county, municipality, or other governmental entity or public body (or agency or instrumentality thereof) which is authorized to engage or assist in the development or operation of housing for low-income families.

**Replacement** - is a strategy of abatement, which entails the removal of components such as windows, doors, and trim that have lead, painted surfaces and installing new components free of lead paint.

**SEL (Substrate Equivalent Lead Concentration)** - for a direct reading XRF, the average of at least 3 XRF single cycle readings on an unpainted surface. For a spectrum analyzer, the difference between the instruments reading on a standard or reference material placed on the bare substrate and the known lead level in the standard.

**Spectrum Analyzer XRF** - is a type of XRF analyzer, which provides the operator with a plot of the energy and intensity of both "K" and "L" x-rays, as well as a calculated lead concentration.

**Substrate** - a surface upon which paint or varnish has been or may be applied. Examples of substrates include wood, plaster, metal, and drywall. Substrates may contain lead absorbed from paint or from other sources.

**TCLP** - Toxicity Characteristic Leaching Procedure is one of the tests for the determinations of whether a solid waste is classified as a hazardous substance.

**XRF Analyzer** - an instrument that estimates lead concentration in milligrams per square centimeter ( $\text{mg}/\text{cm}^2$ ) using the principal of x-ray fluorescence ("XRF").