May 18, 2018

Banner Associates
2307 W 57th St., Ste. 102
Sioux Falls, SD 57108

Attn: Mr. Bryan Lipp

Subj: Lead Based Paint Survey
TM Rural Water Tower
277th St. & 446th Ave.
Marion, SD
GeoTek # 18-561-4

GeoTek has completed lead based paint testing at the referenced project site. Lead based paint testing was performed to document the presence of lead based paint prior to repainting activities.

In summary, eleven locations tested for the presence of lead based paint. All tested components were negative for the presence of lead based paint including: legs, cross braces, overpainted concrete footings and the door to the mechanical building.

If you have questions or concerns regarding the information presented in this report, please contact me directly at 605/335-5512. We appreciate the opportunity to have worked with you on this project.

Sincerely,

GEOTEK ENGINEERING & TESTING SERVICES, INC.

Katherine Howard
Project Manager/Staff Scientist

1.0 EXECUTIVE SUMMARY

On May 17, 2018, Staff Scientist, Ms. Katherine Howard, tested representative surfaces of the water tower located at the referenced site. Testing was conducted to document the presence of lead based paint prior to repainting activities.

In summary, XRF testing indicated the surfaces tested were negative for lead based paint.

2.0 LEAD HAZARD IDENTIFICATION

2.1 SAMPLING METHODS AND ANALYTICAL PROCEDURE

On May 17, 2018 all tests were done using a Niton XLp 303a X-Ray Fluorescence Spectrum Analyzer (Serial # 25581, 109 Cadmium Source #TR3123 40miC installed on 10/8/14) to measure the lead content of surface coatings on representative accessible components of the water tower.

On site testing was conducted by Staff Scientist, Ms. Katherine Howard. The US EPA has certified that GeoTek Engineering & Testing Services, Inc. of Sioux Falls, South Dakota, has fulfilled the requirements to conduct lead-based paint activities in South Dakota. GeoTek's firm# is SD-2070-2 (Appendix B).

The sampling methodology for this survey is based on the 1997 revised United States Department of Housing and Urban Development (HUD) guidelines. HUD and the United States Environmental Protection Agency (EPA) guidelines specify a positive determination of lead in paint when the lead content is equal to or greater than 0.5% by weight or 1.0 milligrams of lead per square centimeter of painted surface (mg/cm^2) when measured by X-ray Fluorescence (XRF).

2.2 EPA/HUD GUIDELINES

Additional information regarding Lead-Based Paint can be found on the Environmental Protection Agencies web page at http://www.epa.gov/lead/index.html or the HUD web page at http://www.hud.gov/offices/lead/ .

2.3 DISCUSSION OF TEST RESULTS

Based on the sampling and XRF results, which are tabulated in Appendix C, the components tested were negative for LBP:

DISCLAIMER

This is GeoTek's report of a visual survey and X-Ray Fluorescence (XRF) analysis of the readily accessible areas of this structure and tested components. The presence or absence of lead-based paint or lead-based paint hazards applies only to tested surfaces on the date of the field visit and that conditions may change due to deterioration or maintenance.

Sincerely,

GEOTEK ENGINEERING & TESTING SERVICES, INC.

Katherine Howard
Project Manager/Staff Scientist

Reviewed by:

Tracy A. Michel, PE
Senior Project Manager

APPENDIX A

Lead Based Paint Test Results

Reading No	Time	Units	Component	Substrate	Side	Color	Results	Depth Index	Action Level	PbC	PbC Error
1	5/17/2018 8:17	mg / cm ^2	CALIBRATE				Negative	1	1	0.8	0.1
2	5/17/2018 8:17	mg / cm ^2	CALIBRATE				Negative	1	1	< LOD	0.03
3	5/17/2018 8:18	mg / cm ^2	CALIBRATE				Negative	1	1	< LOD	0.03
4	5/17/2018 8:19	mg / cm ^2	CALIBRATE				Positive	1.24	1	3.1	0.6
5	5/17/2018 8:19	mg / cm ^2	CALIBRATE				Positive	1.12	1	1.3	0.2
6	5/17/2018 8:20	mg / cm ^2	CALIBRATE				Negative	1.14	1	0.3	0.13
7	5/17/2018 8:20	mg / cm ^2	CALIBRATE				Negative	1	1	0.6	0.2
8	5/17/2018 8:21	mg / cm ^2	leg	METAL	sw	BLUE	Negative	1	1	< LOD	0.03
9	5/17/2018 8:22	mg / cm ^2	leg	METAL	se	BLUE	Negative	1	1	< LOD	0.03
10	5/17/2018 8:23	mg / cm ^2	leg	METAL	east	BLUE	Negative	1	1	< LOD	0.03
11	5/17/2018 8:24	mg / cm ^2	leg	METAL	ne	BLUE	Negative	1.07	1	< LOD	0.03
12	5/17/2018 8:25	mg / cm ^2	leg	METAL	nw	BLUE	Negative	1	1	< LOD	0.03
13	5/17/2018 8:27	mg / cm ^2	cross brace	METAL	west	BLUE	Negative	1	1	< LOD	0.03
14	5/17/2018 8:28	mg / cm ^2	cross brace	METAL	south	BLUE	Negative	1	1	< LOD	0.03
15	5/17/2018 8:29	mg / cm ^2	cross brace	METAL	se	BLUE	Negative	3.83	1	< LOD	0.09
16	5/17/2018 8:32	mg / cm ^2	cross brace	METAL	ne	BLUE	Negative	8.5	1	< LOD	1.14
17	5/17/2018 8:33	mg / cm ^2	base	CONCRETE	ne	Dk BLUE	Negative	1	1	< LOD	0.03
18	5/17/2018 8:35	mg / cm ^2	DOOR	METAL	south	BLUE	Negative	1	1	< LOD	0.03
19	5/17/2018 8:39	mg / cm ^2	CALIBRATE				Negative	1.05	1	0.9	0.1
20	5/17/2018 8:40	mg / cm ^2	CALIBRATE				Negative	1	1	< LOD	0.03
21	5/17/2018 8:41	mg / cm ^2	CALIBRATE				Positive	1.26	1	3.4	0.6
22	5/17/2018 8:42	mg / cm ^2	CALIBRATE				Positive	1.12	1	1.5	0.2
23	5/17/2018 8:42	mg / cm ^2	CALIBRATE				Negative	1.12	1	0.3	0.13
24	5/17/2018 8:43	mg / cm ^2	CALIBRATE				Negative	1	1	0.6	0.2

APPENDIX B

EPA Certifications

United States Environmental Protection Agency

This is to certify that

GeoTek Engineering & Testing Services, Inc.

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint renovation, repair, and paintingactivities pursuant to 40 CFR Part 745.89

In the Jurisdiction of:

All EPA Administered States, Tribes, and Territories

This certification is valid from the date of issuance and expires November 20, 2022

NAT-2070-2

Certification #

February 19, 2015

Issued On

Michelle Price, Chief

Lead, Heavy Metals, and Inorganics Branch

APPENDIX C

Performance Characteristics Sheets (Niton XRF)

Performance Characteristic Sheet

EFFECTIVE DATE: **September 24, 2004** **EDITION NO.: 1**

MANUFACTURER AND MODEL:

Make: *Niton LLC*
Tested Model: *XLp 300*
Source: ^{109}Cd
Note: This PCS is also applicable to the equivalent model variations indicated below, for the Lead-in-Paint K+L variable reading time mode, in the XLi and XLp series:

XLi 300A, XLi 301A, XLi 302A and XLi 303A.
XLp 300A, XLp 301A, XLp 302A and XLp 303A.
XLi 700A, XLi 701A, XLi 702A and XLi 703A.
XLp 700A, XLp 701A, XLp 702A, and XLp 703A.

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

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

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

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm^2 (inclusive)

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:

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

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

INCONCLUSIVE RANGE OR THRESHOLD:

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

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted in August 2004 on 133 testing combinations. The instruments that were used to perform the testing had new sources; one instrument's was installed in November 2003 with 40 mCi initial strength, and the other's was installed June 2004 with 40 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

SUBSTRATE CORRECTION VALUE COMPUTATION:

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

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use the K+L variable time mode readings.

Conduct XRF retesting at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

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

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

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

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

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

Testing Times Using K+L Reading Mode (Seconds)						
	All Data			Median for laboratory-measured lead levels (mg/cm^2)		
Substrate	25th Percentile	Median	75th Percentile	Pb < 0.25	0.25 ≤ Pb<1.0	1.0 ≤ Pb
Wood Drywall	4	11	19	11	15	11
Metal	4	12	18	9	12	14
Brick Concrete Plaster	8	16	22	15	18	16

CLASSIFICATION RESULTS:

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

DOCUMENTATION:

A document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD.

This XRF Performance Characteristic Sheet was developed by the Midwest Research Institute (MRI) and QuanTech, Inc., under a contract between MRI and the XRF manufacturer. HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.*