



September 13, 2017

Mr. Gordon M. Warner, Jr.
Civil Engineer Technician
City of Dowagiac, Michigan
241 South Front Street
Dowagiac, Michigan 49047

**Re: Residential Asbestos Building Inspection Report
307 North Front Street in Dowagiac, Michigan
Heartland Project #5303-17-01**

Dear Mr. Warner:

Heartland Environmental Associates, Inc. (Heartland) is pleased to provide the Cass County Land Bank Authority and the City of Dowagiac, Michigan (City) with this asbestos building inspection report for the above referenced residential dwelling in Dowagiac, Michigan. This asbestos building inspection was conducted to evaluate for the presence/absence of asbestos containing materials (ACM) at the subject site, and was conducted as part of pre-demolition planning.

Sampling Results

On September 5, 2017, Mr. Nivas R. Vijay, Senior Project Manager with Heartland completed the inspection of the residential property. Mr. Vijay is an accredited asbestos building inspector in the State of Michigan. A copy of Mr. Vijay's certificate of asbestos accreditation has been provided for review in Attachment A. Photographs taken of the residential property during the time of the inspection are provided in Attachment B.

The residential property consisted of a two-story dwelling built with a basement constructed on concrete slab foundation, totaling approximately 2,164 square feet. The dwelling was generally constructed of wood frame with a wood and vinyl siding façade. The dwelling was constructed on a concrete foundation with a basement. The interior of the residence was segmented primarily with plaster walls over wood frame. Roofing consisted of built up asphalt roofing shingles overtop wooden decking. The dwelling consisted of wooden floors with areas of carpeting and resilient vinyl flooring over the floors.

Based on Heartland's visual assessment of the facility, several types of building materials were considered non-suspect ACMs and therefore were not sampled. These materials include: concrete floors, brick and block, metal fixtures, wood and plywood materials, fiberglass insulation and ceramic tiles.

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Heartland identified six homogeneous areas of suspect ACMs within the dwelling. Homogeneous areas identified included two types of resilient vinyl flooring materials with associated mastic, two types of plaster, one type of blown-in insulation and one type of asphalt roofing material. One type of material, thermal system insulation (TSI) pipe wrapping located on the horizontal and vertical pipe chases in the basement was identified as presumed asbestos containing material (PACM).

The suspect materials were assessed based on condition of the material and friability (the ability to be crumbled or turned to dust by hand pressure). Heartland utilized disposable nitrile gloves while obtaining samples. The samples were then placed into pre-labeled sealable bags.

Following collection of the samples, Heartland transported the samples under Heartland chain of custody to ACM Engineering and Environmental Services, Inc., a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory, in South Bend, Indiana. The suspect ACM materials sampled were submitted for Polarized Light Microscopy (PLM) analysis, with the laboratory estimating the percent asbestos by visual inspection. Materials defined as ACM are those that contain greater than 1% asbestos. Materials that are not friable and contain less than 1% asbestos are not considered to be ACM.

Based on the results of this inspection, TSI pipe wrapped and associated mudded joints located in the basement of the dwelling were identified as PACM.

Laboratory analytical results are provided as Attachment C. A summary of sampled materials is provided in Table 1 below.

<p align="center">Table 1 Summary of Sampled Building Materials 307 North Front Street Dowagiac, Michigan September 5, 2017</p>					
Material/Location	Friable	Category	Asbestos Content	Area (ft²) *	Sample #
Floor Tile/Mastic – 12”x12” marble design, 1 st Floor stairway	No	I (Mastic Only)	ND	~50	FT – 1(A)
Floor Tile/Mastic – Vinyl Sheet, 2 nd Floor	No	I (Mastic Only)	ND	~400	FT – 2(A-C)
Plaster – Exterior Wall, 1 st Floor	Yes	RACM	ND	~2,000	PL – 1(A-C)
Plaster – Ceilings, 1 st and 2 nd Floor	Yes	RACM	ND	~2,000	PL – 2(A-C)
Blown-in Insulation, throughout dwelling	Yes	RACM	ND	~2,500	INS – 1(A-C)
Asphalt Roofing Material, Roof	No	I	ND	-	RF – 1(A)

<p align="center">Table 1 Summary of Sampled Building Materials 307 North Front Street Dowagiac, Michigan September 5, 2017</p>					
Material/Location	Friable	Category	Asbestos Content	Area (ft²) *	Sample #
Thermal Systems Insulation Pipe Wrapping – 2” diameter Horizontal and Vertical Pipe Runs in Basement and on floor in basement	Yes	RACM	PACM	~60’ – 80’	-
Mudded Joints - 2” diameter Horizontal and Vertical Pipe Runs in Basement	Yes	RACM	PACM	~5 – 8 Joints	-
Friable: Yes – hand friable, No – non-friable ND: No asbestos detected *Square footage estimates determined from site reconnaissance and measurement obtained during site reconnaissance					

Recommendations

Based on the results of this asbestos building inspection, ACM was encountered in the form of TSI pipe wrap and associated mudded joints located on select horizontal and vertical piping in the basement. The TSI pipe wrap material is a friable material and is considered RACM.

It is the understanding of Heartland that the dwelling will either be renovated or demolished, meeting the definition of renovation and demolition, in accordance with the National Emission Standards for Hazardous Air Pollutant (NESHAP) for the State of Michigan. RACM (TSI pipe wrap and joints) was identified in quantities less than the written notification requirements (>260 square feet) specified per Michigan Department of Environmental Quality (MDEQ) Air Quality Division NESHAP 40 CFR Part 61, Subpart M and per the Michigan Department of Licensing and Regulatory Affairs (LARA) Asbestos Program P.A 135 of 1986, as amended, Section 220. Written notification to the MDEQ/LARA at least ten (10) working days prior to any future planned renovation/demolition activities will not be required. Heartland recommends abatement of these materials be conducted by licensed asbestos abatement workers accredited in the State of Michigan prior to any future planned renovation and/or demolition of the building.

Please note TSI pipe wrap was also observed in damaged condition on the floor of the basement. Care should be taken to limit access and exposure to this damaged RACM materials until proper abatement of the material can take place.

Disclaimer

This environmental report was prepared in accordance with generally accepted principles and practices in the environmental consulting field. Conclusions and recommendations expressed herein were developed from site evaluation and limited research, and we are not responsible for unrecorded data pertaining to this site. Heartland makes no warranties, expressed or implied, as to the fitness or merchantability of said property for any particular purpose, and we are not responsible for independent conclusions or opinions made by others based on this report.

Reasonable efforts were made to identify suspect ACM within the inspected facility. The manner of the inspection did not compromise the structural integrity of the buildings or endanger the safety of sampling personnel or other contractors/occupants.

If you should have questions regarding this report, please contact Heartland at 574-289-1191.

Sincerely,

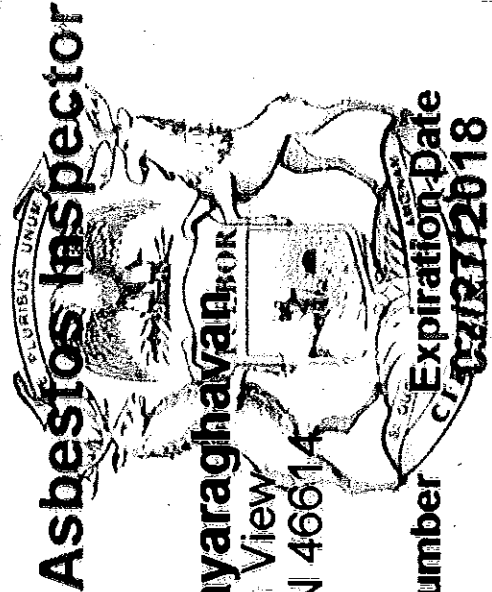
A handwritten signature in black ink, appearing to read 'N. Vijay', with a stylized flourish at the end.

Nivas R. Vijay, CHMM
Senior Project Manager
State of Michigan Asbestos Inspector License #A37308

ATTACHMENT A
ASBESTOS LICENSE DOCUMENTATION

State of Michigan
Department of Licensing and Regulatory Affairs
Michigan Occupational Safety & Health Administration - Asbestos Program

MICHIGAN



Nivas R. Vijayaraghavan
1825 Southern View
South Bend, IN 46614

Accreditation Number
A37308

Expiration Date
04/21/2018



DOB: 05/29/1979

This individual has satisfactorily met or exceeded the requirements of Michigan Public Act 440 of 1988, as amended, to be accredited as an Asbestos Inspector.

Accreditation card is **126607**
not valid if altered.

ATTACHMENT B
SITE PHOTOGRAPHIC LOG

PHOTOGRAPHIC RECORD

Project Name: 307 North Front Street Dowagiac, Cass County, Michigan



Photo #1:	View of exterior of house (September 5, 2017)
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Photo #2:	View of exterior of house (September 5, 2017)
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Photo #3:	View of plaster and insulation in interior of the house (September 5, 2017)
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Photo #4:	View of TSI pipe wrap on horizontal pipe chase in basement (September 5, 2017)
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Photo #5:	View of TSI pipe wrap on horizontal pipe chase in basement (September 5, 2017)
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Photo #6:	View of damaged TSI pipe wrap on floor in basement (September 5, 2017)
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ATTACHMENT C

LABORATORY ANALYTICAL REPORT



ANALYSIS OF SUSPECT ASBESTOS CONTAINING BUILDING MATERIALS

METHOD:

All analyses and quantifications are performed in accordance with the U.S. Environmental Protection Agency's "Method for the Determination of Asbestos in Bulk Building Materials", EPA/600/R-93/116 & EPA/600/M4-82/020: "Interim Method for the Determination of Asbestos in Bulk Insulation Samples." ACM Engineering & Environmental Services is accredited by the National Voluntary Accreditation Program (NVLAP) for the scope of accreditation under NVLAP code I01977-0. These methods utilize stereoscopic examination of bulk samples, as well as utilizing the polarized light microscope (PLM). To determine the refractive index, the central stop dispersion staining method is used, as well as matching with refractive index oil and using light matching the sodium D line wavelength. Identification of non-asbestos species is less rigorous, as they are of secondary interest.

Gross samples are examined under a 10X or 20X stereoscope where homogeneity (need for sub-samples), texture and/or any other distinguishing characteristics are determined. Sub-samples are prepared if needed. Any fibrous material is mounted in high dispersion oil for further microscope examination utilizing PLM. Any possible asbestos fibers are analyzed for morphology, color and pleochroism, index of refraction parallel and perpendicular to elongation, birefringence, extinction characteristic and sign of elongation, and any other distinguishing characteristics observed.

The percentage of asbestos and other fibrous materials are then determined according to sample area coverage and thickness. The limit of qualification is one percent (1%). The above is recorded on the laboratory analysis sheet and maintained for three years. The error involved for reported percentages of fibrous is 100% error for 1% to 5%, 50% error for 5% to 20%, and 25% error for 20% to 100%. All percentages will be reported in a range indicating error or a single value, in which case the above error should be applied. When the value 1% or greater is reported this indicates asbestos is present in the sample.

THE REPORT:

The attached report quantifies the fibrous materials found in each sample submitted for analysis. A complete fibrous analysis of samples is given for each sample followed by a breakdown analysis of any sub-samples for heterogeneous material.

- *The first column* is the client sample number identification.
- *The second column* is the laboratory sample number. The laboratory number for the overall sample analysis is a digit number. The laboratory number followed by a letter designation (A,B,C. etc.) indicates a sub-sample analysis.
- *The third column* is the sample identification, which indicates whether the sample is homogeneous or heterogeneous, the color of the sample, and the physical description (cementitious, fibrous, cloth, etc.)
- *The fourth column* indicates the types and percentages of asbestos identified if any.
- *The fifth column* indicates the types and percentages of cellulose (CELL) non-asbestos identified.
- *The sixth column* indicates the types and percentages of non-fibrous, non-asbestos material (NON -FIB NON-ACBM) identified.
- *The seventh column* indicates the types and percentages of fibrous non-asbestos material (FIB NON ACBM) in the sample or sub-sample.

SAMPLE RETENTION:

Samples will be retained for 6 months unless otherwise instructed. After this period, the sample(s) will be disposed of appropriately. Upon written request, the samples will be returned by mail or delivery for a nominal fee to cover postage and handling. There would be no charge for samples picked-up at ACM Engineering & Environmental Services.

DISCUSSION AND RECOMMENDATIONS:

In order to reduce the risk of introducing asbestos fibers into the air, care should be taken not to disturb the asbestos containing building materials. If renovation, demolition or other activities might disturb known asbestos containing building materials, a reputable asbestos consultant should be contacted to help effectively design and implement an asbestos management program.

COMPONENTS DESCRIPTION:

ASBESTOS MATERIALS

A = Amosite
AC = Actinolite
AN = Anthophyllite
C = Chrysotile
CR = Crocidolite
T = Tremolite
---- = No Asbestos Detected

NON-ASBESTOS MATERIALS

CF = Ceramic Fibers N = Nylon
CO = Cotton O = Other
G = Fibrous Glass S = Synthetics
H = Hair V = Vermiculite
M = Mineral Wool

NOTE: ACM Engineering & Environmental Services does not deviate from the test method described in this report. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report relates only to the items above. This report must not be reproduced, except in full, without the written consent of ACM Engineering & Environmental Services.



CLIENT: Heartland Environmental Associates
3410 Mishawaka Avenue
South Bend, IN 46615

ANALYSIS METHODS: EPA/600/R-93-116 &
EPA/600/M4-82-020

NVLAP LAB ID #: 101977-0

MATRIX: Bulk

LOCATION: 307 N. Front Street
Dowagiac, MI

Sample Date: 9/5/17

Analysis Date: 9/7/17

ACM PROJECT #: 27296

CLIENT SAMPLE #	LAB SAMPLE #	SAMPLE IDENTIFICATION	ASBEST	CELL	NON FIB NON ACBM	FIB NON ACBM
FT-1A	1711584	BLACK/WHITE FLOOR TILE	----	----	100%	----
FT-1A	1711584A	CLEAR MASTIC	----	----	100%	----
FT-2A	1711585	OFF-WHITE FLOOR TILE	----	8%	90%	2% G
FT-2A	1711585A	TAN MASTIC	----	----	100%	----
FT-2B	1711586	OFF-WHITE FLOOR TILE	----	10%	86%	4% G
FT-2B	1711586A	TAN MASTIC	----	----	100%	----
FT-2C	1711587	OFF-WHITE FLOOR TILE	----	10%	85%	5% G
FT-2C	1711587A	TAN MASTIC	----	----	100%	----
PL-1A	1711588	GREY PLASTER	----	13%	83%	4% H
PL-1B	1711589	WHITE PLASTER	----	----	100%	----
PL-1C	1711590	WHITE PLASTER	----	----	100%	----
PL-2A	1711591	GREY PLASTER	----	----	100%	----
PL-2B	1711592	GREY PLASTER	----	21%	79%	----
PL-2C	1711593	GREY PLASTER	----	----	100%	----
INS-1A	1711594	GREY/WHITE INSULATION	----	47%	----	53% G
INS-1B	1711595	GREY/WHITE INSULATION	----	49%	----	51% G
INS-1C	1711596	GREY/WHITE INSULATION	----	48%	----	52% G
RF-1A	1711597	BLACK ROOF SHINGLE	----	----	60%	40% G
RF-1B	1711598	SAMPLE NOT PRESENT	----	----	----	----
RF-1C	1711599	SAMPLE NOT PRESENT	----	----	----	----

**ACM RECOMMENDS POINT COUNTING ANALYSIS ON ALL BULK SAMPLES
WITH LESS THAN 10% (<10%) ASBESTOS CONTENT.**

Microscopist: Anna Plath

Title: QC Administrator

Date: 9/7/17



ACM Engineering & Environmental Services, Inc.

26598 US 20 West • South Bend, Indiana 46628 • Phone: (574) 234-8435 • Fax (574) 234-6800 • www.acmenv.com
Chain-of-Custody / Analysis Request Form

CLIENT / CONTACT / SITE INFORMATION

Contact: N. V. 1144
 Phone: 574-289-1191
 E-Mail: N. V. 1144@heartlandenv.com
 Reference Number:
 Sampled By: N. V. 1144
 Date Sampled: 9/5/17
 FOR LABORATORY USE ONLY:
 Samples received in proper condition for requested analysis.
 LABORATORY PROJECT ID #:

Client/Company Name & Address:
Heartland
3410 Mishawaka Ave
South Bend, IN 46615
 CHECK THE PROVIDED BOX IF THE CLIENT & SITE ADDRESS ARE THE SAME
Site Address:
307 N. Fred Street
Dowagiac, MI

ACM PROJECT NUMBER
27296

COMMENTS
Stop At Positive

TURN AROUND TIME

RUSH
 Under 24 Hours Special Request

24 Hours

2 - 3 Days

4+ Days

NOTE: The turn around time is defined as the amount of time the laboratory is given to complete analysis from the moment of receipt in the laboratory.

REQUESTED ANALYSIS

Asbestos Bulk (PLM)	X
Asbestos Point Count	
Fungal Spore Trap Analysis (Air)	
Fungal Direct Examination (Tape)	
Collig P/A	
E. Coli Fecal Coliform Bacteria	
Other: Please Specify	

SAMPLE ID	SAMPLE DESCRIPTION/SERIAL NUMBER	SAMPLE LOCATION	AREA/VOLUME/MATERIAL
FT-1A	↓		
FT-2(A-C)	Floor Tile + Mastic		
PL-1(A-C)	↓		
PL-2(A-C)	Wall Planter		
INS-1(A-C)	Ceiling Planter		
RF-1(A-C)	Insulation		
	Roof Shingles		

Submitted/Requested By: [Signature] Date/Time: 9/6/17 12:12p

Received/Accepted By: Christina [Signature] Date/Time: 9/7/17

Samples Processed By: [Signature] Date/Time: 9/7/17

Rev 1 6/18/2013