



Hazardous Materials Survey Report

Hawthorne Station

Prepared for:

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Hazardous Materials Survey Report

LOCATION: Hawthorne Station
1178 Kildonan Drive
Winnipeg, Manitoba

INSPECTION DATE: March 13, 2018

1.0 SUMMARY

An evaluation of the Hawthorne Station located at 1178 Kildonan Drive in Winnipeg, MB, was completed by MWI Consultants. The evaluation was completed ahead of planned work activities within the building.

The objective of the evaluation was to establish the location, condition and type of asbestos-containing materials (ACMs) and to identify the location of lead-based paints (LBPs) that are present within the building.

There are no ACM present within the areas of the building included in the assessment, which was all accessible areas. Inaccessible areas and process-related equipment were not specifically evaluated.

Lead-containing paints were found to be present throughout the building. There was only one paint sample where the lead content was found to be greater than 0.5% by weight. The red paint present on the floors for all levels, as well as any surfaces containing similar paints, should be considered as a lead-based paint.

This report summarizes the results of the inspection and evaluation of the conditions within the building, as well as the results of the bulk sampling of suspected asbestos-containing materials (ACMs) and lead-based paints (LBPs).

2.0 DEFINITIONS

Asbestos: Asbestos is a naturally occurring silicate mineral with long, thin fibrous crystals. The mineral was widely used in a large number of applications, particularly as a flame retardant or insulating material.

Asbestos is considered a designated material under the Controlled Products Regulations and is a known carcinogen. Chronic exposure to asbestos can lead to asbestosis and mesothelioma (a type of lung cancer), amongst others.

Asbestos has also been found in many products around the home or office, including clapboard, roofing shingles, attic insulation (vermiculite), exterior siding, pipe and boiler covering, cement, caulking, roof patching material, furnace cement, driveway coatings, wallboard, textured and latex paints, acoustical ceiling tiles, wall plaster, vinyl floor tiles, appliance wiring, hair dryers, irons and ironing board pads.

Although asbestos has caused serious health problems for workers and continues to be a risk within building maintenance, renovation, construction and demolition trades, it does not pose a significant risk for the general occupants of a building. Airborne asbestos fibers are a significant health risk.

In general, the use of asbestos has been discontinued due to the adverse health effects from inhalation of asbestos fibers.

Asbestos-Containing Material: Commonly abbreviated as ACM.

In the Province of Manitoba, a material must be considered as an ACM as follows:

A friable material with 0.1% asbestos or greater.

A non-friable material with 1.0% asbestos or greater.

Vermiculite insulation that contains asbestos

Once asbestos is detected using polarized light microscopy, standard methodologies rely on a visual estimation method that cannot reliably quantify content less than 1% and so any positive result will be interpreted as meeting the definition of an asbestos-containing materials unless rigorous testing and extensive sampling is completed.

Asbestos Dust: Particles of asbestos or settled particles of asbestos which may become airborne in the workplace.

Friable Material: A material that when dry can be crumbled, crushed or powdered by hand pressure. Examples would include pipe wrap insulation, sprayed-on fireproofing, plaster, ceiling tiles and vermiculite.

Non-Friable Material: A material that when dry will not easily be crumbled by hand pressure. Examples of non-friable materials include vinyl asbestos floor tiles or sheets, drywall joint compound and gaskets. Non-friable materials may still generate airborne fibers if mishandled.

Designated Substance: A chemical substance that meets the criteria as a carcinogen, mutagen, respiratory sensitizer, reproductive toxin, fetotoxin or teratogen under the Controlled Products Regulations. Examples of some

commonly encountered designated substances include asbestos, lead, mercury, silica, arsenic, benzene and isocyanates.

Occupational Exposure Limit (OEL): According to Part 36, section 36.5(1) (b) of the Manitoba Workplace Safety and Health Regulation 217/2006, the occupational exposure limit of a designated material must be as close to zero as is reasonably practicable, but shall not exceed the Threshold Limit Value (TLV) established by the American Conference of Governmental Industrial Hygienists (ACGIH).

In Manitoba, the Workplace Safety and Health Regulation adopts the current ACGIH TLVs as the allowable OEL for those chemical and biological substances where a TLV exists.

The Manitoba Workplace Safety and Health Division recognizes the level as close to zero as is reasonably practicable for all forms of asbestos as 0.1 fibers per cubic centimeter of air (f/cc or f/cm³), which matches the TLV established by ACGIH.

Following asbestos abatement activities, airborne asbestos fiber concentrations must be reduced to a maximum concentration of 0.01 f/cc of air for all forms of asbestos before the negative pressure enclosure is removed and workers and others are allowed to reoccupy an area where asbestos has been removed.

Threshold Limit Value-Time-Weighted Average (TLV-TWA): The TWA concentration for a conventional 8-hour workday and a 40-hour workweek, to which it is believed that nearly all workers may be repeatedly exposed, day after day, for a working lifetime without adverse effect. The TLVs established by ACGIH do not take into account individual sensitivities, pre-existing conditions or other health factors, such as cigarette smoking.

3.0 BUILDING AND SURVEY METHODOLOGY

3.1. [Background and History](#)

The building surveyed is a City of Winnipeg pump station located at 1178 Kildonan Drive, in Winnipeg, MB.

The survey included all accessible areas of the building, including all four levels of the structure.

Surveyors are not aware of any previous asbestos inventory or sampling completed at this property.

3.2. [Scope of Work](#)

Based on initial observations made prior to the onset of fieldwork for this survey, it was determined that the survey would focus on the following:

- Asbestos-Containing Material (ACM)
- Lead-Based Paint (LBP)

The scope of work included the following:

- An inspection for and a collection of representative samples of suspect ACM for laboratory analysis.
- An inspection for and a collection of representative samples of paints/coating applied to building surfaces for laboratory analysis for lead content.
- Preparation of a report which identifies the type and location of all observed hazardous materials and recommendations for removal prior to the start of any planned building renovation.

3.3. [Hazardous Materials Survey Methodology](#)

An essential element in a hazardous materials survey is the knowledge and experience of the surveyor. The surveyor must be familiar with building materials, products and equipment that may contain hazardous substances such as asbestos, lead, PCBs, mercury and ODS.

The use of hazardous substances in building materials, products and equipment was common until the late 1970s and the use of some products and equipment containing these types of hazardous materials is likely. Building constructed prior to 1990 may contain some suspect ACMs, and materials must be evaluated prior to renovation or demolition activities.

The most common building-related designated substances include asbestos, lead, formaldehyde and mercury. Additional designated substances which may be present in buildings or associated with certain work processes include acrylonitrile, arsenic, benzene, isocyanates, formaldehyde, ethylene oxide, vinyl chloride, microcrystalline silica, beryllium, hexavalent chromium compounds and coke oven emissions.

3.4. [Asbestos Methodologies](#)

The survey for asbestos was completed based on guidelines in ASTM E2356 *Standard Practice for Comprehensive Building Surveys (ASTM, 2014)*. This standard describes procedures for evaluating buildings and facilities for the presence of asbestos-containing materials.

3.5. [Lead - Hazards and Exposures](#)

Lead is toxic. Lead is a suspected human carcinogen, mutagen and teratogen and has been shown to cause cancer in laboratory animals. Lead is a designated substance. Lead interferes with many body processes and is poisonous to most organs and tissues, including the bones, intestines, kidneys, nervous system, and reproductive organs. Lead can accumulate in the body making long-term or repetitive/constant exposures over time much more dangerous. All contractors or workers should be aware of the potential hazards.

Potential sources of exposure to lead from buildings and building materials include lead-based paints (LBPs) that was used during building construction or renovation in 1970s or earlier, as well as lead-based water pipes and lead-solder joints/fittings for copper lines. Paints made prior to 1950 may contain significant amounts of lead, with some lead-based paints containing 30% to 50% lead by weight. Additional sources can include wall insulation around x-rays or other equipment, as an additive in brass and other alloys, from batteries, cable and wire casing, cast iron pipes, gaskets and connections,

Acute lead poisoning (high exposure over a short period of time) can cause headaches, fatigue, anemia, constipation, abdominal pain and damage to the nervous system. Chronic lead poisoning (exposure over a longer period of time) can cause fatigue, joint pain, and weakness.

Lead poisoning can damage the fetus in pregnant female workers, and impair fertility in male workers.

Workers are exposed to lead when they inhale lead-containing dust or ingest lead residue from their hands (e.g., when eating, chewing gum, or smoking). Lead can migrate across the project (i.e. to lunchrooms) if workers are not meticulous with good hygiene procedures.

3.6. Lead - Regulatory Review

According to Part 36, section 36.5(1) (b) of the Manitoba Workplace Safety and Health Regulation 217/2006, the occupational exposure limit of a designated material must be as close to zero as is reasonably practicable, but shall not exceed the Threshold Limit Value (TLV) established by the American Conference of Governmental Industrial Hygienists (ACGIH). In Manitoba, the Workplace Safety and Health Regulations have adopted the current ACGIH TLVs as the allowable OEL for those chemical and biological substances where a TLV exists.

The current TLV for lead (elemental and inorganic compounds, as lead) is 0.05 mg/m³. For workers with chronic exposure to lead-containing dust or lead-based materials, biological testing to determine lead-blood content would be warranted. For lead, the Biological Exposure Index (BEI) is 30 µg/100 mL and lower levels are specified for women of child-bearing potential. This would be intended for industrial workers with higher-level chronic exposures.

The removal and clean-up of the lead-based paint shall be performed according to procedures that address requirements in the Manitoba Workplace Safety & Health Division *Guideline for Working with Lead*¹ and/or as modified in these procedures. Any lead removal or abatement activities must be performed by qualified contractors with training in the applicable activities, as well as familiarity with the applicable legislation issued by the Manitoba Department of Labour Workplace Safety & Health Division.

¹ *A Guideline for Working with Lead*. Manitoba Workplace Safety & Health Division. August 2002.

Under the federal *Surface Coating Materials Regulations* (SOR/2016-193), coatings on consumer products cannot contain more than 90 mg/kg lead (or 0.009% w/w). This applies to some materials including children's toys or products used by children; products containing more than this level require specific labelling. These regulations do not address existing painted surfaces or workplace requirements for handling lead-based paints. In the absence of clear Canadian-based legislation and guidelines, guidelines and definitions available in the US Code of Federal Regulations (CFR) are used in this assessment as an evaluation guideline. The US Department of Housing and Urban Development has legislation providing definitions for lead-based paints, as it relates to lead-based paint poisoning prevention in certain residential structures.

According to definitions provided in 24 CFR Part 35.110, lead-based paint (LBP) is defined as any paint or coating with lead content equal to or greater than 1 mg/cm² or 5000 ppm or 5,000 mg/kg or 0.5% w/w. Canada's Hazardous Products Act (1976) cites the same 0.5 % w/w limit for indoor lead-based paints.

Work to remove painted surfaces where the painted or coated surface contains less than 0.5% w/w is not expected to generate airborne lead concentrations in excess of the TLV established for lead, provided hand tools only are used to remove paint. For removal of lead-containing paints above 0.009% w/w but below 0.5% w/w where power tools or blasting techniques are to be used, a risk assessment should be undertaken to determine safe work procedures.

4.0 SURVEY RESULTS

4.1. [General](#)

All accessible areas of the building, including below-ground levels, were evaluated. The attic space for the above-grade structure was not evaluated, as no access was available.

4.2. [Asbestos-Containing Materials](#)

The only suspect ACM identified was the parging material used in conjunction with the fiberglass insulated duct in the ground level communications room.

No ACM were identified within the area.

Analysis was completed according to U.S. EPA Method 600/R-93/116, which uses polarized light microscopy (PLM) to identify the type of asbestos in bulk samples. The methodology can be used to estimate percent content for asbestos in the material analyzed. All samples were analyzed by Quantem Laboratories, who are AIHA-accredited.

The laboratory results are summarized in Appendix 1.

Photographs identifying sample locations are included as Appendix 2.

Full laboratory results are included as Appendix 3.

4.3. [Lead-Based Paints \(LBPs\)](#)

Samples of paint were taken from throughout the building structure. A summary of lab results is included in Table 1. The lead test results are included as Appendix 4.

Table1 - Lead Testing Results - Paint Samples

| ID | Location | Description | Result (% w/w) | Lead-Containing Paint >0.009% w/w | Lead-Based Paints >0.5% w/w |
|----|------------|------------------------------|----------------|-----------------------------------|-----------------------------|
| 1 | Main Floor | Red/Grey Paint - Floor | 0.102 | Yes | No |
| 2 | Main Floor | Green Paint - Beam & Wall | 0.010 | Yes | No |
| 3 | Comm Rm | Red Paint - Floor | 0.622 | Yes | Yes |
| 4 | Comm Rm | Blue Paint - Wall | 0.023 | Yes | No |
| 5 | Comm Rm | Green Paint - Conduit | 0.024 | Yes | No |
| 6 | Motor Rm | White Paint | <0.005 | No | No |
| 7 | Motor Rm | Blue Paint - Process Pipe | 0.023 | Yes | No |
| 8 | Pump Rm | Blue/Green Paint - Pump | 0.057 | Yes | No |
| 9 | Pump Rm | White/Green/Blue - Pump Wall | 0.018 | Yes | No |

With the exception of the white paint sampled from the motor room (3rd level), all paints sampled contained detectable amounts of lead, above the 0.009% threshold.

The red paint present on the floors for all four levels is suspected to be a lead-based paint. A sample of the paint from on the 2nd level floor (Comm Room) was found to contain 0.6% w/w lead, which is above the 0.5% threshold. The sample taken represents multiple layers of paints/coatings, as reliable separation was not possible (refer to Photo 4 and 5); the actual lead content of an individual layer may be higher than the reported result. Similar paints are present on floors for all levels, as well as other surfaces.

5.0 **RECOMMENDATIONS**

5.1. [Abatement Recommendations](#)

- 5.1.1. No ACM have been identified, so there are no applicable abatement recommendations.
- 5.1.2. All abatement or removal of asbestos-containing materials should be handled according to the *Guide for Asbestos Management* (May 2017) published by Safe Work Manitoba, and must be handled in compliance with Manitoba WSH legislation, specifically MR217/2006, Sec. 37.8.

5.2. Lead-Based Paints - Recommendations

- 5.2.1. Lead-containing paints are present throughout the building/structure, including paints/coatings applied to floors, walls, conduit lines and process equipment.
- 5.2.2. The red paint sample from the floor of the 2nd level (Comm Room) was found to contain 0.6% w/w and meets criteria used for lead-based paints. This paint is present on the floors for all levels of the building, and may also be present on process equipment or other surfaces.
- 5.2.3. Certain additional precautions are warranted when removing lead-based paints, or paints containing lead at lower concentrations, depending on the type of work processes or work environments involved.
- 5.2.4. In general, a risk assessment should be undertaken to determine safe work procedures where removal of lead-containing paints is required.

5.3. General Recommendations

This report should be retained by the owner/employer for the building. The report may provide useful information for contractors or others seeking information related to asbestos or hazardous materials surveys.

6.0 GENERAL SURVEY LIMITATIONS

Asbestos-containing materials may be present in inaccessible areas of the building or may be integral to the structure of the building itself. These types of materials include caulking, fire rated doors, gaskets in use on equipment, wiring or electrical components, packing associated with cast iron fittings, mastics as well as some roofing materials.

As per ASTM E2356, a baseline survey is intended to provide a general sense of the overall location, type, quantity and condition of any asbestos-containing materials present. It is thorough in that most accessible functional spaces are inspected and bulk samples taken of suspect materials observed. The intent of the survey is to provide information needed to prepare an asbestos control plan, where ACM are either confirmed through testing or presumed based on the type of material.

A baseline survey is unobtrusive in that samples are not taken when doing so would result in objectionable damage to surfaces or where institutional barriers preclude access, and destructive testing is avoided.

A pre-renovation assessment is limited in scope to the areas and materials where renovations are planned. More destructive testing is performed however not all areas of the building are evaluated. With a pre-demolition survey, all areas of the building must be evaluated and there are no restrictions on the amount or degree of destructive testing that is warranted.

Generally and unless specifically requested, sampling for a baseline survey would not be completed if sampling was hazardous to the surveyor (electrical systems), if sampling the materials would cause consequential damage to the property (window glazing), if it would affect the integrity of the system (roofing membranes), or if materials cannot be accessed without significant demolition. The potential for asbestos to be present in brake pads or similar occupant-owned inventory maintained onsite would be outside the scope of this survey. Every effort was made to complete a thorough inventory of all reasonably accessible areas, including crawlspaces, ceiling spaces, attics and similar areas where contractors would routinely access.

Based on the standard limitations inherent in any survey, MWI Consultants Inc cannot provide any assurance that all asbestos-containing materials have been identified. This survey has been undertaken and completed in a professional manner in accordance with generally accepted practices, including ASTM E2356.

Appendix 1 – Bulk Asbestos Sampling and ACM Inventory

| Lab Number | ID | Area/ Floor | Description / Location | Date Sampled | Asbestos Content | Amount | ACM Condition |
|------------|----|-------------|------------------------------------------|--------------|------------------|--------|---------------|
| 291875 | 01 | Main Floor | Duct Wrap Insulation (Canvas/Fiberglass) | Mar 13/18 | None | N/A | N/A |

Appendix 2– Photographs

Photo 1

Exterior of subject property.



Photo 2

Exterior view of subject property, showing newer-style soffits. Attic space was not inspected.



Photo 3

The green paint present on the beam (1st level) was found to contain 0.01% lead w/w.

Same or similar paint may be elsewhere in the building, and is present on walls behind foam insulation.

**Photo 4**

The red paint present on floors in Comm Room (2nd level) and Main Floor (1st level) likely contain lead-based paints.

Sample 3 represents a paint sample from the floor in Comm Rm (2nd level) which contained 0.6% w/w lead.

The blue paint on walls (sample 4) contained 0.02% w/w lead.



Photo 5

Sample location for Sample 3 of floor paint present in Comm Rm (2nd level).
Sample contained 0.6% ww lead.



Photo 6

The green paint on electrical conduit and outlet in the 2nd level (comm room) was found to contain 0.02% w/w lead (sample 5).



Photo 7

The white paint on walls in the motor room (3rd level) contained <math><0.005\%</math> w/w lead (sample 6).
The blue paint from the process pipe (sample 7) contained 0.02% w/w lead.



Photo 8

A paint sample from process lines in the pump room (4th level) was found to contain 0.06% w/w lead (sample 8)



Photo 9

A sample taken of the blue/green/white paint present on walls in the Pump Room (4th level) was found to contain 0.02% w/w lead (sample 9).

The white paint on walls is presumed to be newer with no lead content (similar to sample 6), while blue/green paints will be similar to sample 8.



Photo 10

A sample of the canvas/parging material associated with the ductwork shown in the photo was not found to contain asbestos.



Appendix 3- Bulk Sampling Laboratory Results (Asbestos)



2033 HERITAGE PARK DR, OKLAHOMA CITY, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

| | |
|-------------------------------|------------------------------------|
| QuanTEM Lab No. 291875 | Client: MWI Consultants, Inc. |
| Account Number: B663 | 377 De La Seigneurie Blvd. |
| Date Received: 03/14/2018 | Winnipeg, MB R3X2C7 |
| Received By: Jenifer Comito | Canada |
| Date Analyzed: 03/15/2018 | Project: N/A |
| Analyzed By: Cassie Sanborn | Project Location: 1178 Kildonan Dr |
| Methodology: EPA/600/R-93/116 | Project Number: N/A |

| QuanTEM Sample ID | Client Sample ID | Composition | Color / Description | Asbestos (%) | Non-Asbestos Fiber (%) | Non Fibrous |
|-------------------|------------------|-------------|----------------------|----------------------|------------------------|-------------------------|
| 001 | DuctWrap | Layered | White Duct Wrap | Asbestos Not Present | Cellulose 60 | CaCO3 Foil Binder |
| 001a | | Layered | Yellow Insulation | Asbestos Not Present | Glass Fiber 100 | |

Cassie Sanborn

Cassie Sanborn, Analyst

3/15/2018

Date of Report

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

QuanTEM is a NVLAP accredited PLM laboratory (Lab Code: 101959-0). This report relates only to the specific items tested. NVLAP accreditation applies only to analysis performed utilizing EPA/600/M4-82-020 and EPA/600/R-93/116 methods. This report may not be used to claim product endorsement by NVLAP or any agency of the US Government. This report may not be reproduced except in full, without the written approval of the laboratory.

Appendix 4- Lead Sampling Laboratory Results



2033 HERITAGE PARK DR, OKLAHOMA CITY, OK 73120 | 1.800.822.1650

Environmental Chemistry Analysis Report

| | |
|-----------------------------------|--------------------------------------|
| QuanTEM Set ID: 291865 | Client: MWI Consultants, Inc. |
| Date Received: 03/14/18 | 377 De La Seigneurie Blvd. |
| Received By: Amber Bassett | Winnipeg, MB R3X2C7 |
| Date Sampled: | Canada |
| Time Sampled: | Acct. No.: B663 |
| Analyst: CR | Project: NA |
| Date of Report: 03/15/18 | Location: NA |
| | Project No.: 1178 Kildonan Dr |

AIHA ID: 101352

| QuanTEM ID | Client ID | Matrix | Parameter | Results | Reporting Limits | Units | Date/Time Analyzed | Method |
|------------|-----------|--------|-----------|----------|------------------|-------|--------------------|-----------------|
| 001 | Paint 1 | Paint | Lead | 0.102 | 0.00492 | % | 03/14/18 15:14 | P EPA 7000B (1) |
| 002 | Paint 2 | Paint | Lead | 0.00951 | 0.00498 | % | 03/14/18 15:14 | P EPA 7000B (1) |
| 003 | Paint 3 | Paint | Lead | 0.622 | 0.00494 | % | 03/14/18 15:14 | P EPA 7000B (1) |
| 004 | Paint 4 | Paint | Lead | 0.0229 | 0.005 | % | 03/14/18 15:14 | P EPA 7000B (1) |
| 005 | Paint 5 | Paint | Lead | 0.0235 | 0.00488 | % | 03/14/18 15:14 | P EPA 7000B (1) |
| 006 | Paint 6 | Paint | Lead | <0.00499 | 0.00499 | % | 03/14/18 15:14 | P EPA 7000B (1) |
| 007 | Paint 7 | Paint | Lead | 0.0231 | 0.00497 | % | 03/14/18 15:14 | P EPA 7000B (1) |
| 008 | Paint 8 | Paint | Lead | 0.0573 | 0.00494 | % | 03/14/18 15:14 | P EPA 7000B (1) |
| 009 | Paint 9 | Paint | Lead | 0.0181 | 0.00489 | % | 03/14/18 15:14 | P EPA 7000B (1) |


Authorized Signature: _____
 Cherry Rossen, Technical Manager

Note: Sample results have not been corrected for blank values.

This report applies only to the standards or procedures indicated and to the specific samples tested. It is not indicative of the qualities of apparently identical or similar products or procedures, nor does it represent an ongoing assurance program unless so noted. These reports are for the exclusive use of the client and are not to be reproduced without specific written permission. QuanTEM is not responsible for user-supplied data used in calculations.

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

Wipe materials must meet ASTM E1792 criteria. Method detection limits and resultant reporting limits may not be valid for non-ASTM E1792 wipe material.

EPA Method 7000B (1) = EPA 600/R-93/200 Preparation Modified. EPA 7000B Analysis Modified

EPA Method 7082 (2) = EPA 600/R-93/200 Preparation Modified. EPA 7082 Analysis Modified