

# Limited Hazardous Materials Assessment Island Savings Centre – 2687 James Street, Duncan, BC



**North West**  
Environmental Group Ltd.

**Project #:** 33064

**Prepared for:**

Brad Coleman

Cowichan Valley Regional District

175 Ingram Street

Duncan, BC, V8L 1N8

## Executive Summary

North West Environmental Group Ltd. (NWest) was retained by Brad Coleman of Cowichan Valley Regional District (the client) to perform a site visit at Island Savings Centre – 2687 James Street, Duncan, BC (the Site) and conduct a project specific Limited Hazardous Materials Assessment (LHMA) in accordance with WorkSafeBC regulatory requirements – outlined in the BC Occupational Health and Safety (OHS) Regulation Section 20.112 – Hazardous Materials. The LHMA was conducted by Caroline Wylie, M.Sc., a NWest representative, on June 21, 2017.

The Island Savings Centre was constructed in 1976, and is a single storey community centre/ athletic centre with a concrete foundation. Interior finishes in the renovation area include, ceramic tile, drywall, baseboard with adhesive, wallpaper, texture coat, pipe insulation, concrete and concrete block.

The SOW provided by the client was as follows:

A complete upgrade of the public washrooms in the main lobby, and the reconfiguration of the hallway outside of the public washrooms into a family accessible washroom.

The Client reported during the assessment that the concrete block found in the renovation area did not contain vermiculite. Therefore, coring into the void space of the concrete block wall was not conducted. The client also reported that floor tile in the handicap washroom had been previously tested for asbestos and was positive.

Based on the client provided SOW, NWest's scope of work was as follows:

- A visual inspection of accessible materials in the work area in order to identify suspected hazardous building materials
- Collection of 27 bulk samples for asbestos analysis
- Collection of 2 paint samples for lead analysis (representative interior colours)
- Provision of a final report including a drawing showing sample locations, representative photographs, analytical results, and recommendations if indicated.

The SOW provided by the client was as follows:

A complete upgrade of the public washrooms in the main lobby, and the reconfiguration of the hallway outside of the public washrooms into a family accessible washroom.

The Client reported during the assessment that the concrete block found in the renovation area did not contain vermiculite. Therefore, coring into the void space of the concrete block wall was not conducted. The client also reported that floor tile in the handicap washroom had been previously tested for asbestos and was positive.

Based on the client provided SOW, NWest's scope of work was as follows:

- A visual inspection of accessible materials in the work area in order to identify suspected hazardous building materials
- Collection of 27 bulk samples for asbestos analysis
- Collection of 2 paint samples for lead analysis (representative interior colours)
- Provision of a final report including a drawing showing sample locations, representative photographs, analytical results, and recommendations if indicated.

The LHMA was non-invasive.

WorkSafeBC Regulation 20.112 requires that all hazardous materials found to be in the way of planned work, including asbestos, be identified prior to the commencement of construction and/or renovation work. These hazardous materials must be either safely contained or removed by a qualified contractor employing WorkSafeBC approved procedures. If materials that are suspected of containing hazardous components such as lead or asbestos, are encountered during deconstruction that differ from, or are in addition to those reported in the bulk sample collection report, then work must stop until the material content can be determined.

The purpose of this assessment was to identify hazardous building materials and equipment at the Site, which may be impacted by the proposed scope of work (SOW). Potential hazardous building materials and equipment were identified through sampling and/or visual assessment by NWest representatives. NWest makes no claims or representations for assessment areas or scopes of work outside of those defined by the Client, as outlined in Section 2 below.

The following table summarizes the observations and results of the assessment. See Section 4 in this report for recommendations.

Table 0-1: Hazmat Assessment Observations and Results	
Hazardous Material	Type
Asbestos* (confirmed)	<ul style="list-style-type: none"> <li>Floor tile – 12" x 12" beige with dots (handicap washroom) ↳ Client reported that floor tile was asbestos containing</li> </ul>
Asbestos (may contain)	<ul style="list-style-type: none"> <li>Materials commonly found to contain asbestos were observed (not sampled) or are suspected to be present including electrical cables, buried asbestos cement pipes, and bell and spigot piping gaskets.</li> </ul>
Lead	<ul style="list-style-type: none"> <li>Concentrations of lead in analyzed paints were found to be above the regulated concentration. ↳ Light green paint on drywall (Handicap washroom) – 20,000 mg/kg ↳ White paint on drywall (Handicap washroom) – 30,000 mg/kg ↳ Yellow paint on concrete – 740 mg/kg</li> <li>Elemental lead assumed to be present in seals on bell and spigot piping joints, solder on wiring, electrical equipment, and copper pipe joints.</li> </ul>
Mercury	<ul style="list-style-type: none"> <li>Fluorescent light tubes were observed in the way of planned work.</li> <li>Thermostats were observed in the way of planned work.</li> </ul>
Ozone Depleting Substances (ODS)	<ul style="list-style-type: none"> <li>ODS were not observed in the way of planned work.</li> </ul>
PCBs	<ul style="list-style-type: none"> <li>Fluorescent light ballasts were observed in the way of planned work.</li> </ul>
Radioactive Materials	<ul style="list-style-type: none"> <li>Smoke detectors were observed in the way of planned work.</li> </ul>
Above Ground Storage Tanks (AST)	<ul style="list-style-type: none"> <li>AST was not observed.</li> </ul>

Table 0-1: Hazmat Assessment Observations and Results	
Hazardous Material	Type
Hantavirus – Rodent Droppings	<ul style="list-style-type: none"><li>Evidence of rodent presence was not observed.</li></ul>
Silica	<ul style="list-style-type: none"><li>Silica is present in plaster, concrete, brick, mortar, grout, drywall, ceramic floor tiles, stucco and any other cementitious building materials.</li></ul>
Mould	<ul style="list-style-type: none"><li>Water damage (1 square foot) was observed.</li></ul>
Flammables/Explosive Materials	<ul style="list-style-type: none"><li>Gasoline cans, oils, and lubricants, were not observed.</li></ul>
Other	<ul style="list-style-type: none"><li>Biohazards were observed in the way of planned work.</li></ul>

Where hazardous materials were found to be present it should be presumed to be present in similar materials throughout the building.

*\*Warning: in the event any additional suspect hazardous materials are encountered during renovation or demolition activities, work on those materials must STOP immediately and remain undisturbed until testing confirms the presence or absence of asbestos or other hazardous material. If any material suspected of containing asbestos or another hazardous material is disturbed during the work, all work shall STOP until the area is contained, the hazard evaluated by a qualified professional and the hazardous materials, if indeed present, is safely managed by a qualified contractor.*

For a list of project limitations please see section 2.1.

## Table of Contents

<b>Executive Summary .....</b>	<b>i</b>
<b>Table of Contents.....</b>	<b>iv</b>
<b>1. Introduction .....</b>	<b>1</b>
1.1. Report Structure .....	1
<b>2. Scope of Work and Building Summary.....</b>	<b>2</b>
2.1. Limitations .....	2
<b>3. Findings .....</b>	<b>4</b>
3.1. Asbestos.....	4
3.2. Lead in Paint .....	4
3.3. Other Hazardous Materials .....	5
<b>4. Recommendations .....</b>	<b>6</b>
4.1. General Recommendations .....	6
4.2. Specific Hazardous Material Recommendations .....	6
<b>5. Closure .....</b>	<b>8</b>
<b>Appendix A. Photo Plates .....</b>	<b>1</b>
<b>Appendix B. Site Plan and Sample Locations.....</b>	<b>1</b>
<b>Appendix C. Analytical Reports.....</b>	<b>1</b>
<b>Appendix D. Regulatory Framework .....</b>	<b>1</b>
<b>Appendix E. Methodology .....</b>	<b>1</b>
<b>Asbestos .....</b>	<b>1</b>
<b>Lead .....</b>	<b>1</b>
Paint Bulk Sampling Procedures .....	1
Elemental Lead Assessment.....	2
<b>Polychlorinated Biphenyls (PCB) .....</b>	<b>2</b>
PCB-Containing Electrical Equipment .....	2
PCB-Containing Materials .....	2
<b>Ozone Depleting Substances (CFCs/ODS) .....</b>	<b>2</b>
<b>Mercury-Containing Equipment.....</b>	<b>2</b>
<b>Radioactive Materials .....</b>	<b>2</b>

<b>Silica .....</b>	<b>2</b>
<b>Mould and Biological Agents .....</b>	<b>2</b>
<b>Flammable and/or Explosive Materials.....</b>	<b>2</b>



## 1. Introduction

North West Environmental Group Ltd. (NWest) was retained by Brad Coleman of the Cowichan Valley Regional District (the Client) to perform a site visit at Island Savings Centre – 2687 James Street, Duncan, BC (the Site) and conduct a project specific limited hazardous materials assessment (LHMA) in accordance with WorkSafeBC regulatory requirements – outlined in the BC Occupational Health and Safety (OHS) Regulation Section 20.112 – Hazardous Materials. The LHMA was conducted by Caroline Wylie, M.Sc., an NWest representative, on June 21, 2017.

The purpose of this assessment was to identify hazardous building materials and equipment at the Site, which may be impacted by the proposed scope of work (SOW). Potential hazardous building materials and equipment were identified through sampling and/or visual assessment by NWest representatives. NWest makes no claims or representations for assessment areas or scopes of work outside of those defined by the Client, as outlined in Section 2 below.

### 1.1. Report Structure

This LHMA is organized into different sections for ease of reading and reference.

Section 2 outlines the agreed upon SOW between NWest and the Client and provides details on Site conditions observed during the assessment visit. Limits to the SOW and Methodology are also addressed.

Section 3 outlines the findings of the assessment, including tabular listings of hazardous materials and their locations throughout the Site.

Section 4 outlines recommendations relating to the findings in Section 3.

Supplementary information is provided as Appendices, including:

- Appendix A: Photo Plates
- Appendix B: Site Plan and Sample Locations
- Appendix C: Analytical Reports
- Appendix D: Regulatory Framework
- Appendix E: Methodology

## 2. Scope of Work and Building Summary

The SOW provided by the client was as follows:

A complete upgrade of the public washrooms in the main lobby, and the reconfiguration of the hallway outside of the public washrooms into a family accessible washroom.

The Client reported during the assessment that the concrete block found in the renovation area did not contain vermiculite. Therefore, coring into the void space of the concrete block wall was not conducted. The client also reported that floor tile in the handicap washroom had been previously tested for asbestos and was positive.

Based on the client provided SOW, NWest's scope of work was as follows:

- A visual inspection of accessible materials in the work area in order to identify suspected hazardous building materials
- Collection of 27 bulk samples for asbestos analysis
- Collection of 2 paint samples for lead analysis (representative interior colours)
- Provision of a final report including a drawing showing sample locations, representative photographs, analytical results, and recommendations if indicated.

The LHMA was non-invasive.

NWest representatives made the following observations at the time of the Site visit:

The Island Savings Centre was constructed in 1976, and is a single storey community centre/ athletic centre with concrete foundation. Interior finishes in the renovation area include, ceramic tile, drywall, baseboard with adhesive, wallpaper, texture coat, pipe insulation, concrete and concrete block.

**Table 2.0 – Summary of the Building**

Building System	Finding/Observation
<b>Construction/Renovation Date</b>	1976
<b>Area of Building/Renovation</b>	Washrooms (men's, women's, and handicap); janitor's closet, and the hallway directly outside of the area.
<b>Roofing Materials</b>	Not within scope of work.
<b>Framing and Foundation</b>	Concrete.
<b>Exterior Finishes</b>	Not within scope of work.
<b>Interior Wall and Ceiling Finishes</b>	Walls: Drywall, wallpaper, concrete, concrete block, ceramic tile. Ceilings: Drywall, texture coat, concrete.
<b>Interior Floor Finishes</b>	Floors: Concrete, ceramic tile, and floor tile.
<b>Insulation (Attic/Wall)</b>	Not within scope of work.
<b>Heating, Ventilation and Air Conditioning System</b>	Forced Air
<b>Electrical</b>	Unknown

### 2.1. Limitations



This LHMA was limited to construction materials, equipment and components identified in the SOW. The analytical results of visually homogenous materials were extrapolated throughout the structure and were dependent on visual indications or other available information on estimated phases of construction. Some materials such as painted drywall surfaces and plaster finishes cannot be extrapolated with certainty.

Materials assumed not to contain asbestos during this LHMA included:

- Post-1990 construction materials
- Wood and wood composite materials
- Carpet
- Plastics in non-industrial applications
- Metals
- Glazing
- Exterior below-grade drainage and plumbing systems
- Ceramic tile

Materials suspected to contain asbestos may be present and include, but are not limited to:

- Electrical wiring and cables
- Buried asbestos cement pipes
- Cement products, and
- Bell and spigot piping gaskets

Note that sampling of the above materials was not conducted as they were either concealed, and/or sampling posed a risk to the system or the assessor. Additional investigation for asbestos within these areas should be conducted prior to work commencement.

Areas not included in the LHMA are shown in the following table:

Table 2.1 – Exclusions	
Exclusions	Rationale
Roof	Not in Renovation Area
Basement	Not in Renovation Area
Attic	Not in Renovation Area
Wall/ceiling cavities	Non-destructive assessment
Equipment/system	Not in Renovation Area
Leachate analysis	Not requested by client
Radon testing	Beyond the scope of this project.
Contents	Beyond the scope of this project.
Phase 1 Environmental Site Assessment	Beyond the scope of this project.

In addition to the limitations described above, hazardous materials may be present at the Site that were not visible, accessible or available for observation during the assessment and are therefore not described in this report.

### 3. Findings

Hazardous materials observed while conducting the LHMA are summarized in Tables 3.1 – 3.4 below. These tables include information on the type of hazardous material observed and its condition, location, composition, and approximate quantity.

#### 3.1. Asbestos

Identified asbestos-containing materials are summarized as follows:

**Table 3.1 – Asbestos Materials and Locations**

Material	Condition	Location	Asbestos Content / Type	Approximate Quantity*
Floor Tile	Good	Handicap Washroom	Reported asbestos containing by the client	60 ft <sup>2</sup>

*\*Quantity shown is an estimate only and should not be taken as an exact measurement.*

#### 3.2. Lead in Paint

Paints with a lead content greater than 90 mg/kg lead are identified as lead-containing and are summarized in the following table:

**Table 3.2 – Lead in Paint**

Colour/Substrate	Condition	Location	Lead Content (mg/kg)	Approximate Quantity (Square Feet)
Light green paint on drywall	Fair to Good	Throughout	20,000	500 ft <sup>2</sup>
White paint on drywall	Fair to good	Ceilings – throughout	30,000	100 ft <sup>2</sup>
Yellow paint on drywall	Good	Janitor's closet	740	100 ft <sup>2</sup>

**Note:** Concentrations of lead in paint scheduled for disposal that exceed the threshold limit of 100 mg/kg trigger a requirement for analysis by Toxicity Characteristic Leaching Procedure (TCLP) and are shown in red font. This requirement is dependent on the planned disposal methodology.

### 3.3. Leachable Lead

Paints with concentrations of leachable lead that exceed the BC Hazardous Waste Regulations criteria of 5.0 mg/L are considered to be hazardous lead waste and are summarized as follows:

Table 3.3 – Lead Leachability		
Colour/Substrate	Location	Leachable Lead Concentration (mg/L)
Light green paint on drywall	Throughout	N/A
White paint on drywall	Ceiling - throughout	0.30 mg/L
Yellow paint on concrete block	Janitor's closet	N/A

Note: Samples containing less than 100 mg/kg total lead do not require TCLP analysis.

### 3.4. Other Hazardous Materials

A summary of other hazardous materials observed during the course of this LHMA is provided in the following table:

Table 3.3 – Other Hazardous Materials		
Material	Types and Locations	Estimated Quantity
<b>Lead Containing Products</b>	<ul style="list-style-type: none"> <li>Copper pipe solder</li> <li>Bell and spigot gaskets</li> </ul>	<ul style="list-style-type: none"> <li>1 pipe</li> <li>1 pipe</li> </ul>
<b>Mercury</b>	<ul style="list-style-type: none"> <li>Fluorescent light tubes</li> <li>Thermostats</li> </ul>	<ul style="list-style-type: none"> <li>22</li> <li>1 thermostat</li> </ul>
<b>Polychlorinated Biphenyls (PCBs)</b>	<ul style="list-style-type: none"> <li>Light ballasts</li> </ul>	<ul style="list-style-type: none"> <li>11 ballasts</li> </ul>
<b>Crystalline Silica</b>	<ul style="list-style-type: none"> <li>Ceramic tiles</li> <li>Texture coat</li> <li>Concrete</li> <li>Concrete block</li> </ul>	<ul style="list-style-type: none"> <li>500 ft<sup>2</sup></li> <li>100 ft<sup>2</sup></li> <li>100 ft<sup>2</sup></li> <li>300 ft<sup>2</sup></li> </ul>
<b>Ozone Depleting Substances</b>	Ozone depleting substances were not observed in the renovation area.	
<b>Radioactive Materials</b>	<ul style="list-style-type: none"> <li>Smoke detector</li> </ul>	<ul style="list-style-type: none"> <li>1 Detector</li> </ul>

Table 3.3 – Other Hazardous Materials		
Material	Types and Locations	Estimated Quantity
<b>Mould / Biological Agents</b>	<ul style="list-style-type: none"> <li>Biohazards</li> <li>Water damage</li> </ul>	<ul style="list-style-type: none"> <li>2 biohazard boxes</li> <li>1 square foot</li> </ul>
<b>Flammable and Explosive Materials</b>	Flammable and explosive materials were not identified in the renovation area.	

## 4. Recommendations

Based on the results of the assessments, NWest makes the following recommendations:

### 4.1. General Recommendations

1. Provide copies of this report to Site personnel, including contractors.
2. A copy of this report must be posted in a visible location on Site at all times.
3. A qualified person must complete a risk assessment and safe work procedures for all hazardous materials in the work area.
4. WorkSafeBC Regulations require that all hazardous materials be removed prior to renovation or demolition or protected from damage prior to the commencement of construction. Removal or disturbance of hazardous materials must be undertaken by a qualified contractor employing WorkSafeBC-approved procedures.
5. Work must STOP if previously unidentified suspected hazardous materials are encountered or inadvertently damaged or disturbed during renovations and/or demolition activities. These suspect materials must be left undisturbed until a qualified person has determined the status of the material.
6. All materials in the work area that are visually similar to those identified as hazardous materials in this report must be considered hazardous and addressed accordingly.

### 4.2. Specific Hazardous Material Recommendations

The following recommendations are to be enacted in correspondence with the general recommendations noted above.

1. **Asbestos:** Asbestos abatement must be undertaken by trained personnel following procedures acceptable to WorkSafeBC which comply with the BC OHS Regulation Part 6 - Substance Specific Requirements for Asbestos and conform to the WorkSafeBC document, "Safe Practices for Handling Asbestos".
2. **Lead-Containing Paint:** Ensure work impacting the paint coatings, paint debris and other lead coated materials proceeds in a manner that will contain fumes or paint dust and be in full

compliance with BC OHS Regulation Part 6 – Substance Specific Requirements for Lead and the WorkSafeBC document “Lead-Containing Paint and Coatings, Preventing Exposure in the Construction Industry”. An occupational lead in air sample must be collected at the beginning of the project to ensure proper worker PPE is being worn and work procedures are effective in controlling lead dust.

3. **Lead Paint Disposal:** Prior to disposal, any lead paint waste meeting or exceeding 100 mg/kg (100 parts per million) concentration must be collected and tested for leachability by a qualified person, as per BC Hazardous Waste Regulations, and if deemed to be hazardous lead waste, disposed of at a licensed facility. If lead paint is present on metal components, those components may be recycled as metal waste, and therefore, leachate analysis would not be required.
4. **Lead Containing Products:** Lead products and metals coated with lead paint can be recycled as metal construction waste. Workers should exercise caution if heat is to be used to melt any lead containing products found as means of facilitating its extraction. Molten lead can produce significant quantities of inhalable lead fumes which can pose a severe health hazard. As per WorkSafeBC regulation 12.115 - “coating on metal which could emit harmful contaminants (such as lead, chromium, organic materials, or toxic combustion products) must be removed from the base metal, whenever practicable, before welding or cutting begins.”
5. **Mercury:** Mercury-containing equipment impacted by proposed work, such as thermostats and manometers, must be removed and packaged for storage and transport or disposal/destruction at a licensed facility. Alternatively, the equipment, if functional, could be re-used for its original intended purpose or recycled through the “Switch the Stat” program. Further information can be found at [www.switchthestat.ca](http://www.switchthestat.ca).
6. **Mercury Light Bulbs:** Care should be taken to avoid breaking fluorescent light tubes and compact fluorescent light (CFL) bulbs and releasing mercury vapour. Fluorescent light tubes and CFLs should be recycled at a licensed recycling facility or disposed of at a household hazardous waste recipient.
7. **Polychlorinated Biphenyls:** Prior to disposal each suspect PCB-containing unit must be checked to determine if it contains PCB. Systems containing PCB must be removed, sorted and transported to a licensed facility. PCBs must be handled in accordance with Regulations found in the Canadian Environmental Protection Act, SOR/2008-273, including amendments up to SOR/210-57, March 11, 2010
8. **Crystalline Silica:** Workers must use caution to avoid creating airborne silica dust while working on or otherwise disturbing materials containing silica. Use WorkSafeBC-approved procedures in order to decrease dust levels.
9. **Radioactive Materials:** These items should be collected and disposed of in accordance with Canadian Nuclear Safety Commission regulations. Alternatively, if still functional, this equipment may be reused for its original intended purpose or recycled through BC’s Alarm Recycle programme for used or expired equipment. See [www.regeneration.ca/programs/smoke](http://www.regeneration.ca/programs/smoke).
10. **Biological Agents:** The handling of biological agents must comply with Section 6 of the BC OHS Regulations – Biohazards, which involves development of an Exposure Control Plan (ECP) to mitigate or eliminate worker exposure. The ECP must be written in accordance with WorkSafeBC OHS Regulation 5.54.

## 5. Closure

This assessment report has been prepared exclusively for the Client. It is a statement of the presence of the listed hazardous materials at the Site as outlined in the report and as observed on the date of this assessment by NWest representatives. The conclusions and recommendations contained in this assessment report are based upon the professional opinions of those representatives. These opinions are in accordance with accepted hygiene assessment standards and practices applicable to these locations and are subject to the following inherent limitations:

- The data and findings presented in this report are valid as of the date of the investigation. The passage of time, hidden or inaccessible conditions, manifestation of latent conditions or occurrence of future events may warrant further exploration at the Site, analysis of the data, and re-evaluation of the findings, observations, and conclusions expressed in this report.
- The data reported and the findings, observations and conclusions expressed in this report are limited by the Scope of Work. The Scope of Work was defined by the Client, the time and budgetary constraints imposed, and availability of access to the Site by the Client.

Because of the limitations stated above, the findings, observations and conclusions expressed by NWest in this report are not, and should not be, considered an opinion concerning compliance of any past or present owner or operator of the Site with any federal, provincial or local laws or regulations.

No warranty or guarantee, whether expressed or implied, is made. This report may not be used, relied upon, copied, published, or quoted by any party without the written consent of NWest. Other parties reading this report must independently verify the completeness and accuracy of this report and its contents.

This report is not intended for use as a scope of work for removal or as a specification section for inclusion in Tender Documents. Any unauthorized use of this report in that fashion is at the sole discretion and liability of the Owner.

**North West Environmental Group Ltd.**



---

Joel Shandro, B.Sc.  
Senior Project Manager  
Qualified person as per OHS Reg 6.1  
*Report Review*



---

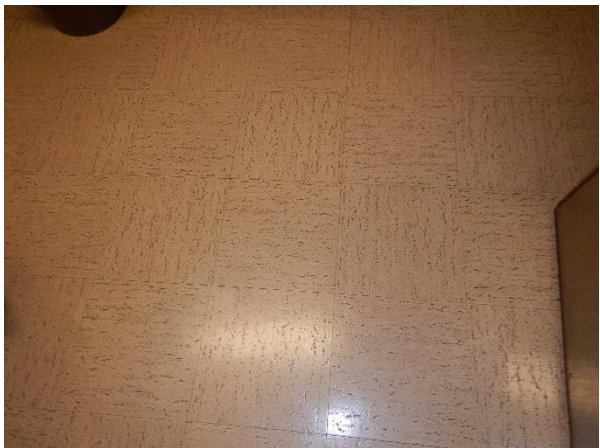


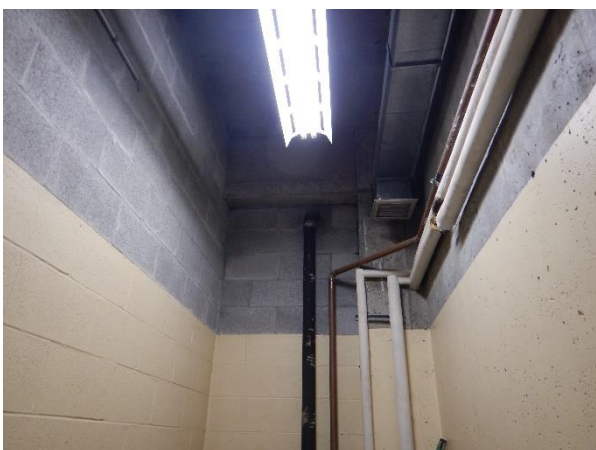
Caroline Wylie, M.Sc.  
Project Coordinator  
*Report Author*

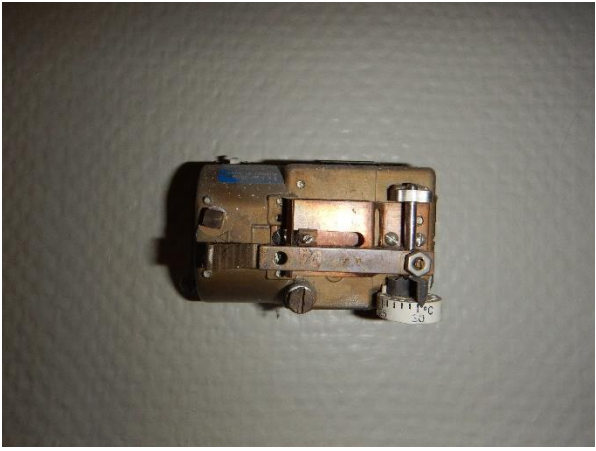









## Appendix A. Photo Plates

The following photo plates provide a general documentation of the building materials that were sampled and analyzed and observations made during the assessment. It is meant to summarize the results of analysis and observations and is not intended to include all hazardous materials, or their locations, observed during the assessment.

	
<b>Sample: N/A</b> <b>Location: Handicap washroom</b> <b>Description: Floor tile – 12" x 12" beige with dots</b> <b>Hazardous Material: Client reported that the floor tile was asbestos containing.</b>	<b>Sample: 33064-22</b> <b>Location: Handicap washroom</b> <b>Description: Light green paint on drywall</b> <b>Hazardous Material: 20,000 mg/kg lead</b>
	
<b>Sample: 33064-23</b> <b>Location: Handicap washroom</b> <b>Description: White paint on drywall</b> <b>Hazardous Material: 30,000 mg/kg lead</b>	<b>Sample: 33064-24</b> <b>Location: Janitor's closet</b> <b>Description: Yellow paint on concrete block</b> <b>Hazardous Material: 740 mg/kg lead</b>

	
<p>Sample: N/A Location: Main hallway Description: thermostat Hazardous Material: <b>May contain mercury</b></p>	<p>Sample: N/A Location: Women's washroom Description: Biohazards box Hazardous Material: <b>Biological hazards</b></p>
	
<p>Sample: N/A Location: Janitor's closet Description: Copper pipe Hazardous Material: <b>Elemental lead solder on copper pipes</b></p>	<p>Sample: N/A Location: Janitor's closet Description: Bell and spigot pipe Hazardous Material: <b>May contain lead. May contain asbestos.</b></p>



	
<p>Sample: N/A Location: Hallway Description: Smoke detector Hazardous Material: <b>Contains radioactive materials</b></p>	<p>Sample: N/A Location: Handicap washroom Description: Fluorescent lights Hazardous Material: <b>Fluorescent light tubes contain mercury vapour. Fluorescent light ballasts may contain PCBs</b></p>

## Appendix B. Site Plan and Sample Locations

## Appendix C. Analytical Reports

#### **Appendix D. Regulatory Framework**

1. **BC Occupational Health and Safety Regulation**, BC Reg. 296/97, including amendments.
2. **Safe Work Practices for Handling Asbestos**, WorkSafeBC, current edition.
3. **Hazardous Waste Regulation**, BC Ministry of Environment, including amendments.
4. **Ozone Depleting Substances and Other Halocarbons Regulation**, B.C. Reg. 220 / 2006, Environmental Management Act, including amendments.
5. **PCB Regulations**, SOR / 2008-273, Canadian Environmental Protection Act, including amendments.
6. **Lead-Containing Paint and Coatings**, Preventing Exposure in the Construction Industry, WorkSafeBC, 2011.
7. **Transportation of Dangerous Goods Regulations SOR / 2008-34**, Transportation of Dangerous Goods Act, SOR/2008/34 including amendments.
8. **Analysis Method EPA SW846-(1311) TCLP**, Section 1.2. US Environmental Protection Agency (US EPA).
9. **Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products, Part 9**, Canadian Council of the Ministers of the Environment, current edition.

## Appendix E. Methodology

As per WorkSafeBC requirements, the buildings/areas impacted by planned work based on the client-provided SOW were assessed for the presence of several different types of hazardous materials. Sampling and analysis methodologies are detailed below.

### Asbestos

An initial walk-through was conducted throughout the structure and observations were made of the wall, ceiling, floor, and other materials including any machinery or equipment to make a preliminary determination if asbestos could be present.

To confirm or discount the presence of asbestos, representative bulk samples were collected. The sample location in the building was identified with a unique sample number. The number of representative bulk samples collected was consistent with recognized industry standards and principles of good occupational hygiene practice. The approximate quantity, location and sample locations of suspect ACMs were recorded.

Bulk samples were submitted for analysis in accordance with PLM: Bulk Asbestos Building Materials EPA 600 R 93 / 116. 1993. Vermiculite samples were submitted for analysis in accordance with the Research Method for Sampling and Analysis of Fibrous Amphibole in Vermiculite Attic Insulation (EPA/600/R-04/004, January 2004, US EPA.)

The asbestos analysis was completed using a stop positive approach when appropriate for site conditions. Stop positive means samples in a homogenous material sample set were analyzed consecutively and when a sample was identified as asbestos-containing, further sample analysis within that sample set was not completed.

Samples containing > 0.5% asbestos were identified as being asbestos containing. Vermiculite insulation was identified as being asbestos-containing if any trace of asbestos was found. Non-insulation vermiculite.

### Lead

#### Paint Bulk Sampling Procedures

During the assessment a visual review of the painted surfaces was conducted for paints and coatings. NWest personnel collected representative bulk samples from the building structure. The number of representative bulk samples collected was consistent with recognized industry standards and principles of good occupational hygiene practice.

Paint samples were analyzed using one or more of the following methods:

1. Lead in Paint Chips by Atomic Absorption Spectrophotometer,
2. Inductively Coupled Plasma-Atomic Emission Spectrometry, and/or
3. Toxicity Characteristic Leaching Procedure.

### **Elemental Lead Assessment**

Lead products were identified by visual observation only. No samples were collected.

## **Polychlorinated Biphenyls (PCB)**

### **PCB-Containing Electrical Equipment**

The Site was visually assessed for the presence of polychlorinated biphenyls (PCBs) in electrical equipment such as fluorescent light ballasts. An in-depth review of each ballast is to be reserved for the deconstruction. Dismantling of in-service electrical equipment to observe individual ballasts was not feasible due to risk of electric shock and damage to the operating fixtures.

### **PCB-Containing Materials**

Paints, fluids, stains, cables transformers and other suspect sources of PCBs were not tested for PCB-content as testing was beyond the scope of this assessment.

## **Ozone Depleting Substances (CFCs/ODS)**

The potential presence of ODS in refrigeration equipment and fire suppression systems was determined by visual observation of manufacture's labels and maintenance records only.

## **Mercury-Containing Equipment**

Mercury containing thermostats, manometers and fluorescent tube/lamps were identified by visual observation only.

## **Radioactive Materials**

Where observed, radioactive sources such as smoke detectors were noted by the NWest technicians. Testing for radioactive materials was outside the scope of this assessment.

## **Silica**

Concrete, cement, tile, brick, masonry and mortar were assumed to contain crystalline silica. Observations were made on Site to determine the presence of potential silica-containing materials.

## **Mould and Biological Agents**

Observations were made to identify the presence of suspected mould and/or stained building materials at the Site along with any obvious indoor air quality issues. Non-invasive and invasive investigation techniques were used, depending on the agreement with the Client. Visual observations were made for evidence of rodent, avian or bat guano or other hazardous biological agents including biomedical waste, nests, damage, carcasses, traps, staining and tracks.

## **Flammable and/or Explosive Materials**

Visual observations were conducted for the presence of flammable and/or explosive materials that may contain flammable and/or explosive contents. These typically include above ground fuel storage tanks, drums, gas cans, cylinders with compressed contents and miscellaneous vessels. An assessment of the contents, if present, was beyond the scope of this project.

**End of report.**