

## **DRAFT HAZARDOUS BUILDING MATERIALS ASSESSMENT**

**FUNDY BATHHOUSE AND SALTWATER POOL, FUNDY NATIONAL PARK,  
ALMA, NEW BRUNSWICK**

**PUBLIC WORKS AND GOVERNMENT SERVICES CANADA  
ON BEHALF OF PARKS CANADA**

**FEBRUARY 5, 2016**

**PROJECT NO. 121811721**



## EXECUTIVE SUMMARY

Stantec Consulting Ltd. (Stantec) was commissioned by Public Works and Government Services Canada (PWGSC) on behalf of their client, Parks Canada, to conduct a Hazardous Building Materials Assessment of the Fundy Bathhouse and Saltwater Pool located at Fundy National Park, Alma, New Brunswick (NB).

The purpose of the assessment was to check for potential hazardous building materials that may require special attention prior to the planned renovations that includes the demolition of the pool and associated mechanical infrastructure. The Hazardous Building Materials Assessment (HBMA) was limited to identifying and estimating quantities of asbestos-containing materials (ACMs), lead, including lead-containing surface coatings (LCSCs) and materials, mercury, polychlorinated biphenyls (PCBs), and ozone-depleting substances (ODSs) which may require special handling and/or disposal procedures designated under applicable regulations and guidelines.

Based on Stantec's visual assessment and on the laboratory analyses performed on samples collected, hazardous building materials were identified within the subject facility.

## SUMMARY OF FINDINGS

Table 1 provides a summary of the materials identified within the subject building. Recommendations are presented after Table 1.

**Table 1**      **Summary of Findings**

<b>Building Materials</b>	<b>Comments</b>
Asbestos	<p>Friable asbestos-containing building materials were identified to be present in the form of:</p> <ul style="list-style-type: none"><li>• Thermal insulating parging cement over diamond mesh, over fibre glass, (grey and off-white colour), on heat exchange cylinder; and,</li><li>• Thermal insulating parging cement (grey colour) on steam pipe fittings.</li></ul> <p>Thermal insulating parging cement over diamond mesh, over fibre glass was observed on the heat exchange cylinder in the northwest end of the Basement. This material was observed to be in GOOD to POOR condition. There was approximately 7 m<sup>2</sup> of thermal insulating parging cement present on the heat exchange cylinder.</p> <p>Thermal insulating parging cement was observed on pipe fittings in relation to steam pipes in the northwest end of the Basement. This material was observed to be generally in GOOD to POOR condition. There were approximately 40 fittings found on the steam pipes associated with the boiler system.</p> <p>Presumed asbestos-containing materials (PACMs) were observed to be present in the form of:</p> <ul style="list-style-type: none"><li>• One fire rated door; and,</li><li>• Roofing materials.</li></ul> <p>The fire rated door located in the basement electrical room was observed to be in good condition and was not sampled to preserve its integrity. Fire rated doors are known to have been manufactured with asbestos, they should be presumed to be asbestos-containing unless proven otherwise by laboratory analysis.</p>

Building Materials	Comments
Lead Paint	<p>Seven (7) samples of various paint applications were submitted for lead content analysis. Two (2) of these samples contained lead at a concentration above 1,000 mg/kg. Five (5) paint samples contained lead concentrations less than 1,000 mg/kg.</p> <p>Three (3) paint samples (1 paint and substrate sample and 2 paint chip samples) were submitted for lead leachate analysis.</p> <p>One (1) sample (PS-FBH-03, white paint chips) was found to contain lead leachate concentrations above 5 mg/L. This white paint was observed to be in GOOD condition with some areas in FAIR condition on the wood trim around windows and doors found inside the building on the First Floor. Consequently, a sample of this paint plus wood substrate (PS-FBH-03, white paint) was found to contain lead leachate concentrations less than 5 mg/L.</p> <p>One (1) sample (PS-FBH-05, white paint chips) was found to contain lead leachate concentrations above 5mg/L. This white paint was observed to be in GOOD condition with some areas in FAIR condition on the wooden exterior trim (window and doors) of the Building.</p>
Lead-Containing Materials	<p>Lead may be present in the following materials:</p> <ul style="list-style-type: none"> <li>• Roof, vent, and pipe flashings;</li> <li>• Older electrical wiring materials and sheathing;</li> <li>• Solder used on domestic water lines;</li> <li>• Solder used in bell fittings for cast iron pipes;</li> <li>• Solder used in electrical equipment; and</li> <li>• Ceramic tile glaze.</li> </ul>
Mercury	<p>Mercury is present in four thermostats in the Basement connected to the boiler units.</p> <p>Mercury vapour is likely to be present in 26 fluorescent light tubes present in approximately 13 light fixtures observed throughout the Basement.</p> <p>Mercury-containing equipment may be present in the electrical room of the Basement as there are switches and gauges that could not be verified for mercury during the site visit.</p>
Polychlorinated Biphenyls (PCBs)	<p>Based on the age of the building (i.e. constructed between 1949 and 1950), PCBs may be present in the fluorescent light ballasts of the approximately thirteen (13) light fixtures observed throughout the Basement of the building. Ten percent (10%) of these fixtures were examined for PCBs and were found to contain no PCBs based on "NO PCBs" label markings or date code and stamps.</p> <p>A Parks Canada employee present at Fundy Bathhouse at the time of the assessment reported that a number of the fluorescent lights in the building were replaced during the last renovations completed in the building within the last 15 years.</p>
Ozone-Depleting Substances (ODSs)	<p>No fixed building equipment that contains ODSs was identified during the site visit.</p>

## RECOMMENDATIONS

Recommendations pertaining to the handling, removal and/or disposal of identified hazardous building materials are provided below:

### Asbestos-Containing Materials

Any work involving the disturbance, repair (i.e., encapsulation) or removal of the above noted confirmed and presumed ACMs should be conducted by a certified contractor using Asbestos Work Procedures as defined by *A Code of Practice for Working with Materials Containing Asbestos in New*

Brunswick (N.B. Regulation 92-106) and Federal Directive 057.

Vermiculite was not observed during the assessment of the subject building. Should vermiculite be discovered during demolition activities, work in that area must be stopped and the vermiculite must be sampled and submitted for analysis to determine whether asbestos fibres are present.

Also, should a material suspected to contain asbestos fibres become uncovered or discovered during demolition or renovation activities, all work in that area that may disturb the suspect material should be stopped. Samples of the suspect material should be submitted for laboratory analysis to determine if asbestos fibres are present.

A sample (BS-FBH-06C) of scratch coat plaster on wire mesh, grey colour was determined by laboratory analysis to contain <1% Chrysotile asbestos. If this material is removed for disposal at a Construction and Demolition (C&D) site, the C&D site should be notified that this material contains <1% asbestos, prior to disposal.

### Lead Paint

Paint applications that were determined by laboratory analysis to have lead concentrations below 1,000 mg/kg and lead leachate concentrations below the NBDELG guideline of 5 mg/L can be disposed of at a Construction and Demolition site provided the paint was well-adhered to its substrate. However, paint in FAIR to POOR Condition (i.e. the painted surface coating is loose and flaking away from its substrate) should be scraped off the substrate and disposed of at a Regional Solid Waste Landfill.

Paint applications that were found to have lead concentrations > 1,000 mg/kg (i.e. lead-containing) but found not to have a lead leachate concentration above the NBDELG guideline of 5 mg/L can be disposed of at a Regional Solid Waste Landfill provided permission is obtained from the facility and the paint is in GOOD Condition (i.e. the painted surface coating is well-adhered to its substrate).

Based on laboratory analysis, paint applications identified to be lead leachate toxic (> 5 mg/L) cannot be disposed of at a Regional Solid Waste Landfill. Therefore, loose and flaking lead-leachate toxic paint chips (white interior and exterior trims) should be removed by a certified contractor and disposed of at an approved hazardous waste disposal facility capable of handling leachate toxic waste.

### Lead-Containing Materials

Lead-containing materials (e.g. roof, vent, and pipe flashings) should be carefully separated from other building materials and re-cycled by a metals recycling depot, if they require removal. Based on the possible presence of lead-containing solder on copper piping, all copper piping removed during demolition/renovation of the building should be cut above and below any soldered joints to avoid direct disturbance of the lead solder.

"The Guideline: Lead on Construction Projects" (prepared by the Ontario Ministry of Labour), April, 2011, does not require removal of lead paint or lead-based materials such as pipe solder or ceramic tiles unless work on these materials is likely to cause worker exposure to lead fumes or lead dust. Worker exposure to lead fumes or dust is elevated by activities such as welding, flame cutting, grinding, sanding or sandblasting. If these activities are to be performed on painted surfaces, procedures outlined in the aforementioned guideline should be adhered to.

### Mercury

Prior to demolition, fluorescent light tubes should be packaged for recycling to avoid emissions of mercury vapours. The fluorescent light tubes and glass ampoules in the boiler thermostats that contain liquid mercury should be properly stored on site until they can be safely removed and transported from the site by a recycling contractor for disposal at a registered recycling depot.

### Polychlorinated Biphenyls

Based on the age of the subject buildings, all fluorescent lamp ballasts should be checked for PCBs prior to removal by comparing the ballast manufacturer catalogue numbers to the Environment Canada document "Identification of Lamp Ballasts Containing PCBs", Report EPS 2/CC/2 (revised), August 1991 prior to disposal. PCB containing ballasts identified and removed from the buildings during demolition should be handled according to the New Brunswick Policy on the Storage of PCB Light Ballasts.

## TABLE OF CONTENTS

	<b>Page No.</b>
EXECUTIVE SUMMARY .....	i
1.0 INTRODUCTION.....	1
2.0 SCOPE.....	1
2.1 Limitations.....	1
2.1.1 Physical and Sampling Limitations .....	2
2.1.2 Areas Not Accessed .....	3
2.1.3 Information from Previous Reports .....	3
3.0 HAZARDOUS BUILDING MATERIALS ASSESSMENT.....	3
3.1 Building Description .....	3
3.2 Document Review .....	4
3.3 Asbestos.....	4
3.3.1 Methodology .....	4
3.3.2 Findings.....	5
3.3.2.1 Friable Asbestos-Containing Materials.....	5
3.3.2.2 Non-Friable Asbestos-Containing Materials.....	5
3.3.2.3 Materials Containing Trace Amounts of Asbestos (<1%).....	5
3.3.2.4 Presumed Asbestos-Containing Materials .....	5
3.3.2.5 Potential Vermiculite Insulation .....	6
3.3.3 Recommendations .....	6
3.4 Lead .....	6
3.4.1 Methodology .....	6
3.4.2 Findings.....	7
3.4.2.1 Lead-Containing Paint.....	7
3.4.2.2 Lead Leachate Toxic Paint .....	7
3.4.2.3 Other Lead-Containing Materials.....	8
3.5 Mercury.....	9
3.5.1 Methodology .....	9
3.5.2 Findings.....	9
3.5.3 Recommendations .....	9
3.6 Polychlorinated Biphenyls .....	10
3.6.1 Methodology .....	10
3.6.2 Findings.....	10
3.6.3 Recommendations .....	10
3.7 Ozone Depleting Substances.....	10
3.7.1.1 Methodology .....	10
3.7.2 Findings.....	10
3.7.3 Recommendations .....	10
4.0 CLOSURE.....	11

## LIST OF TABLES, AND APPENDICES

### Tables

### Page No.

Table 1	Summary of Findings .....	i
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### Appendices

Appendix A	Drawings and Photographs	
Appendix B	Asbestos and Paint Summary Tables and Laboratory Certificates	
Appendix C	Regulatory Considerations	
Appendix D	Class D Cost Estimates	

## **1.0 INTRODUCTION**

Stantec Consulting Ltd. (Stantec) was commissioned by Public Works and Government Services Canada (PWGSC) on behalf of their client, Parks Canada, to conduct a Hazardous Building Materials Assessment of the Fundy Bathhouse and Saltwater Pool located at Fundy National Park, in Alma, New Brunswick (NB).

The purpose of the assessment was to identify potential hazardous building materials that may require special attention prior to the planned renovations that includes the demolition of the pool and associated mechanical infrastructure. The Hazardous Building Materials Assessment (HBMA) was limited to identifying and estimating quantities of asbestos-containing materials (ACMs), lead, including lead-containing surface coatings (LCSCs) and materials, mercury, polychlorinated biphenyls (PCBs), and ozone-depleting substances (ODSs) which may require special handling and/or disposal procedures designated under applicable regulations and guidelines.

The site work was conducted by Don Hartt, Environmental Scientist and Megan Ostridge, Environmental Consultant of Stantec on January 6, 2016.

## **2.0 SCOPE**

The scope of work for this assessment involved the following:

- A review of existing information, including site drawings, previous assessment and/or abatement documentation and discussions with site personnel, where available;
- A visual assessment of readily accessible areas for the presence of hazardous building materials;
- The collection of representative bulk samples from building materials suspected of containing asbestos fibres;
- The collection of paint samples for the determination of lead content in paint surfaces and for the determination of the potential for lead leachate toxicity in paint;
- Submission of samples collected for laboratory analysis;
- Identification of lead-containing surface coatings (LCSCs) and materials, mercury-containing equipment, PCB-containing equipment, and ODS-containing equipment; and
- Evaluation and interpretation of field findings and previous analytical results to develop conclusions and recommendations pertaining to designated substances and hazardous building materials identified to be present.

### **2.1 Limitations**

This report reflects the observations made within accessed areas and the results of analyses performed on specific materials sampled, as indicated herein. Analytical results reflect the sampled materials at the specific sampling locations.

The subject building's roof and pool surface area were snow and ice covered at the time of the assessment which limited access due to Health and Safety concerns.

### 2.1.1 Physical and Sampling Limitations

Sampling was conducted pertaining to suspected ACMs and suspected lead-containing paints (LCPs) only. The assessment for the presence of other hazardous building materials was visual in nature, and was conducted pertaining to readily visible surfaces within accessible spaces only. Concealed spaces were inspected via existing access panels, where present. Interior and exterior finishes, solid ceilings, walls, flooring and structural elements were not removed to access concealed areas.

The potential presence of hazardous building materials in inaccessible areas not assessed includes, but is not limited to: ceiling spaces, wall cavities, crawlspaces, and buried materials.

Due to physical limitations in accessing concealed areas, there are specific limitations to the information that can be provided to each hazardous building material considered in this assessment. As outlined below, the presence and the asbestos content of some building materials could neither be confirmed nor denied.

- Building materials that may contain asbestos but were not accessible for sampling include, but are not limited to the following:
  - Sub-grade materials (e.g., asbestos cement drainage pipe);
  - Flooring material concealed beneath ceramic tile, brickwork, and/or concealed beneath existing sub-floors;
  - Insulation material present inside walls and roof systems (e.g., suspected asbestos-containing vermiculite insulation inside concrete block and/or brick walls);
  - Drywall and/or wall plaster and associated finish materials concealed behind new and/or additional walls;
  - Woven tape inside duct connection joints;
  - Mechanical (e.g., piping and ducting) insulation within wall cavities, crawlspaces tunnels or other concealed spaces;
  - Insulation materials inside fire doors;
  - Heating, ventilation and air conditioning (HVAC) units mechanical inner linings and/or inner ducting insulation;
  - Heat protection materials inside mechanical installations and light fixtures; and,
  - Materials in confined spaces.
- Samples of paint applications suspected to contain lead were collected from surfaces of major paint applications where visually different paint colors and/or types were identified. Although the surfaces where samples were collected may be covered with more than one coat of paint, the paint samples are sometimes described by the surface (visible) color only. Attempts were made to represent all layers of paint in the samples collected. As analytical results are referenced to the surface paint color only, the lead content of all painted surfaces similar to that represented by the surface paint color will be presumed to be the same, regardless of differing sub surface paints, if any.
- To protect potentially historically significant building trims, framing, etc., paint samples with substrate material (generally wood) were limited in collection. However, Stantec was able to collect a representative paint and wood substrate sample from the interior of the building.
- The presence of mercury or mercury-containing equipment in inaccessible areas or as internal parts of HVAC mechanisms or other equipment was not assessed.

- Lamp ballasts were inspected for PCB labels or other PCB identifiers in approximately 10% of fluorescent light fixtures present within the subject building. Conclusions and recommendations regarding the presence of PCBs are based on limited observations and is presented to provide guidance regarding the likelihood that PCB-containing equipment is or is not present. The exact extent and/or number of fluorescent lamp ballasts containing PCBs, if any, will not be commented on.
- The investigation was limited to a visual review in accessed areas of readily accessible building-related cooling and refrigeration equipment which could contain ODSs. Testing was not conducted. Equipment or materials that were not included as part of this assessment but that may contain ODSs include, but are not limited to portable equipment, including domestic-type refrigerators and water cooler, flexible plastic foam or rigid insulation foam, solvents, aerosol spray propellants and fire extinguishing equipment.
- In general, the assessment for the presence of other hazardous building materials was visual in nature, and was conducted pertaining to readily visible surfaces within accessible accessed spaces only. The potential presence of hazardous building materials in inaccessible areas not assessed includes, but is not limited to: ceiling spaces, wall cavities, crawlspaces, and buried materials.

### **2.1.2 Areas Not Accessed**

Inaccessible room spaces or interior areas were not encountered during the assessment.

### **2.1.3 Information from Previous Reports**

No previous report(s) were reviewed by Stantec personnel for the development of the sampling plan and/or report. However, several construction drawings supplied by PWGSC were reviewed as part of this assessment.

## **3.0 HAZARDOUS BUILDING MATERIALS ASSESSMENT**

The results of the assessment for each of the considered hazardous building materials are provided in the following sub-sections. Refer to Appendix A for floor plan drawings showing sampling locations and selected photographs taken during the assessment. A summary list of the bulk samples that were collected including a description of the material, sampling location, type of analysis and laboratory test results is provided in Appendix B. A copy of the laboratory certificates of analysis is also provided in Appendix B. Refer to Appendix C for regulatory framework and relevant legislation with respect to Hazardous Building Materials. Class D cost estimates for recommended abatement work are provided in Appendix D.

### **3.1 Building Description**

The Fundy Bathhouse consists of a single storey building with a basement. The reported construction date of Fundy Bathhouse and Saltwater Pool was between 1949 and 1950. The subject building is reported to have undergone a number of modifications and renovations over the years since the original construction, most notably the roof was replaced 15 years ago. The interior of the Bathhouse was renovated in the 1990's and the building is painted regularly (First Floor and Exterior), as detailed by a Parks Canada representative on site.

The typical structural components associated with this building consist of a coursed stone. The building has a medium-pitch gable roof that is covered with cedar shingles. In addition, an arched portico also runs east to west along the north side of the Bathhouse facing the pool. The Saltwater Pool is a poured concrete in-ground structure. The pool is supplied by the salt water from the Bay of Fundy.

Interior finishes associated with this building consist of a concrete slab, and ceramic tile flooring; wood panelling, scratch coat plaster on wire mesh and concrete ceilings; ceramic tiles, concrete, plaster, drywall, wood, wood panelling walls and wood framed windows.

For this report, the First Floor was divided into four separate sections for sampling and reporting purposes due to the fact that the rooms had no room designations to rely on. The sections are as followed:

- Section One: Eastern most portion of the First Floor consisting of bathrooms, showers, and changing rooms along the north of the room and locker space along the south of the room.
- Section Two: Central portion of the First Floor consisting of the main lobby entrance.
- Section Three: Central portion of the First Floor consisting of a shower and bathroom for those with disabilities.
- Section Four: Western most portion of the First Floor consisting of bathrooms, changing rooms, showers and locker space.

All sections are noted on Drawing 2 provided in Appendix A.

The basement consisted of one large room with an underground mechanical chase that runs along the edge of the in-ground pool. Due to the openness of the basement, for the purpose of this report the basement was not divided into sections.

## **3.2 Document Review**

No documentation was reviewed prior to undertaking the assessment other than floor and construction (as-built) plans that were provided by PWGSC for the purpose of this report. To Stantec's knowledge there are no previous Hazardous Materials Assessment reports for Fundy Bathhouse and Saltwater Pool in Fundy National Park, Alma, NB.

## **3.3 Asbestos**

### **3.3.1 Methodology**

A visual assessment of accessible areas was undertaken in order to check for the presence of materials suspected of containing asbestos. Locations to collect discrete bulk asbestos samples of suspect building materials were identified. Samples of representative materials were then collected at these locations.

A visual assessment of the condition and accessibility was completed for each occurrence of an ACM.

Samples of suspect ACMs from various building materials were collected and submitted to EMSL Canada Inc. (EMSL), located in Mississauga, Ontario for analysis using Polarized Light Microscopy (PLM) with dispersion staining. Adhesives and plaster were analyzed using PLM and Non-Organic Bound Prep (NOB). The NOB method reduces organic and other non-ACMs. The PLM analysis was conducted following the U.S. EPA/600/R-93/116 Method. EMSL is certified under the National Voluntary Laboratory Accreditation Program (NVLAP) to perform asbestos analysis of bulk samples.

An ACM in New Brunswick is defined as a material that contains 1.0 per cent or more asbestos by volume.

### **3.3.2 Findings**

Laboratory certificates of analysis and summary lists of the bulk samples collected during this assessment and confirmed to be either ACM or non-ACMs by laboratory analysis are provided in Table B1 in Appendix B.

#### **3.3.2.1 Friable Asbestos-Containing Materials**

Friable asbestos-containing building materials were identified to be present in the subject building in the form of:

- Thermal insulating parging cement (grey colour), on steam pipe fittings in the northwest portion of the Basement (Photos 4 in Appendix A).
- Thermal insulating parging cement over diamond mesh, over fibre glass on the heat exchange cylinder, (grey and off-white colour) located in the northwest corner of the Basement (Photo 5 in Appendix A);

The thermal insulating parging cement present on the heat exchange cylinder located in the northwest corner of the Basement was observed to be in GOOD to POOR condition.

The thermal insulating parging cement on the steam pipe fittings located in the northwest corner of the Basement were observed to be in GOOD to POOR condition.

#### **3.3.2.2 Non-Friable Asbestos-Containing Materials**

Non-friable asbestos-containing building materials were not identified to be present.

#### **3.3.2.3 Materials Containing Trace Amounts of Asbestos (<1%)**

The following building materials were observed in the subject building and were found to contain trace amounts of asbestos:

- Scratch coat plaster on wire mesh, grey colour (BS-FBH-06C) was determined by laboratory analysis to contain <1% Chrysotile asbestos. The scratch coat plaster is visible on the majority of the basement ceiling.

#### **3.3.2.4 Presumed Asbestos-Containing Materials**

The following building materials were observed in the subject building but not sampled, and are listed as presumed asbestos-containing materials (PACMs):

- 1 Fire rated door; and,
- Roofing materials.

### **3.3.2.5 Potential Vermiculite Insulation**

Asbestos-contaminated vermiculite was historically used as insulating material in masonry block walls or as attic insulation. Vermiculite was not observed during the assessment of the subject building. Should vermiculite be discovered during renovation or demolition activities, work in that area must be stopped and the vermiculite must be sampled and submitted for analysis to determine whether asbestos fibres are present. Confirmed asbestos materials should be handled accordingly.

### **3.3.3 Recommendations**

Based on the visual assessment and laboratory analysis, ACMs and PACMs were identified within the subject building. Stantec recommends the following with regards to meeting the requirements of Regulation (NB) 92-106 made under the Occupational Health and Safety Act and Federal Directive 057:

- Damaged asbestos-containing materials (recommended corrective action), should be repaired or removed by a certified asbestos abatement contractor.
- If materials containing trace amounts of asbestos are removed for disposal at a Construction and Demolition (C&D) site, the C&D site should be notified that this material contains <1% asbestos, prior to disposal.
- Asbestos-containing materials that may be impacted during the renovations and/or demolition activities should be removed prior to the renovation and/or demolition activities.
- Prior to the renovation and/or demolition activities that would disturb them, undertake testing of PACMs that may be impacted to determine their asbestos content. Confirmed asbestos materials should be handled accordingly.
- Should a material suspected to contain asbestos fibres become uncovered during the renovation and/or demolition activities, all work in the areas that may disturb the material should be stopped. Samples of the suspect material should be submitted for laboratory analysis to determine if asbestos fibres are present. Confirmed asbestos materials should be handled in accordingly.
- An Asbestos Management Plan (AMP) should be developed for the facility, if identified ACMs are to remain in the building after the planned restoration project is complete.

## **3.4 Lead**

### **3.4.1 Methodology**

A visual assessment of accessible areas was undertaken in order to check for the presence of materials that may contain lead. These materials included paint applications, wiring and plumbing, etc.

Representative paint samples were collected and submitted to Maxxam Analytics Inc. of Bedford, Nova Scotia for lead content analysis. Maxxam is Standards Council of Canada (SSC) Accredited (Laboratory No. 161), conforming to the following requirements: CAN-P-1585: Requirements for Accreditation of Environmental Testing Laboratories and CAN-P-4E (ISO/IEC 17025): General Requirements for the Competence of Testing and Calibration Laboratories (ISO/IEC 17025-2005).

The sampling of paint applications involved the collection of paint layers. Substrate wood trim, framing, etc., were collected with the paint chip samples, however were limited in collection in order to retain the integrity of potentially historic building materials. Samples were placed in sealed, clearly labelled plastic bags.

A summary list of the samples collected including a description of the samples, sampling locations and laboratory analytical results is provided in Appendix B. The sampling locations are indicated on the floor plans provided in Appendix A.

### **3.4.2 Findings**

Eleven (11) samples of major paint applications were collected in the form of paint chips and paint and substrate samples. Seven (7) of these samples were submitted to Maxxam for lead content analysis and two (2) samples that exceeded 1,000 mg/kg (PS-FBH-03 and PS-FBH-05) were submitted for lead leachate analysis. An additional sample was submitted for lead leachate analysis that included substrate and paint for (PS-FBH-03), which exceeded 1,000 mg/kg lead content analysis when analyzed as paint chips only. Summary lists of the paint samples collected during this assessment (Table B2) and a copy of the laboratory Certificate of Analysis for the paint sample testing are included in Appendix B.

#### **3.4.2.1 Lead-Containing Paint**

Lead-containing paint (*i.e.* lead concentrations > 1,000 mg/kg) was identified through laboratory analysis to be present in (2) of the seven (7) samples submitted for analysis. Lead-containing paint was identified by laboratory analysis in the following two (2) paint applications:

- White paint chips (PS-FBH-03) – First Floor – Area 2 – wood window and door trim – 16,000 mg/kg; and,
- White paint chips (PS-FBH-05) – Exterior – First Floor – wood door trim – 26,000 mg/kg.

#### **3.4.2.2 Lead Leachate Toxic Paint**

Two (2) paint samples with lead concentrations that exceeded 1,000 mg/kg were submitted for lead leachate analysis. Based on the laboratory results, the following paint applications contained lead leachate toxic concentrations (greater than 5 mg/L):

- White paint chips (PS-FBH-03) - interior window and door trim. This white paint was sampled from the wood trim around the doors found on the north and south walls of the interior finishes, where it was observed to be in GOOD to FAIR condition. Paint chips alone contain a lead leachate toxic concentration (greater than 5 mg/L). However, when the paint is attached to wood substrate, the paint application has a lead leachate toxic concentration of (less than 5 mg/L).
- White paint chips (PS-FBH-05) – exterior door and door trim. This white paint was sampled from the wood trim and door found located on the south wall of Area 2. Two doors are present on the south wall; the paint was collected from the door that resides on the eastern portion of the south wall, where it was observed to be in GOOD to FAIR condition. Paint chips contain a lead leachate toxic concentration (greater than 5 mg/L). No paint and substrate sample was collected for this sample, to ensure the integrity of the building's exterior. However, based on the results of the paint and wood substrate sample (PS-FBH-03), it is assumed that the well adhered paint on wood substrate trim on the exterior of the building meets the applicable guideline.

### 3.4.2.3 Other Lead-Containing Materials

Lead may also be present in the following materials:

- Roof, vent and pipe flashings;
- Older electrical wiring materials and sheathing;
- Solder used on domestic water lines;
- Solder used in bell fittings for cast iron pipes;
- Solder used in electrical equipment; and
- Ceramic tile glaze.

### Recommendations

#### Paint Disposal

Five of the seven samples obtained from the Fundy Bathhouse and Saltwater Pool of major paint applications identified at the site were found through laboratory analysis, not to have lead concentrations above 1,000 mg/kg or lead leachate concentrations above the NBDELG guideline of 5 mg/L and therefore, can be disposed of at a Construction and Demolition site provided the paint was well-adhered to its substrate.

Paint that was in GOOD condition (i.e., painted surface coating not loose or flaking away from its substrate included:

- Off white paint on light pink paint (PS-FBH-01) found in Area 1 of the First Floor, was observed to be generally in GOOD condition with some areas in FAIR condition;
- Light green paint chips (PS-FBH-02) found in Area 2 of the First Floor, was observed to be in generally GOOD condition with some areas in FAIR condition;
- Dark green paint (PS-FBH-04) found on the roof exterior on the cedar shingles, was observed to be in generally GOOD condition with some areas in FAIR condition;

However, paint in FAIR to POOR condition (i.e., the painted surface coating is loose and flaking away from its substrate included:

- Dark green paint on light grey and dark grey paint (PS-FBH-06) found on the Basement floor, was observed to be in POOR condition; and,
- White paint (PS-FBH-07) found on the Basement walls, was observed to be in POOR condition.

If required, loose and flaking paints listed above should be scraped off the substrate and disposed of at a Regional Solid Waste Landfill.

Based on laboratory analysis, the white paint chips (PS-FBH-03 and PS-FBH-05) observed on the wood window and door trim of the interior and exterior of the building, were identified to be lead leachate toxic ( $> 5$  mg/L) and cannot be disposed of at a Regional Solid Waste Landfill. If samples PS-FBH-03 and PS-FBH-05, are well adhered to the wood substrates, these painted materials can be disposed of at a Regional Solid Waste Landfill. However, loose and flaking lead-leachate toxic paint chips should be removed by a certified abatement contractor, shipped as hazardous waste, and disposed of at an approved hazardous waste disposal facility out of province, capable of handling leachate toxic waste.

## **Lead-Containing Materials**

The Guideline: Lead on Construction Projects (prepared by the Ontario Ministry of Labour), April, 2011, does not require removal of lead paint or lead-based materials such as pipe solder or ceramic tiles unless work on these materials is likely to cause worker exposure to lead fumes or lead dust. Worker exposure to lead fumes or dust is elevated by activities such as welding, flame cutting, grinding, sanding or sandblasting. If these activities are to be performed on painted surfaces, procedures outlined in the aforementioned guideline should be adhered to.

Based upon our visual observations and the historic use of lead in construction, lead may also be present in the following building materials:

- roof, vent and pipe flashings;
- Older electrical wiring materials and sheathing;
- Solder used on domestic water lines;
- Solder used in bell fittings for cast iron pipes;
- Solder used in electrical equipment; and
- Ceramic tile glaze.

These materials should be carefully separated from other building materials and re-cycled by a metals recycling depot if they require disposal. Based on the possible presence of lead-containing solder on copper piping, all copper piping removed during demolition/renovation of the building should be cut above and below any soldered joints to avoid direct disturbance of the lead solder.

### **3.5 Mercury**

#### **3.5.1 Methodology**

A visual assessment for the presence of mercury-containing equipment was conducted.

#### **3.5.2 Findings**

Mercury is present in four thermostats located in the Basement of the subject building connected to the two boiler units.

Mercury vapour is present in approximately 26 fluorescent light tubes present throughout the Basement.

Mercury-containing equipment may be present in the electrical room of the Basement as there are switches and gauges that could not be verified for mercury during the site visit.

#### **3.5.3 Recommendations**

Prior to renovation/demolition, fluorescent light tubes should be packaged for recycling to avoid emissions of mercury vapours. The fluorescent light tubes and glass ampoules in the boiler thermostats that contain liquid mercury should be properly stored on site until they can be safely removed and transported from the site by a recycling contractor for disposal at a registered recycling depot. Ensure all mercury waste is handled, stored and disposed of in accordance with the requirements of the federal Transportation of Dangerous Goods Regulation.

## **3.6 Polychlorinated Biphenyls**

### **3.6.1 Methodology**

A visual review for the presence of PCBs in electrical equipment was completed. Equipment that is generally suspected of containing PCBs includes lamp ballasts, transformers, hydraulic systems, compressors, switchgear and capacitors.

### **3.6.2 Findings**

Based on the age of the building (*i.e.* constructed between 1949 and 1950), PCBs may be present in the fluorescent light ballasts of the approximately thirteen (13) light fixtures observed throughout the Basement of the building. Ten percent (10%) of these fixtures were examined for PCBs and were found to contain no PCBs based on "NO PCBs" label markings or date code and stamps.

A Parks Canada representative present during the assessment reported that a number of the fluorescent lights in the building have been all replaced during the last major renovations (1990s).

### **3.6.3 Recommendations**

Fluorescent lamp ballasts that may contain PCBs can be managed in place, where these items are operating and in good condition. No further action is currently required until such time that renovation or demolition activities are to be conducted, or until 2025, when PCB-containing ballasts will require removal and disposal.

When decommissioned, verify the PCB content of fluorescent lamp ballasts as per the Environment Canada publication "*Identification of Lamp Ballasts Containing PCBs*", Report EPS 2/CC/2 (revised), August 1991. Handle, store and dispose of PCB-containing ballasts in accordance with Federal Regulation SOR/2008-273, under CEPA and R.R.O. 1990, Reg. 362.

Should a material suspected to contain PCBs become uncovered during renovation activities (*i.e.*, dielectric fluids, hydraulic fluids), all work in the areas that may disturb the material should be stopped. Samples of the suspect material should be submitted for laboratory analysis to determine if PCBs are present. Confirmed PCBs should be handled in accordance with Federal Regulation SOR/2008-273 and R.R.O. 1990, Reg. 362, under the EPA.

## **3.7 Ozone Depleting Substances**

### **3.7.1.1 Methodology**

An assessment for equipment likely to contain ODSs was completed. Information on the type of equipment, manufacturer and type and quantity of refrigerants was recorded, where available.

### **3.7.2 Findings**

No fixed building equipment that contains ODSs was observed in the building during the site visit.

### **3.7.3 Recommendations**

Should a material suspected to contain ODSs become uncovered during the renovation and/or demolition activities, prior to being removed from service, the cooling and refrigeration equipment

should be purged and decommissioned by a licensed refrigeration technician.

#### **4.0 CLOSURE**

This report has been prepared for the sole benefit of Public Works and Government Services Canada and their client Parks Canada. The report may not be used by any other person or entity without the express written consent of Stantec Consulting Ltd., Public Works and Government Services Canada, and Parks Canada.

Any use which a third party makes of this report, or any reliance on decisions based on it, is the responsibility of such third parties. Stantec Consulting Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The information and conclusions contained in this report are based upon work undertaken by trained professionals and technical staff in accordance with generally accepted engineering and scientific practices current at the time the work was performed. Conclusions presented in this report should not be construed as legal advice.

The conclusions presented in this report represent the best technical judgment of Stantec Consulting Ltd. based on the data obtained from the work.

The conclusions are based on the site conditions encountered by Stantec Consulting Ltd. at the time the work was performed at the specific assessment and/or sampling locations, and can only be extrapolated to an undefined limited area around these locations. The extent of the limited area depends on building construction and conditions, weather, building usage and other factors. Due to the nature of the investigation and the limited data available, Stantec Consulting Ltd. cannot warrant against undiscovered environmental liabilities.

If any conditions become apparent that differ significantly from our understanding of conditions as presented in this report, we request that we be notified immediately to reassess the conclusions provided herein.

This report was prepared by Megan Ostridge, B.A. (Hon) and reviewed by Paul Paulin, P.Eng. We trust that the above is satisfactory for your purposes at this time. Should you have any questions or concerns, or require additional information, please do not hesitate to contact the Stantec Project Manager at your convenience.

Regards,

**STANTEC CONSULTING LTD.**







*DRAFT*

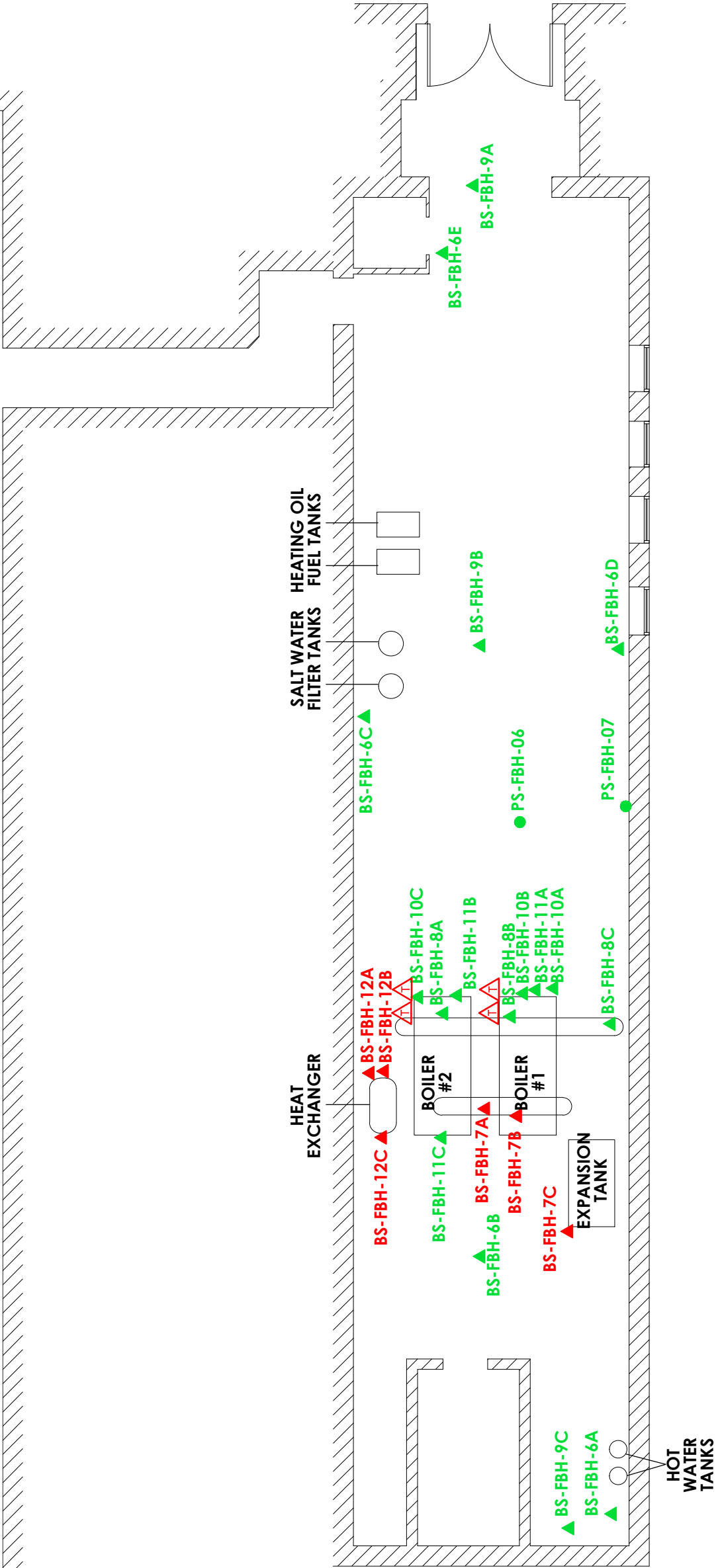
Paul D. Paulin, P.Eng.  
Project Manager  
Tel: (506) 648-1462  
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## **APPENDIX A**

### **DRAWINGS AND PHOTOGRAPHS**







LEGEND:

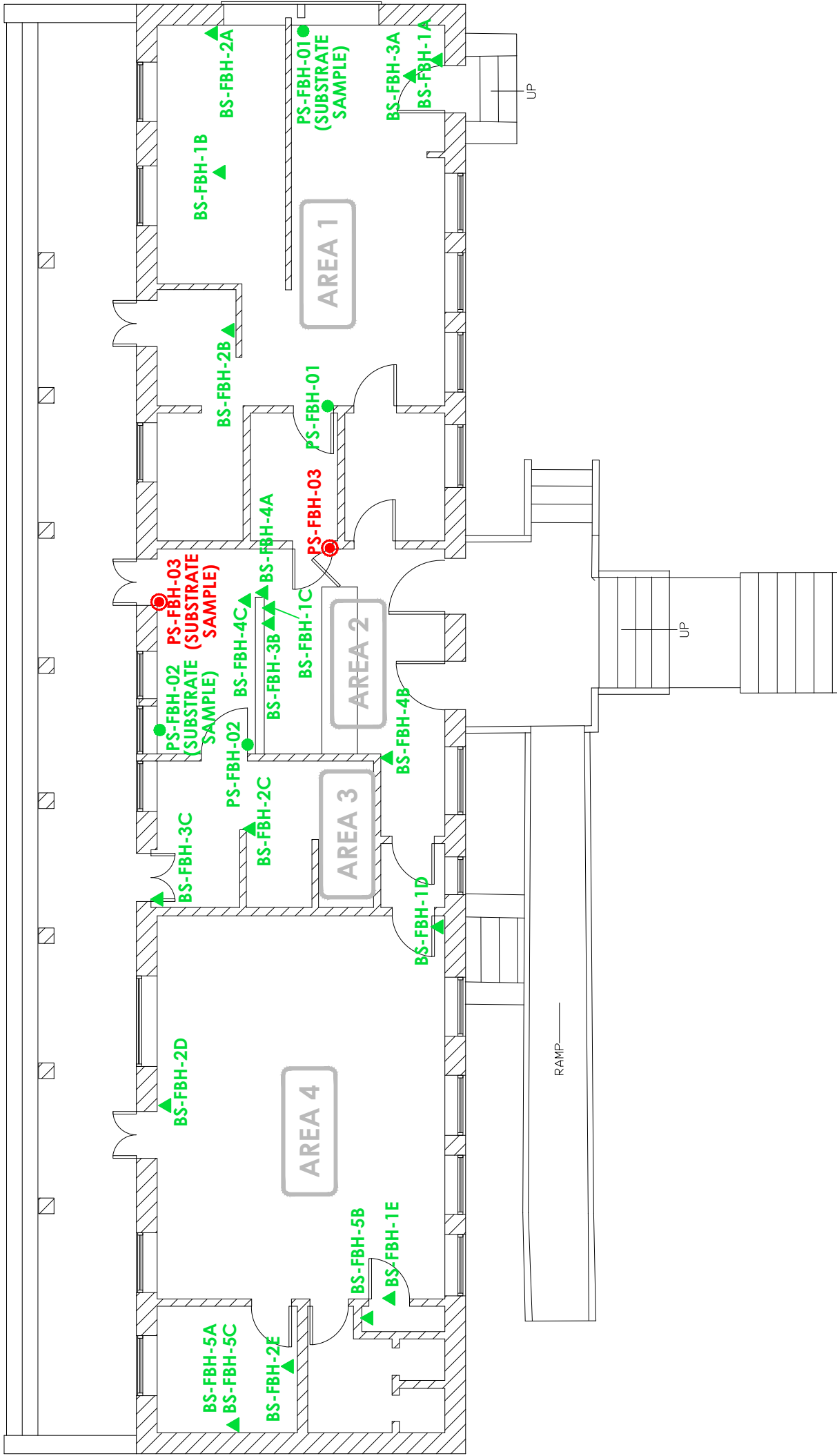
-  BULK SAMPLE LOCATION: NO ASBESTOS DETECTED (<1% BY DRY WEIGHT)
-  BULK SAMPLE LOCATION: ASBESTOS-CONTAINING MATERIAL (≥1% BY DRY WEIGHT)
-  PAINT SAMPLE LOCATION: BELOW GUIDELINES (<1000 mg/kg) OR NOT SUBMITTED BASED ON REPORTED AGE (SINCE 1990) OF THE BUILDING MATERIALS TO WHICH THESE SAMPLES WERE ADHERED
-  PAINT SAMPLE LOCATION: ABOVE LEAD PAINT C & D DISPOSAL GUIDELINES (≥1000 mg/kg)
-  PAINT SAMPLE LOCATION: ABOVE LEAD LEACHATE DISPOSAL GUIDELINES (≥5 mg/L)
-  MERCURY-CONTAINING THERMOSTAT



Reference: PARKS CANADA Job Title: F.N.P BATH HOUSE AND S.W. POOL Sheet Title: BASEMENT FLOOR PLAN Sheet No.: 4	Job No.:	121811721	Client:	PUBLIC WORKS AND GOVERNMENT SERVICES CANADA	Project: HAZARDOUS MATERIALS ASSESSMENT, BATH HOUSE AND S.W. POOL	Drawing Title: BASEMENT SAMPLING LOCATION PLAN	Dwg. No.: 1	 <b>Stantec</b>
	Scale:	1 : 100						
	Date:	2016/01/26	Site Address FUNDY NATIONAL PARK, NEW BRUNSWICK					
	Dwn. By:	JCB						
	App'd By:	PP						

LEGEND:

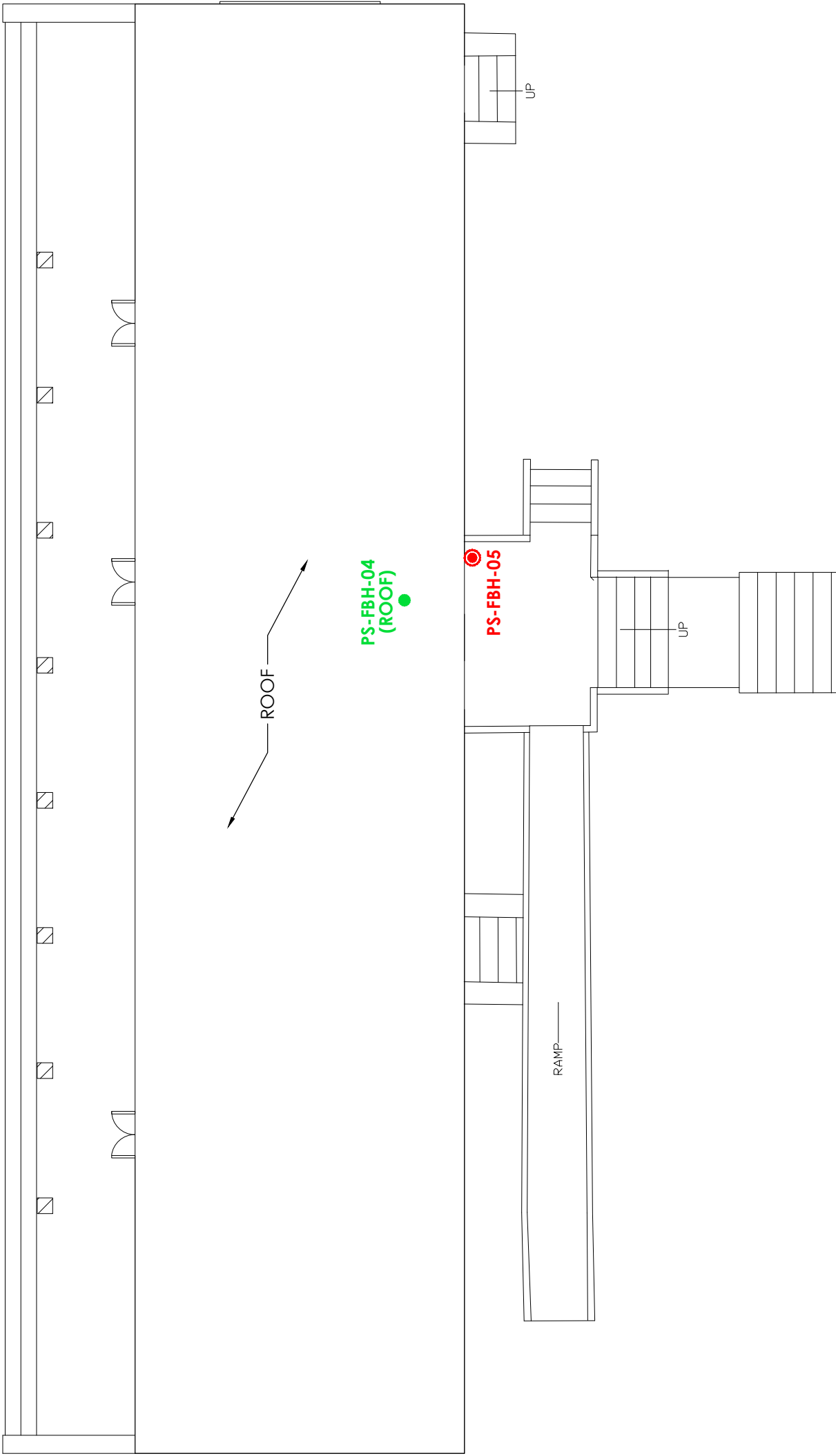
-  BULK SAMPLE LOCATION: NO ASBESTOS DETECTED (<1% BY DRY WEIGHT)
-  BULK SAMPLE LOCATION: ASBESTOS-CONTAINING MATERIAL (≥1% BY DRY WEIGHT)
-  PAINT SAMPLE LOCATION: BELOW GUIDELINES (<1000 mg/kg) OR NOT SUBMITTED BASED ON REPORTED AGE (SINCE 1990) OF THE BUILDING MATERIALS TO WHICH THESE SAMPLES WERE ADHERED
-  PAINT SAMPLE LOCATION: ABOVE LEAD PAINT C & D DISPOSAL GUIDELINES (≥1000 mg/kg)
-  PAINT SAMPLE LOCATION: ABOVE LEAD LEACHATE DISPOSAL GUIDELINES (≥5 mg/L)
-  MERCURY-CONTAINING THERMOSTAT



Reference: PARKS CANADA Job Title: F.N.P BATH HOUSE AND S.W. POOL Sheet Title: GROUND FLOOR PLAN Sheet No.: 3	Job No.: 121811721	Client: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA  Site Address FUNDY NATIONAL PARK, NEW BRUNSWICK	Project: HAZARDOUS MATERIALS ASSESSMENT, BATH HOUSE AND S.W. POOL	Drawing Title: GROUND FLOOR INTERIOR SAMPLING LOCATION PLAN	Dwg. No.: 2	 <b>Stantec</b>
	Scale: 1 : 100					
	Date: 2016/01/26					
	Dwn. By: JCB App'd By: PP					

LEGEND:

- BULK SAMPLE LOCATION: NO ASBESTOS DETECTED (<1% BY DRY WEIGHT)
- BULK SAMPLE LOCATION: ASBESTOS-CONTAINING MATERIAL (≥1% BY DRY WEIGHT)
- PAINT SAMPLE LOCATION: BELOW GUIDELINES (<1000 mg/kg) OR NOT SUBMITTED BASED ON REPORTED AGE (SINCE 1990) OF THE BUILDING MATERIALS TO WHICH THESE SAMPLES WERE ADHERED
- PAINT SAMPLE LOCATION: ABOVE LEAD PAINT C & D DISPOSAL GUIDELINES (≥1000 mg/kg)
- PAINT SAMPLE LOCATION: ABOVE LEAD LEACHATE DISPOSAL GUIDELINES (≥5 mg/L)
- MERCURY-CONTAINING THERMOSTAT



Reference: PARKS CANADA Job Title: F.N.P BATH HOUSE AND S.W. POOL Sheet Title: GROUND FLOOR PLAN Sheet No.: 3	Job No.: 121811721	Client: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA		Project: HAZARDOUS MATERIALS ASSESSMENT, BATH HOUSE AND S.W. POOL	Drawing Title: GROUND FLOOR EXTERIOR SAMPLING LOCATION PLAN	Dwg. No.: 3	
	Scale: 1 : 100						
	Date: 2016/01/26	Site Address FUNDY NATIONAL PARK, NEW BRUNSWICK					
	Dwn. By: JCB						
	App'd By: PP						



PHOTO 1: Exterior view of the Fundy Bathhouse located at Fundy National Park, Alma, New Brunswick (NB).

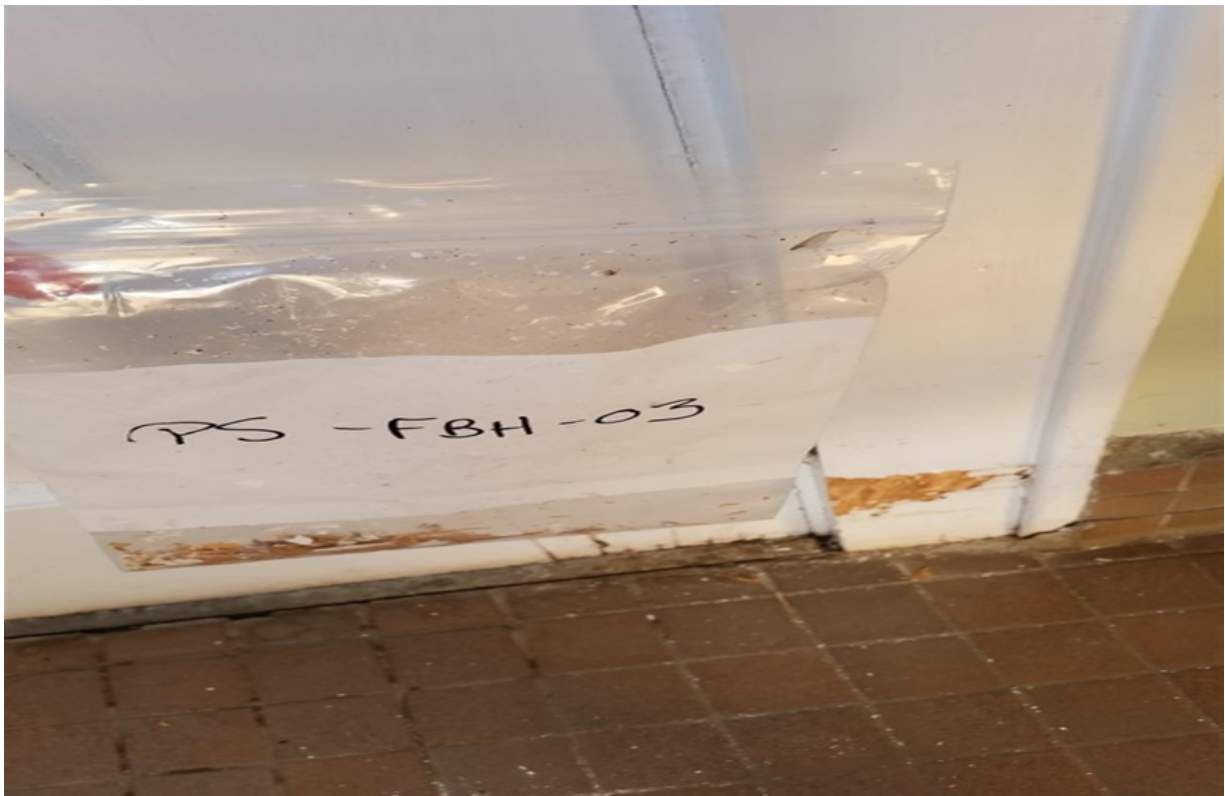


PHOTO 2: View of interior wood door and trim located in Area 2 of the First Floor, sample location of paint sample PS-FBH-03 (White paint on wood substrate), which was determined by laboratory analysis to be lead leachate toxic when in paint chip form



PHOTO 3: View of exterior wood door and frame located outside of Area 2 of the First Floor, sample location of paint sample PS-FBH-05 (White paint chips), which was determined by laboratory analysis to be lead leachate toxic.

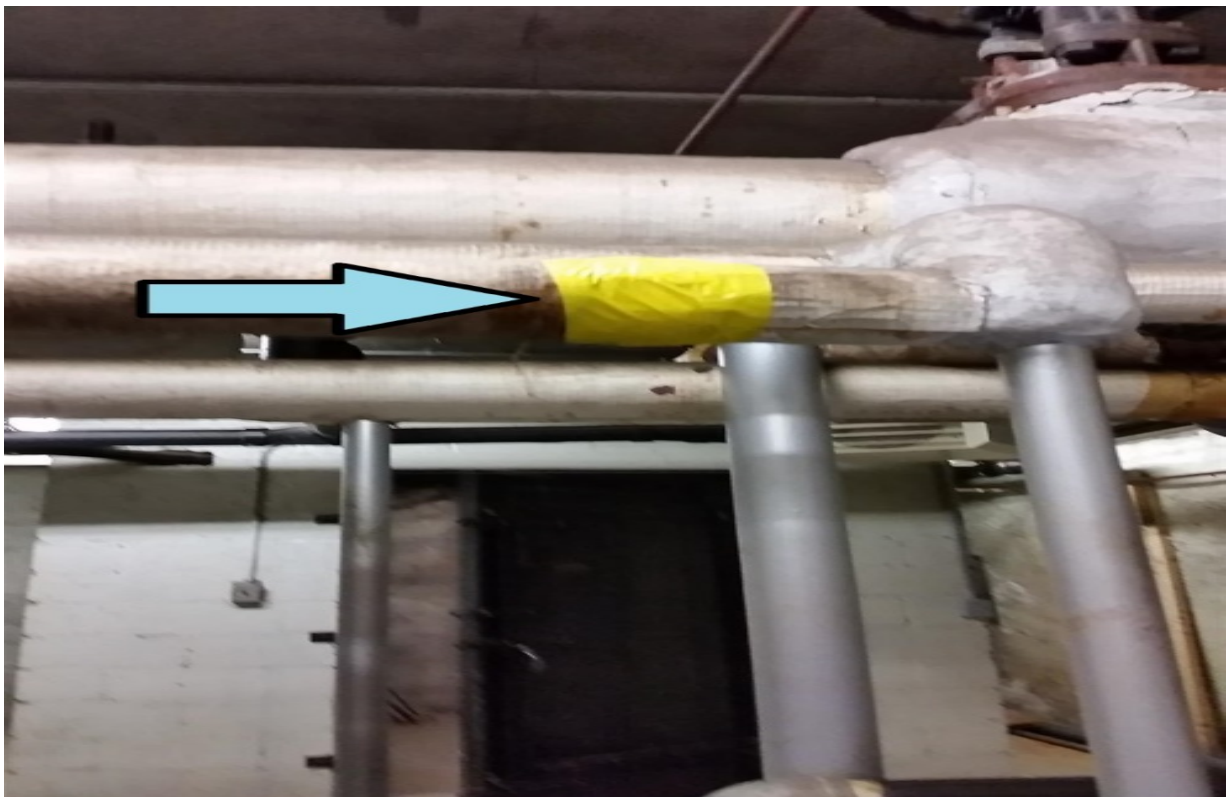


PHOTO 4: View of sample location of thermal insulating padding cement (grey colour) on steam pipe fitting, in the Basement of the subject building. A bulk sample (BS-FBH-07A) of this material was found to contain 35 % Chrysotile asbestos.



PHOTO 5: View of sample location of thermal insulating parging cement over diamond mesh, over fibre glass on the heat exchange cylinder, (grey and off-white colour) located in the Basement of the subject building. A bulk sample (BS-FBH-12A) of this material was found to contain 40 % Chrysotile .



PHOTO 6: Two of four mercury thermostats that were observed to be connected to the two boiler units in the Basement of the subject building.



PHOTO 7: View of fire rated door found in the Basement of the subject building. Fire rated doors are known to have been manufactured with asbestos, they should be presumed to be asbestos-containing unless proven otherwise by laboratory analysis.

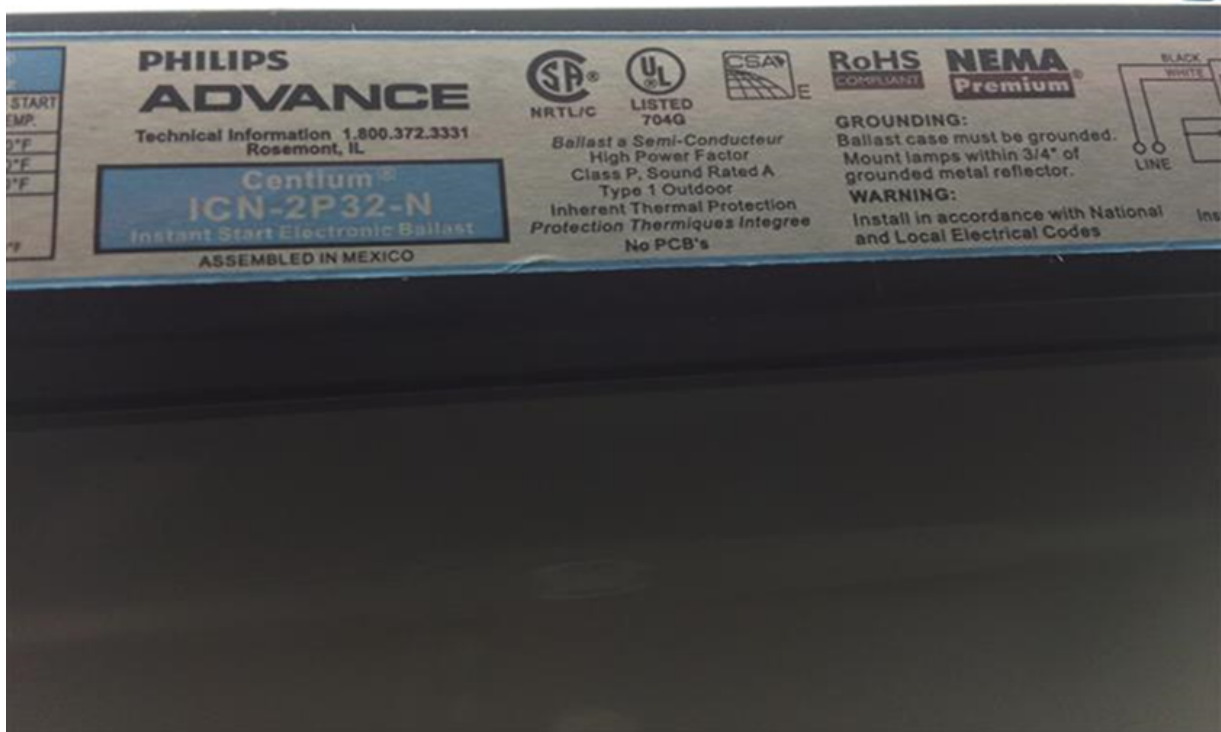


PHOTO 8: View of lamp ballasts found in Basement of subject building. The ballasts checked in the subject building were found to contain no PCBs based on "No PCB" label markings.

## **APPENDIX B**

### **ASBESTOS AND PAINT SUMMARY TABLES AND LABORATORY CERTIFICATES**

**Table B1: Asbestos-Containing Materials Bulk Samples - Fundy Bathhouse and Saltwater Pool, Fundy National Park, Alma, NB**

Sample ID	Material Description	Sample Location	Analytical Results
BS-FBH-01A	Ceramic floor tile grout, grey colour	First Floor - Area 1	None detected
BS-FBH-01B	Ceramic floor tile grout, grey colour	First Floor - Area 1	None detected
BS-FBH-01C	Ceramic floor tile grout, grey colour	First Floor - Area 2	None detected
BS-FBH-01D	Ceramic floor tile grout, grey colour	First Floor - Area 4	None detected
BS-FBH-01E	Ceramic floor tile grout, grey colour	First Floor - Area 4	None detected
BS-FBH-02A	Ceramic wall tile grout, white colour	First Floor - Area 1	None detected
BS-FBH-02B	Ceramic wall tile grout, white colour	First Floor - Area 1	None detected
BS-FBH-02C	Ceramic wall tile grout, white colour	First Floor - Area 3	None detected
BS-FBH-02D	Ceramic wall tile grout, white colour	First Floor - Area 4	None detected
BS-FBH-02E	Ceramic wall tile grout, white colour	First Floor - Area 4	None detected
BS-FBH-03A	Yellow colour ceramic floor tile mastic adhesive	First Floor - Area 1	None detected
BS-FBH-03B	Yellow colour ceramic floor tile mastic adhesive	First Floor - Area 2	None detected
BS-FBH-03C	Yellow colour ceramic floor tile mastic adhesive	First Floor - Area 3	None detected
BS-FBH-04A	Drywall joint compound	First Floor - Area 2	None detected
BS-FBH-04B	Drywall joint compound	First Floor - Area 2	None detected
BS-FBH-04C	Drywall joint compound	First Floor - Area 2	None detected
BS-FBH-05A	Wall plaster on wire mesh, grey colour	First Floor - Area 4	None detected
BS-FBH-05B	Wall plaster on wire mesh, grey colour	First Floor - Area 4	None detected
BS-FBH-05C	Wall plaster on wire mesh, grey colour	First Floor - Area 4	None detected

**Table B1: Asbestos-Containing Materials Bulk Samples - Fundy Bathhouse and Saltwater Pool, Fundy National Park, Alma, NB**

Sample ID	Material Description	Sample Location	Analytical Results
BS-FBH-06A	Scratch coat ceiling plaster on wire mesh, grey colour	Basement	None detected
BS-FBH-06B	Scratch coat ceiling plaster on wire mesh, grey colour	Basement	None detected
BS-FBH-06C	Scratch coat ceiling plaster on wire mesh, grey colour	Basement	<1% Chrysotile
BS-FBH-06D	Scratch coat ceiling plaster on wire mesh, grey colour	Basement	None detected
BS-FBH-06E	Scratch coat ceiling plaster on wire mesh, grey colour	Basement	None detected
<b>BS-FBH-07A</b>	<b>Thermal insulating parging cement on steam pipe fittings, grey colour</b>	<b>Basement</b>	<b>35 % Chrysotile</b>
<b>BS-FBH-07B</b>	<b>Thermal insulating parging cement on steam pipe fittings, grey colour</b>	<b>Basement</b>	<b>Stop Positive (Not Analyzed)</b>
<b>BS-FBH-07C</b>	<b>Thermal insulating parging cement on steam pipe fittings, grey colour</b>	<b>Basement</b>	<b>Stop Positive (Not Analyzed)</b>
BS-FBH-08A	Cementitious parging over diamond mesh, over fibre glass on boiler exhaust breach, white/yellow colour	Basement	None detected
BS-FBH-08B	Cementitious parging over diamond mesh, over fibre glass on boiler exhaust breach, white/yellow colour	Basement	None detected
BS-FBH-08C	Cementitious parging over diamond mesh, over fibre glass on boiler exhaust breach, white/yellow colour	Basement	None detected
BS-FBH-09A	Thermal insulating parging cement on domestic water pipe fittings, grey colour	Basement	None detected
BS-FBH-09B	Thermal insulating parging cement on domestic water pipe fittings, grey colour	Basement	None detected
BS-FBH-09C	Thermal insulating parging cement on domestic water pipe fittings, grey colour	Basement	None detected
BS-FBH-10A	Cementitious boiler insulation, grey colour	Basement	None detected
BS-FBH-10B	Cementitious boiler insulation, grey colour	Basement	None detected
BS-FBH-10C	Cementitious boiler insulation, grey colour	Basement	None detected
BS-FBH-11A	Boiler Gasket	Basement	None detected

**Table B1: Asbestos-Containing Materials Bulk Samples - Fundy Bathhouse and Saltwater Pool, Fundy National Park, Alma, NB**

Sample ID	Material Description	Sample Location	Analytical Results
BS-FBH-11B	Boiler Gasket	Basement	None detected
BS-FBH-11C	Boiler Gasket	Basement	None detected
<b>BS-FBH-12A</b>	<b>Thermal insulating parging cement over diamond mesh, over fibre glass on heat exchanger, grey and off-white colour</b>	<b>Basement</b>	<b>40 % Chrysotile</b>
<b>BS-FBH-12B</b>	<b>Thermal insulating parging cement over diamond mesh, over fibre glass on heat exchanger, grey and off-white colour</b>	<b>Basement</b>	<b>Stop Positive (Not Analyzed)</b>
<b>BS-FBH-12C</b>	<b>Thermal insulating parging cement over diamond mesh, over fibre glass on heat exchanger, grey and off-white colour</b>	<b>Basement</b>	<b>Stop Positive (Not Analyzed)</b>

\* **Bold** indicates asbestos containing material (ACM) 1 % by volume or greater as defined by New Brunswick Regulation (NB) 92-106 made under the Occupational Health and Safety Act.

**Table B2: Paint Sample Summary - Fundy Bathhouse and Saltwater Pool, Fundy National Park, Alma, NB**

Sample ID	Material Description	Sample Location	Lead Concentration Analytical Result (mg/kg)	Lead Leachate Concentration Analytical Result (mg/L)
PS-FBH-01	Off white paint on light pink paint chips	First Floor - Area 1 - wood panels, window and door trim	510	Not submitted
PS-FBH-01	Off white paint on light pink paint chips on wood substrate	First Floor - Area 1 - wood panels, window and door trim	Not submitted	Not submitted
PS-FBH-02	Light green paint chips	First Floor - Area 2 - drywall/ wood walls	240	Not submitted
PS-FBH-02	Light green paint on drywall substrate	First Floor - Area 2 - drywall/ wood walls	Not submitted	Not submitted
PS-FBH-02	Light green paint on wood substrate	First Floor - Area 2 - drywall/ wood walls	Not submitted	Not submitted
PS-FBH-03	White paint chips	First Floor - Area 2 - wood window and door trim	<b>16,000</b>	<b>24</b>
PS-FBH-03	White paint on wood substrate	First Floor - Area 2 - wood window and door trim	Not submitted	0.71
PS-FBH-04	Dark green paint chips	Exterior - painted roof wood shingles	28	Not submitted
PS-FBH-05	White paint chips	Exterior - First Floor - wood door trim	<b>26000</b>	<b>21</b>
PS-FBH-06	Dark green paint on light grey on dark grey paint chips	Basement - concrete floor	410	Not submitted
PS-FBH-07	Off white paint chips	Basement - concrete walls	740	Not submitted

**Bold** - lead-containing paint has a lead concentration >1,000 mg/kg

**Bold** - lead leachate toxic paint has a lead concentration >5 mg/L



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EMSL Canada Order 551600178  
Customer ID: 55JACQ30I  
Customer PO: 121811721.200  
Project ID:

**Attn:** Megan Ostridge  
Stantec Consulting, Ltd.  
115 Harrisville Blvd.  
Moncton, NB E1H 3T3

**Phone:** (506) 857-8607  
**Fax:**  
**Collected:**  
**Received:** 1/08/2016  
**Analyzed:** 1/22/2016

**Proj:** 121811721.200

## Test Report: Asbestos Analysis of Bulk Materials for New Brunswick Regulation 92-106 via EPA600/R-93/116 Method

**Client Sample ID:** BS-FBH-01A **Lab Sample ID:** 551600178-0001

**Sample Description:** CERAMIC FLOOR TILE GROUT, GRAY COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray	0%	100%	None Detected	

**Client Sample ID:** BS-FBH-01B **Lab Sample ID:** 551600178-0002

**Sample Description:** CERAMIC FLOOR TILE GROUT, GRAY COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray	0%	100%	None Detected	

**Client Sample ID:** BS-FBH-01C **Lab Sample ID:** 551600178-0003

**Sample Description:** CERAMIC FLOOR TILE GROUT, GRAY COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray	0%	100%	None Detected	

**Client Sample ID:** BS-FBH-01D **Lab Sample ID:** 551600178-0004

**Sample Description:** CERAMIC FLOOR TILE GROUT, GRAY COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray	0%	100%	None Detected	

**Client Sample ID:** BS-FBH-01E **Lab Sample ID:** 551600178-0005

**Sample Description:** CERAMIC FLOOR TILE GROUT, GRAY COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray	0%	100%	None Detected	

**Client Sample ID:** BS-FBH-02A **Lab Sample ID:** 551600178-0006

**Sample Description:** CERAMIC WALL TILE GROUT, WHITE COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	White	0%	100%	None Detected	

**Client Sample ID:** BS-FBH-02B **Lab Sample ID:** 551600178-0007

**Sample Description:** CERAMIC WALL TILE GROUT, WHITE COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	White	0%	100%	None Detected	



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EMSL Canada Order 551600178  
Customer ID: 55JACQ30I  
Customer PO: 121811721.200  
Project ID:

## Test Report: Asbestos Analysis of Bulk Materials for New Brunswick Regulation 92-106 via EPA600/R-93/116 Method

**Client Sample ID:** BS-FBH-02C **Lab Sample ID:** 551600178-0008  
**Sample Description:** CERAMIC WALL TILE GROUT, WHITE COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	White	0%	100%	None Detected	

**Client Sample ID:** BS-FBH-02D **Lab Sample ID:** 551600178-0009  
**Sample Description:** CERAMIC WALL TILE GROUT, WHITE COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	White	0%	100%	None Detected	

**Client Sample ID:** BS-FBH-02E **Lab Sample ID:** 551600178-0010  
**Sample Description:** CERAMIC WALL TILE GROUT, WHITE COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray/White	0%	100%	None Detected	

**Client Sample ID:** BS-FBH-03A **Lab Sample ID:** 551600178-0011  
**Sample Description:** YELLOW COLOUR CERAMIC FLOOR TILE MASTIC ADHESIVE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/21/2016	Yellow	0.0%	100%	None Detected	

**Client Sample ID:** BS-FBH-03B **Lab Sample ID:** 551600178-0012  
**Sample Description:** YELLOW COLOUR CERAMIC FLOOR TILE MASTIC ADHESIVE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/21/2016	Yellow	0.0%	100%	None Detected	

**Client Sample ID:** BS-FBH-03C **Lab Sample ID:** 551600178-0013  
**Sample Description:** YELLOW COLOUR CERAMIC FLOOR TILE MASTIC ADHESIVE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/21/2016	Yellow	0.0%	100%	None Detected	

**Client Sample ID:** BS-FBH-04A **Lab Sample ID:** 551600178-0014  
**Sample Description:** DRYWALL JOINT COMPOUND

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	White	0%	100%	None Detected	

**Client Sample ID:** BS-FBH-04B **Lab Sample ID:** 551600178-0015  
**Sample Description:** DRYWALL JOINT COMPOUND

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	White	0%	100%	None Detected	



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EMSL Canada Order 551600178  
Customer ID: 55JACQ30I  
Customer PO: 121811721.200  
Project ID:

## Test Report: Asbestos Analysis of Bulk Materials for New Brunswick Regulation 92-106 via EPA600/R-93/116 Method

**Client Sample ID:** BS-FBH-04C **Lab Sample ID:** 551600178-0016  
**Sample Description:** DRYWALL JOINT COMPOUND

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	White	0%	100%	None Detected	

**Client Sample ID:** BS-FBH-05A **Lab Sample ID:** 551600178-0017  
**Sample Description:** WALL PLASTER ON WIRE MESH, GRAY COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray/White	0%	100%	None Detected	Sample homogenized at client request

**Client Sample ID:** BS-FBH-05B **Lab Sample ID:** 551600178-0018  
**Sample Description:** WALL PLASTER ON WIRE MESH, GRAY COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray	0%	100%	None Detected	

**Client Sample ID:** BS-FBH-05C **Lab Sample ID:** 551600178-0019  
**Sample Description:** WALL PLASTER ON WIRE MESH, GRAY COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray	0%	100%	None Detected	

**Client Sample ID:** BS-FBH-06A **Lab Sample ID:** 551600178-0020  
**Sample Description:** SCRATCH COAT CEILING PLASTER ON WIRE MESH, GRAY/COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray	0%	100%	None Detected	

**Client Sample ID:** BS-FBH-06B **Lab Sample ID:** 551600178-0021  
**Sample Description:** SCRATCH COAT CEILING PLASTER ON WIRE MESH, GRAY/COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray	0%	100%	None Detected	

**Client Sample ID:** BS-FBH-06C **Lab Sample ID:** 551600178-0022  
**Sample Description:** SCRATCH COAT CEILING PLASTER ON WIRE MESH, GRAY/COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray	0%	100%	<1% Chrysotile	

**Client Sample ID:** BS-FBH-06D **Lab Sample ID:** 551600178-0023  
**Sample Description:** SCRATCH COAT CEILING PLASTER ON WIRE MESH, GRAY/COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray	0%	100%	None Detected	



# EMSL Canada Inc.

2756 Slough Street Mississauga, ON L4T 1G3  
 Phone/Fax: 289-997-4602 / (289) 997-4607  
<http://www.EMSL.com> / [torontolab@emsl.com](mailto:torontolab@emsl.com)

EMSL Canada Order 551600178  
 Customer ID: 55JACQ30I  
 Customer PO: 121811721.200  
 Project ID:

## Test Report: Asbestos Analysis of Bulk Materials for New Brunswick Regulation 92-106 via EPA600/R-93/116 Method

Client Sample ID: BS-FBH-06E

Lab Sample ID: 551600178-0024

Sample Description: SCRATCH COAT CEILING PLASTER ON WIRE MESH, GRAY/COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray	0%	100%	None Detected	

Client Sample ID: BS-FBH-07A

Lab Sample ID: 551600178-0025

Sample Description: THERMAL INSULATING PARGING CEMENT ON STEAM PIPE/FITTINGS, GRAY COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray	0%	65%	35% Chrysotile	

Client Sample ID: BS-FBH-07B

Lab Sample ID: 551600178-0026

Sample Description: THERMAL INSULATING PARGING CEMENT ON STEAM PIPE/FITTINGS, GRAY COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016		Stop Positive (Not Analyzed)			

Client Sample ID: BS-FBH-07C

Lab Sample ID: 551600178-0027

Sample Description: THERMAL INSULATING PARGING CEMENT ON STEAM PIPE/FITTINGS, GRAY COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016		Stop Positive (Not Analyzed)			

Client Sample ID: BS-FBH-08A

Lab Sample ID: 551600178-0028

Sample Description: CEMENTIOUS PARGING OVER DIAMOND MESH, OVER FIBRE/ GLASS ON BOILER EXHAUST BREACH, WHITE/YELLOW COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	White/Yellow	12%	88%	None Detected	Sample homogonized at client request

Client Sample ID: BS-FBH-08B

Lab Sample ID: 551600178-0029

Sample Description: CEMENTIOUS PARGING OVER DIAMOND MESH, OVER FIBRE/ GLASS ON BOILER EXHAUST BREACH, WHITE/YELLOW COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	White/Yellow	10%	90%	None Detected	Sample homogonized at client request

Client Sample ID: BS-FBH-08C

Lab Sample ID: 551600178-0030

Sample Description: CEMENTIOUS PARGING OVER DIAMOND MESH, OVER FIBRE/ GLASS ON BOILER EXHAUST BREACH, WHITE/YELLOW COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	White	0%	100%	None Detected	

Client Sample ID: BS-FBH-09A

Lab Sample ID: 551600178-0031

Sample Description: THERMAL INSULATING PARGING CEMENT ON DOMESTIC/WATER PIPE FITTINGS, GRAY COLOUR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray	22%	78%	None Detected	



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EMSL Canada Order 551600178  
Customer ID: 55JACQ30I  
Customer PO: 121811721.200  
Project ID:

## Test Report: Asbestos Analysis of Bulk Materials for New Brunswick Regulation 92-106 via EPA600/R-93/116 Method

<b>Client Sample ID:</b>	BS-FBH-09B				<b>Lab Sample ID:</b>	551600178-0032
<b>Sample Description:</b>	THERMAL INSULATING PARGING CEMENT ON DOMESTIC/WATER PIPE FITTINGS, GRAY COLOUR					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray	22%	78%	None Detected	
<b>Client Sample ID:</b>	BS-FBH-09C				<b>Lab Sample ID:</b>	551600178-0033
<b>Sample Description:</b>	THERMAL INSULATING PARGING CEMENT ON DOMESTIC/WATER PIPE FITTINGS, GRAY COLOUR					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray	15%	85%	None Detected	
<b>Client Sample ID:</b>	BS-FBH-10A				<b>Lab Sample ID:</b>	551600178-0034
<b>Sample Description:</b>	CEMENTIOUS BOILER INSULATION, GRAY COLOUR					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Brown	0%	100%	None Detected	
<b>Client Sample ID:</b>	BS-FBH-10B				<b>Lab Sample ID:</b>	551600178-0035
<b>Sample Description:</b>	CEMENTIOUS BOILER INSULATION, GRAY COLOUR					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Brown	0%	100%	None Detected	
<b>Client Sample ID:</b>	BS-FBH-10C				<b>Lab Sample ID:</b>	551600178-0036
<b>Sample Description:</b>	CEMENTIOUS BOILER INSULATION, GRAY COLOUR					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray	0%	100%	None Detected	
<b>Client Sample ID:</b>	BS-FBH-11A				<b>Lab Sample ID:</b>	551600178-0037
<b>Sample Description:</b>	BOILER GASKETS					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Brown/White	85%	15%	None Detected	
<b>Client Sample ID:</b>	BS-FBH-11B				<b>Lab Sample ID:</b>	551600178-0038
<b>Sample Description:</b>	BOILER GASKETS					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	White/Black	85%	15%	None Detected	
<b>Client Sample ID:</b>	BS-FBH-11C				<b>Lab Sample ID:</b>	551600178-0039
<b>Sample Description:</b>	BOILER GASKETS					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Brown	80%	20%	None Detected	



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EMSL Canada Order 551600178  
Customer ID: 55JACQ30I  
Customer PO: 121811721.200  
Project ID:

## Test Report: Asbestos Analysis of Bulk Materials for New Brunswick Regulation 92-106 via EPA600/R-93/116 Method

<b>Client Sample ID:</b>	BS-FBH-12A				<b>Lab Sample ID:</b>	551600178-0040
<b>Sample Description:</b>	THERMAL INSULATING PARGING CEMENT OVER DIAMOND/MESH, OVER FIBRE GLASS ON HEAT EXCHANGER, GRAY AND OFF-WHITE COLOUR					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016	Gray/White	0%	60%	40% Chrysotile	Sample homogenized at client request
<b>Client Sample ID:</b>	BS-FBH-12B				<b>Lab Sample ID:</b>	551600178-0041
<b>Sample Description:</b>	THERMAL INSULATING PARGING CEMENT OVER DIAMOND/MESH, OVER FIBRE GLASS ON HEAT EXCHANGER, GRAY AND OFF-WHITE COLOUR					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016		Stop Positive (Not Analyzed)			
<b>Client Sample ID:</b>	BS-FBH-12C				<b>Lab Sample ID:</b>	551600178-0042
<b>Sample Description:</b>	THERMAL INSULATING PARGING CEMENT OVER DIAMOND/MESH, OVER FIBRE GLASS ON HEAT EXCHANGER, GRAY AND OFF-WHITE COLOUR					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	1/22/2016		Stop Positive (Not Analyzed)			

### Analyst(s):

Natalie D'Amico PLM (23)  
Nicole Dimou PLM (12)  
PLM Grav. Reduction (1)  
Romeo Samson PLM Grav. Reduction (2)

### Reviewed and approved by:

Matthew Davis  
or Other Approved Signatory

None Detected = <1%. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP of any agency of the U.S. Government.

Samples analyzed by EMSL Canada Inc. Mississauga, ON NVLAP Lab Code 200877-0

Report amended: 01/29/2016 10:50:25 Replaces initial report from: 01/22/2016 17:22:33 Reason Code: Client-Change to Sample ID

Your Project #: 121811721.200  
Site Location: HAZMAT FUNDY BATH HOUSE  
Your C.O.C. #: N/A

**Attention: PAUL PAULIN**

Stantec Consulting Ltd  
130 Somerset  
Saint John, NB  
E2K 2X4

**Report Date: 2016/01/22**  
Report #: R3860947  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B603475**

**Received: 2016/01/08, 09:46**

Sample Matrix: Paint  
# Samples Received: 8

Analyses	Date		Date Analyzed	Laboratory Method	Reference
	Quantity	Extracted			
Metals Leach TCLP/CGSB extraction	3	2016/01/21	2016/01/21	ATL SOP 00058	EPA 6020A R1 m
Metals Paint Acid Extr. ICPMS	6	2016/01/12	2016/01/12	ATL SOP 00058	EPA 6020A R1 m
Metals Bulk Acid Extr. ICPMS	1	2016/01/12	2016/01/12	ATL SOP 00058	EPA 6020A R1 m
TCLP Inorganic extraction - pH	3	N/A	2016/01/21	ATL SOP 00035	EPA 1311 m
TCLP Inorganic extraction - Weight	3	N/A	2016/01/21	ATL SOP 00035	EPA 1311 m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Marie Muise, Project Manager

Email: MMuise@maxxam.ca

Phone# (902)420-0203 Ext:253

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

### RESULTS OF ANALYSES OF PAINT

Maxxam ID		BPX339	BPX340	BPX342		
Sampling Date		2016/01/06 8am-5pm	2016/01/06 8am-5pm	2016/01/06 8am-5pm		
COC Number		N/A	N/A	N/A		
	UNITS	PS-FBH-03 (WHITE PAINT)	PS-FBH-03 (WHITE PAINT) ON WOOD SUBSTRATE	PS-FBH-05 (WHITE PAINT)	RDL	QC Batch
<b>Inorganics</b>						
Sample Weight (as received)	g	3.3	4.3	7.6	N/A	4351252
Initial pH	N/A	5.0	4.9	5.0		4351254
Final pH	N/A	5.2	5.0	5.4		4351254
<b>Metals</b>						
Leachable Lead (Pb)	mg/L	24	0.71	21	0.005	4352793
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable						

### ELEMENTS BY ATOMIC SPECTROSCOPY (PAINT)

Maxxam ID		BPX334			BPX336	BPX339		
Sampling Date		2016/01/06 8am-5pm			2016/01/06 8am-5pm	2016/01/06 8am-5pm		
COC Number		N/A			N/A	N/A		
	UNITS	PS-FBH-01 (OFF WHITE OVER LIGHT PINK PAINT)	RDL	QC Batch	PS-FBH-02 (GREEN PAINT)	PS-FBH-03 (WHITE PAINT)	RDL	QC Batch

<b>Metals</b>								
Acid Extractable Lead (Pb)	mg/kg	510	5.0	4341207	240	16000	5	4341206
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

Maxxam ID		BPX341		BPX342	BPX343	BPX344		
Sampling Date		2016/01/06 8am-5pm		2016/01/06 8am-5pm	2016/01/06 8am-5pm	2016/01/06 8am-5pm		
COC Number		N/A		N/A	N/A	N/A		
	UNITS	PS-FBH-04 (GREEN PAINT)		PS-FBH-05 (WHITE PAINT)	PS-FBH-06 (GREEN OVER LIGHT GREY OVER DARK GREY PAINT)	PS-FBH-07 (OFF WHITE PAINT)	RDL	QC Batch

<b>Metals</b>								
Acid Extractable Lead (Pb)	mg/kg	28		26000	410	740	5	4341206
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	8.3°C
-----------	-------

Revised report: Added leachate testing to the samples below as requested by P. Paulin

BPX339 - TCLP Leachate + Lead

BPX340 - TCLP Leachate + Lead

BPX342 - TCLP Leachate + Lead

Sample BPX339-01 : Method Deviation Comment: Reduced sample weight used for leachate procedure due to insufficient sample. All extraction ratios maintained. Minimal impact on sample data quality.

Sample BPX340-01 : Method Deviation Comment: Reduced sample weight used for leachate procedure due to insufficient sample. All extraction ratios maintained. Minimal impact on sample data quality.

Sample BPX342-01 : Method Deviation Comment: Reduced sample weight used for leachate procedure due to insufficient sample. All extraction ratios maintained. Minimal impact on sample data quality.

**Results relate only to the items tested.**

## QUALITY ASSURANCE REPORT

Stantec Consulting Ltd  
Client Project #: 121811721.200  
Site Location: HAZMAT FUNDY BATH HOUSE  
Sampler Initials: DH

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
4341206	Acid Extractable Lead (Pb)	2016/01/12	NC	75 - 125	97	75 - 125	<5	mg/kg	32	35
4341207	Acid Extractable Lead (Pb)	2016/01/12			97	75 - 125	<5.0	mg/kg		
4351252	Sample Weight (as received)	2016/01/21					NA	g		
4352793	Leachable Lead (Pb)	2016/01/21	97	75 - 125	98	80 - 120	<0.005	mg/L		

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

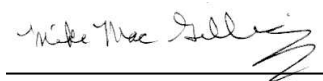
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Eric Dearman, Scientific Specialist



Mike MacGillivray, Scientific Specialist (Inorganics)

---

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

## **APPENDIX C**

### **REGULATORY CONSIDERATION**

# Regulatory Framework

## Asbestos-Containing Materials

A summary of the regulations, guidelines and other reference documents used for this assessment is provided in Table A1 and is generally discussed below. This information was used to evaluate results and make recommendations.

**Table A1**      **Summary of Regulations and Guidelines for Asbestos-Containing Materials**

Jurisdiction	Regulations, Guidelines, Codes of Practice and Other Reference Documentation
Provincial	<ul style="list-style-type: none"><li>• <i>A Code of Practice for Working with Materials Containing Asbestos in New Brunswick</i> referenced in New Brunswick Regulation (NB) 92-106 made under the Occupational Health and Safety Act.</li></ul>
Federal	<ul style="list-style-type: none"><li>• Public Works and Government Services Canada Deputy Minister Directive (DIR:057) – <i>Respecting Asbestos Management in Federal Owned or Leased Buildings or Facilities Containing Asbestos</i>, dated March 12, 1997</li><li>• Federal Treasury Board of Canada Secretariat Hazardous Substances Directive – II, Section 2.9 as it relates to asbestos management</li></ul>

The above information was used to evaluate results and make recommendations. For the purposes of managing worker exposure during building maintenance, renovation and demolition, the NB Regulation defines an asbestos-containing material (ACM) as a material which contains 1% or more by volume of asbestos.

The assessment included both friable and non-friable asbestos building materials. The term friable is applied to a material that can be readily reduced to dust or powder by hand or moderate pressure. Asbestos materials that are friable have a much greater potential to release airborne asbestos fibres when disturbed.

The disturbance of ACMs on construction projects is governed by New Brunswick Regulation 92-106, *A Code of Practice for Working with Materials Containing Asbestos in New Brunswick (NB 92-106)*. ACMs must be removed prior to any demolition or renovation that may potentially disturb the asbestos-containing materials.

The New Brunswick waste regulations require the disposal of asbestos waste in a double sealed container, properly labeled and free of cuts, tears or punctures. The waste must be disposed of in a licensed waste facility, which has been properly notified of the presence of asbestos waste.

The transport of asbestos waste to the disposal site is covered by the federal "Transportation of Dangerous Goods Act". Asbestos waste is to be handled by a licensed waste hauler.

## Paint

In New Brunswick, building materials covered with lead paint is regulated by the NBDELG Policy for disposal of building materials containing lead paint. There is no specific construction legislation in Canada that establishes criteria for defining lead-based paint. However, both Canadian federal legislation and guidelines established by the U.S. Department of Housing and Urban Development (HUD) consider paint with lead concentrations greater than 5,000 parts per million (ppm) to be lead-based paint. This criterion is now widely, although not universally, used across Canada.

In Canada, the Surface Coating Materials Regulations (SOR/2005-109) under the federal Hazardous Products Act provides a concentration of lead that must not be exceeded in surface coatings that are presently sold in this country. This value has recently been reduced from 600 ppm to 90 ppm. However, it is important to note that there is not a direct correlation between the concentrations of lead in a material to the potential occupational exposure if the material is disturbed.

Applicable sections of New Brunswick's *Occupational Health and Safety Act* (NB Reg. 91-191) should be followed whenever a material containing lead is disturbed. Under NB Reg. 91-191, a regulatory limit has been established for occupational exposure to airborne lead that may be present in a workplace. Worker exposures should not exceed the time-weighted average (TWA) occupational exposure limit (OEL) for airborne lead dust or fumes of 0.05 mg/m<sup>3</sup>. The TWA is the applicable regulated occupational exposure limit in New Brunswick and is based on the time-weighted average concentration for a conventional 8-hour work day and a 40-hour work week, to which it is believed that nearly all workers may be repeatedly exposed, day after day, without adverse health effects.

Furthermore, in the absence of a New Brunswick guideline, the Ontario Ministry of Labour (MOL) document entitled **Guideline: Lead on Construction Project (April 2011)**, provides procedures for removing lead paint where work on lead containing materials are likely to produce airborne lead dust or fumes, for example during welding, torch cutting, sanding and sand blasting. If these operations are likely to occur during building renovations or demolition, it is recommended that the removal of lead paint be carried out in accordance with procedures outlined in the Ontario guideline.

NBDELG has established guidelines which restrict certain materials from municipal landfills and C&D (Construction and Demolition) waste disposal sites which could potentially leach/migrate into the ground and create an adverse environmental effect. Lead is an inorganic contaminant that has been associated with (among others) paints and other protective coatings. Lead can leach from its base material into soil and groundwater creating environmental impacts. The NBDELG recommends that materials with a total lead concentration exceeding 1,000 mg/kg (1,000 ppm) undergo leachate testing to assess whether the leachate exceeds the regulatory limit of 5 mg/L lead. The material may consist of paint and substrate if the paint is in good condition, or paint chips only, if the paint is peeling or in poor condition. Materials with a total lead concentration exceeding 1,000 mg/kg but under the leachate regulatory limit of 5 mg/L, cannot be disposed of at a C&D waste disposal site. However, these materials can be disposed of at an approved provincial "sanitary landfill". If the material has a lead leachate concentration above 5 mg/L, it is considered "lead leachate toxic" and must be disposed of at an approved facility. There are currently no facilities in New Brunswick capable of accepting "lead leachate toxic" materials and out-of-province disposal is required.

## **Mercury**

Mercury is regulated in New Brunswick under the Occupational Health and Safety Act. Mercury is commonly found in buildings as mercury vapour lighting, in thermometers, thermostats and some electrical switches. Mercury can also be found in minor amounts in fluorescent lamp tubes and in paints and adhesives.

Mercury or mercury vapour within light fixtures, thermometers, thermostats and electrical switches poses no risk to workers or occupants provided the mercury containers remain intact and undisturbed. Prior to demolition, remove mercury-containing materials and store in a safe location until they are properly disposed of.

Canadian Council of Ministers of the Environment (CCME) have developed Canada-Wide Standards for mercury-containing lights and mercury emissions. The goal of the standards is to reduce release of mercury into the environment.

## **Ozone Depleting Substances (ODSs)**

Ozone-depleting substances (ODSs) are chemical agents such as specific chlorofluorocarbons (CFCs) or hydrochlorofluorocarbons (HCFCs) used in various refrigeration equipment including air-conditioning, heat pump, refrigeration or freezer units that can damage the ozone layer. They have also been used in solvents, as aerosol additives in the production of foam insulation and in fire extinguishing equipment. The use of refrigerants (including those that are ODSs or contain ODSs) is regulated by New Brunswick Regulation 97-132, *Ozone Depleting Substances and Other Halocarbons – Clean Air Act (2008-66)*. The regulation imposes restrictions on the purchasing of refrigerants and on the servicing, dismantling, disposing of or decommissioning of equipment containing refrigerants or halon fire extinguishing agents.

On federal land, aboriginal land and federal works, buildings and undertakings, Federal Halocarbon Regulation 2003 (SOR/2003-289) applies. All other buildings and uses of refrigerants and other agents come under the Ozone-Depleting Substances Regulations 1998 (SOR/99-7), under CEPA. The regulations prohibit the release of halocarbons contained in refrigeration systems, air conditioning systems, fire extinguishers (except to fight a fire that is not a fire caused for training purposes) or containers or equipment used in the re-use, recycling, reclamation or storage of a halocarbon. The regulations also impose restrictions on servicing, dismantling, disposing, and decommissioning of any system containing halocarbons. It requires the recovery of halocarbons into an appropriate container by a certified individual. The regulation also details an owner's record-keeping obligations.

## **Polychlorinated-Biphenyls (PCBs)**

The past use of PCBs (as coolants and lubricants) in electrical equipment such as transformers, fluorescent light ballasts, and capacitors was common throughout North America. From the 1930s to the 1970s, PCBs were widely used in a number of industrial materials, including sealing and caulking compounds, inks and paint additives. PCBs are an environmental concern as they do not readily degrade and have been identified to bioaccumulate. In 1976, the federal Environment Contaminants Act prohibited the use of PCBs in heat transfer equipment installed after September 1, 1977, and in transformers and capacitors installed after July 1, 1980. For federal sites, the PCB Regulations (2008) applies.

The Environment Canada document "Identification of Lamp Ballasts Containing PCBs" Report EPS 2/CC/2 (revised) August, 1991, can be used as a guide to identify PCB capacitors in fluorescent light ballasts and high intensity discharged (HID) light fixtures.

As of September 5, 2008, under Subsection 93(1) of the *Canadian Environmental Protection Act*, (CEPA), Federal PCB regulations have been published by the Canada Gazette Part II (SOR/2008-273) that impose specific deadlines for the elimination of all PCBs in concentrations at or above 50 mg/kg. The regulation requires the elimination of all PCBs and PCB-containing materials currently in-use and in storage and limits the period of time PCB materials can be stored before being eliminated. Other aspects of the regulation govern the labelling and reporting of stored PCB materials and equipment as well as improved practices for the management of PCBs that remain in use (*i.e.*, those with PCB concentrations less than 50 mg/kg) until their eventual elimination.

## **APPENDIX D**

### **CLASS D COST ESTIMATES**

## COST ESTIMATES – FUNDY BATHHOUSE AND SALTWATER POOL, FUNDY NATIONAL PARK, ALMA, NB

### Class “D” Abatement Cost Estimates for Fundy Bathhouse and Saltwater Pool

Material	Approximate Quantity	Class “D” Cost Estimate
<b>Asbestos-Containing Materials</b>		
Thermal insulating parging cement over diamond mesh, over fibre glass (grey and off-white colour) on small vessel (cylinder)	7 m <sup>2</sup>	\$3,000 - \$5,000
Thermal insulating parging cement (grey colour) on steam pipe fittings	40	\$2,000 - \$4,000
<b>Lead-Containing Materials</b>		
Loose Lead-Leachate Toxic Paint – Interior and Exterior White Paint Chips on Wooden Trim	1 m <sup>3</sup>	\$2,500 - \$4,000
<b>Mercury-Containing Equipment</b>		
Mercury Vapour Light Tubes	26	\$200
Thermostats	4 (glass ampules)	\$100
<b>Potential PCB-Containing Equipment</b>		
10% of Ballast checked. PCBs were not identified	n/a	n/a
<b>ODS-Containing Equipment</b>		
n/a	n/a	n/a
<b>Class “D” Estimated Abatement Costs Total For Fundy Bathhouse</b>		<b>\$7,800 - \$13,300</b>

**Demolition Notes:**

- Unit costs for small quantities may not be applicable due to the unbalanced factors of mobilization and demobilization vs. the amount of abatement activities.
- While there are no disposal costs associated with lead containing paint above those typical of demolition debris there is an extra workers protection cost due to the presence of lead in paint.
- n/a – not applicable