HAZARDOUS MATERIAL REPORT FOR DEMOLITION

BHP Potash Export Facility
at Fraser Surrey Docks

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EXECUTIVE SUMMARY

Hemmera Envirochem Inc. (Hemmera) has been retained by BHP Billiton Canada Inc. (BHP) to prepare a Hazardous Materials Assessment for the proposed potash export facility (Project) located at 11060 Elevator Road in Surrey, British Columbia (BC). The footprint of the proposed facility is shown in Figure 1.

This Technical Data Report summarises the Astech Consultants Ltd. report entitled Pre-Demolition Hazardous Materials Survey (HMS), dated August 22, 2017. This report is included in Appendix A.

The hazardous materials included in the HMS were: asbestos-containing materials, lead paints, polychlorinated biphenyls (PCB)-containing ballasts or capacitors, lead, mercury, and stored chemicals. As discussed with BHP, the following buildings and structures located at the Project site were included in the HMS (also shown on Figure 2):

- Former Bekaert Office Building
- Shed 5
- Diesel shop
- Container truck gate
- Shed 4
- Two substations (Substation 4 and 5)
- Railway area at southeast portion of property.

Please note that two substation locations (Substation 7 and 9) were not accessed at the time of the hazardous materials surveys. In a discussion with Hemmera, Astech confirmed that the recommendations for these two locations would remain consistent with Substation 4 and 5. Specifically, destructive sampling by Astech will be required once electrical power is de-energised and locked out, and prior to demolition.

The HMS identified asbestos-containing materials, lead paints, PCB-containing ballasts or capacitors, lead, mercury, and stored chemicals associated with numerous buildings and structures at the Project site. The recommendations contained herein should be followed prior to and during demolition of buildings to best address the identified hazardous materials.

For the storage, handling, and recycle or disposal of hazardous building materials, it is recommended the work be conducted by a qualified hazardous materials abatement contractor in accordance with applicable regulations in this Hazardous Materials Assessment. For each hazardous material, the abatement contractor must determine and be responsible for assessing the risk and establish an exposure control plan for the work, and provide submittals to applicable regulatory boards, including Notice of Project for work involving asbestos, lead, mould, and site-specific work procedures.
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# ACRONYMS, ABBREVIATIONS, SYMBOLS, AND UNITS OF MEASURE

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<th>Acronym</th>
<th>Definition</th>
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<td>BC</td>
<td>British Columbia</td>
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<tr>
<td>BHP</td>
<td>BHP Billiton Canada Inc.</td>
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<tr>
<td>FSD</td>
<td>Fraser Surrey Docks</td>
</tr>
<tr>
<td>HID</td>
<td>High-intensity discharge</td>
</tr>
<tr>
<td>HMS</td>
<td>Hazardous Materials Survey</td>
</tr>
<tr>
<td>OGV</td>
<td>Ocean-going vessel</td>
</tr>
<tr>
<td>OHS Regulation</td>
<td>Occupational Health and Safety Regulation</td>
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<tr>
<td>PCB</td>
<td>Polychlorinated biphenyl</td>
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<table>
<thead>
<tr>
<th>Unit of Measure</th>
<th>Definition</th>
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<td>hectare</td>
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1.0 INTRODUCTION

BHP Billiton Canada Inc. (BHP) is proposing to construct and operate a potash export facility (Project) at Fraser Surrey Docks (FSD) on the south bank of the South Arm of the Fraser River in Surrey, British Columbia (BC), shown on Figure 1. Hemmera Envirochem Inc. (Hemmera) has been retained by BHP to prepare a Hazardous Materials Assessment for buildings and structures (identified on Figure 2) that will be demolished at the Project site. An active port terminal, with 63 hectares (ha) of yard area and 10 berths, FSD is situated opposite the northern end of Annacis Island and adjacent to the South Westminster Heights residential neighbourhood.

The Project site is located entirely on federal lands within the jurisdiction of the Vancouver Fraser Port Authority (VFPA). Under the Canada Marine Act, SC 1998, c. 10, VFPA is responsible for the administration, management, and control of land and water within its jurisdiction. The Project and Environmental Review process applies to all proposed physical works and activities on federal lands and waters that are partially or wholly within VFPA’s jurisdiction.

The Project will export potash products produced by the Jansen Mine in Saskatchewan, via bulk ocean-going vessels (OGVs). Key features of the Project include installation of a traveling shiploader, construction of a train dumper, a material handling and transfer system, dust management systems, a product storage building, an administration and maintenance building, and a dedicated rail loop.

This Technical Data Report summarises the Astech Consultants Ltd. (Astech) report BHP Billiton Canada Inc. BHP Potash Export Facility at Surrey Fraser Docks Project – Pre-Demolition Hazardous Materials Survey of Numerous Buildings and Structures Located at 11041 and 11060 Elevator Road, Surrey, BC (HMS) dated August 22, 2017. This report is included in Appendix A.
2.0 PROJECT OVERVIEW

2.1 PROJECT LOCATION

The Project site is located at 11060 Elevator Road, in Surrey, BC. Land title and site information is provided below in Table 1. The geographical coordinates at the Project’s approximate centre are 49º 11’ 08.31” North, 122º 54’ 57.22” West. Figure 1 shows the Project development area and location.

Table 1 Land Title Information

<table>
<thead>
<tr>
<th>Civic Address</th>
<th>11060 Elevator Road, Surrey, BC</th>
</tr>
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<tr>
<td>PID</td>
<td>023-512-547, 000-725-234, 023-512-539, 023-512-521, 023-512-512</td>
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<tr>
<td>Legal Description</td>
<td>Lot 4, Section 34, Block 5N, Range 3W, NWD LMP 29318 Parcel L Reference Plan 6744: Sections 34 and 35, Block 5N, Range 3W Except: Firstly: part on Crown Grant 136463E; NWD Lot 3, Sections 34 and 35, Block 5N, Range 3W, NWD LMP29318 Lot 2, District Lot 14, Group 2 and of the bed of the Fraser River NWD PL LMP 29318 Lot 1, District Lot 12 and 13, PL LMP39318 NWD</td>
</tr>
<tr>
<td>Registered Land Owner</td>
<td>Crown Federal</td>
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<tr>
<td>Area</td>
<td>Approximately (~)29 ha</td>
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<tr>
<td>Zoning</td>
<td>IL – Light impact Industrial</td>
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<tr>
<td>Percent Site Coverage</td>
<td>~90% of the site is asphalt, ~10% is buildings.</td>
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2.2 PROJECT DESCRIPTION

The Project will include rail receiving, onsite storage and OGV loading facilities. The Project will be located at FSD along the south bank of the Fraser River. The FSD site was chosen as a suitable location for the Project because it is an active marine terminal with much of the required berthing and associated infrastructure already in place; it is well serviced by existing rail and road infrastructure.

The Project will facilitate potash exports by BHP by incorporating the following activities:

- Receive shipments of product by rail from the Jansen mine.
- Offload products from rail cars to product storage buildings or directly to waiting vessels.
- Store products in the product storage buildings.
- Transfer products via a conveyor system to the shiploader and to waiting vessels for international export.
The Project is anticipated to occupy an approximately 29-ha footprint, and will include Berth 9, Yard Area 9, and the current container yard of the FSD site (Figure 1). Key components of the Project are shown on Figure 2 and include:

- Rail car unloading facility
- Material handling and transfer systems
- Product storage building
- Berth improvements and new shiploader
- Railcar unit train loop
- Utility and access improvements (e.g., pedestrian overpass, line painting).

Construction will take approximately three to four years to complete and timing is subject to approval of the Board of BHP, and receipt of construction permits. This would not occur before Q1 2019.
3.0 **SCOPE OF WORK**

The hazardous materials included in the HMS were: asbestos-containing materials, lead paints, polychlorinated biphenyl (PCB)-containing ballasts or capacitors, lead, mercury, and stored chemicals. The following buildings and structures located at the Project site were included in the HMS, and are therefore addressed in this Hazardous Materials Assessment:

- Former Bekaert Office Building
- Shed 5
- Diesel shop
- Container truck gate
- Shed 4
- Substation 4
- Substation 5
- Railway area at southeast portion of property.
4.0 HAZARDOUS MATERIALS SURVEY LIMITATIONS

Astech’s HMS and its report format are designed specifically to satisfy the *Workers Compensation Act*, RSBC 1996, c.492 and Occupational Health and Safety Regulation 20.112 (OHS Regulation) regarding hazardous building material assessments by a qualified person for buildings and structures (see Appendix A).

The HMS was conducted on July 7, 11, and 28, and on August 14, 2017 by Tom Farrell and Trevor Shendruk, assisted by Cassandra Marshall, of Astech, and is amalgamated with previous sampling data and information collected by Astech during previous surveys at the Project site.

Astech’s HMS was concerned exclusively with the Project buildings and structures identified for assessment. The site survey was thorough in investigating layered floor, wall, and ceiling systems; however, inaccessible floor cavities, wall cavities, and ceiling spaces that would require dismantling of portions of Project buildings and structures to gain access were not investigated.

Please also note that two substation locations (Substation 7 and 9) were not accessed at the time of the hazardous materials surveys. In a discussion with Hemmera, Astech confirmed that the recommendations for these two locations would remain consistent with Substation 4 and 5. Specifically, destructive sampling by Astech will be required once electrical power is de-energised and locked out, and prior to demolition.

Overall, as demolition is initiated, further identification and removal of hazardous materials should be undertaken, including assessment of other buildings or above/underground structures which may be demolished but have not yet been identified beyond this assessment scope.
5.0 FACILITY DESCRIPTIONS

The location of the buildings and structures are shown on Figure 2. The subject buildings and structures are described as follows and reflect the conditions at the time of the survey:

- **Former Bekaert Office Building**: This one-storey office building is faced with stucco and concrete, and is heated by natural gas forced air heaters and air handling units with associated ductwork, as well as electric heaters. The interior and exterior of the building are in good condition. Note: this building is expected to be demolished for a separate project prior to construction of the BHP Project.

- **Shed 5**: This two-storey, metal-clad office and shop building is heated by natural gas forced air heaters and air handling units with associated ductwork, as well as natural gas heaters. The interior and exterior of the building are in good condition.

- **Diesel Shop**: This two-storey, metal-clad office and shop building is heated by natural gas forced air heaters and air handling units with associated ductwork, as well as natural gas heaters. The interior and exterior of the building are in fair to good condition.

- **Container Truck Gate**: This canopy-type truck gate structure is faced with metal cladding, and is unheated. The interior and exterior of the structure are in good condition.

- **Shed 4**: This one-storey, metal-clad storage building is heated by natural gas heaters. The interior and exterior of the building are in good condition. Note: this building is expected to be demolished for a separate project prior to construction of the BHP Project.

- **Substation 4**: This one-storey electrical substation building is faced with concrete and concrete block, and is heated by natural gas heaters. The interior and exterior of the building are in good condition.

- **Substation 5**: This one-storey electrical substation building faced with concrete and concrete block, and is heated by natural gas heaters. The interior and exterior of the building are in good condition.

- **Railway Area at Southeast portion of Property**: Four intersecting railway spurs are situated at the southeast portion of the property. The railways are in good condition.
6.0 METHODOLOGY

This section describes the methodologies used to collect information and samples for the HMS. All survey and sampling activity was conducted in accordance with the OHS Regulation. Survey results are discussed in Appendix A.

Collected samples were submitted for analysis to Astech’s in-house laboratory, which operates in full compliance with Workers’ Compensation Board of British Columbia (WCB) requirements. In addition, the Astech laboratory participates in an inter-laboratory Bulk Asbestos Proficiency Analytical Testing program with American Industrial Hygiene Association (Laboratory Participant ID# 200542).

6.1 ASBESTOS-CONTAINING MATERIALS

A visual inspection was undertaken to determine the type, location, and homogeneous nature of asbestos and potential asbestos-containing building materials located in the buildings at the Project site (Figure 2). During this inspection, 129 bulk samples of previously unsampled material potentially containing asbestos were collected from specific locations within the buildings and structures. Roofing materials were not sampled during the HMS, as destructive testing is required; they will need to be sampled prior to demolition.

The samples were analysed utilising polarised light microscopy, and dispersion staining techniques. Astech’s survey observations and laboratory analytical results are extrapolated from the room-by-room description of asbestos-containing building materials listed in the report.

6.2 Lead Paints

A visual inspection was undertaken to determine the type and location of paints suspected of containing lead at the subject buildings. During this inspection, 18 bulk samples of potential lead paint were collected from specific locations of the subject buildings and structures. The samples were analysed in accordance with US Environmental Protection Agency Analytical Method 6200 (USEPA, 2007); the sampling method used in the HMS also meets the requirements of the OHS Regulation.

Astech’s survey observations and laboratory analytical results are extrapolated from the list of building materials with lead paints, primers, or glazing finishes described in the report.

6.3 Materials with Polychlorinated Biphenyl, Lead, Mercury, Stored Chemicals, and Silica

A visual inspection was undertaken to determine the presence of the following:

- Fluorescent and high-intensity discharge (HID) light fixtures suspected of containing PCB ballasts or capacitors
- Construction materials suspected of containing lead and other heavy metals
- Thermostats and associated equipment suspected of containing mercury
- Stored chemicals suspected of being toxic, flammable, or explosive.
7.0 FINDINGS

This section summarises the principal locations and types of hazardous materials present. Findings from the laboratory analysis and site observations are summarised for each hazardous material within the scope of work. Information about the condition of the materials, and the sample or visual observation, with approximate locations, is included for each hazardous material that will be encountered during demolition.

7.1 ASBESTOS-CONTAINING MATERIALS

Some of the asbestos-containing filling compound and affected gypsum board listed below are concealed behind and/or abutting wood, concrete, and other building materials that are contaminated with the asbestos-containing filling compound (some gypsum board is concealed and some is multilayered). As well, there is asbestos-containing filling compound on and within electrical junction boxes and other building materials. Additionally, there is asbestos-containing filling compound residue on floors (concealed beneath carpets and other flooring materials, plumbing fixtures, cabinetry, mouldings, millwork, and other building materials).

7.1.1 Former Bekaert Office Building – Ground Floor

- **Front Entrance Vestibule**: asbestos-containing filling compound on gypsum board and asbestos-containing filling compound residue is present.

- **General Office Area (open area at center) and Adjoining West Hallway**: asbestos-containing floor tiles are concealed beneath a layer of carpet and other building materials.

- **Meeting Room (west of Front Entrance Vestibule), Office (west of Meeting Room), and Southwest Corner Office**: asbestos-containing floor tiles are concealed beneath a layer of carpet and other building materials. Asbestos-containing filling compound on gypsum board and asbestos-containing filling compound residue are present.

- **Two Adjoining West Washrooms including Entrance Foyer**: asbestos-containing filling compound on gypsum board and asbestos-containing filling compound residue are present

- **Center West Office, Northwest Corner Office, Office (west of Boardroom), and Boardroom**: asbestos-containing floor tiles are concealed beneath a layer of carpet and other building materials. Asbestos-containing filling compound on gypsum board and asbestos-containing filling compound residue are present.

- **Lunchroom**: Asbestos-containing filling compound on gypsum board and asbestos-containing filling compound residue are present, and there is asbestos-containing coating on underside of metal sink.

- **Two Adjoining East Washrooms including Entranceway to Ladies’ Washroom**: Asbestos-containing filling compound on gypsum board and asbestos-containing filling compound residue are present.

- **Janitor’s Closet (adjacent to East Washrooms)**: Asbestos-containing filling compound on gypsum board and asbestos-containing filling compound residue are present
• **Hallway/Entranceway (adjacent to East Washrooms)**: Asbestos-containing filling compound on gypsum board and asbestos-containing filling compound residue are present.

• **Northeast Corner Storage Room including Closet**: Asbestos-containing floor tiles are present (some concealed). Asbestos-containing filling compound on gypsum board and asbestos-containing filling compound residue are present.

• **Two Adjoining Center East Offices, Southeast Corner Office, and Office (east of Front Entrance Vestibule)**: Asbestos-containing floor tiles are concealed beneath a layer of carpet and other building materials. Asbestos-containing filling compound on gypsum board and asbestos-containing filling compound residue are present.

• **Wall Cavities and Ceiling Spaces**:
  - Asbestos-containing filling compound on gypsum board and asbestos-containing filling compound residue are present.
  - Asbestos-containing adhesive on foam insulation is present (some on and abutting concrete, concrete block, and other potential building materials).
  - Potential asbestos-containing mastic at joints of ductwork are present, and may be concealed within ductwork.
  - Asbestos-containing floor tiles and debris in storage in ceiling space, accessed from and in proximity to Janitor’s Closet, are present.
  - Asbestos-containing pipe thread compounds at fittings of mechanical piping systems are present.

7.1.2 **Former Bekaert Office Building Exterior**

• **Walls, Doors, and Windows**:
  - Asbestos-containing grey caulking is present on joints of stucco walls, some abutting concrete and concrete block, and some concealed.
  - Asbestos-containing sealant is present in windows of exterior metal doors (mostly concealed).
  - Asbestos-containing firestop caulking is present at natural gas wall penetration (some concealed).
  - Asbestos-containing firestop putty is present at electrical wall penetrations (some concealed) where electrical lines and outlets penetrate through walls.

• **Mechanical Systems**: asbestos-containing pipe thread compounds are present at fittings of mechanical piping systems (some concealed).

• **Rooftop**:
  - Asbestos-containing mastics on rooftop Air Handling Unit are present (some concealed).
  - Potential asbestos-containing roofing membranes, papers, felts, mastics, shingles, and/or patching compounds are present.
  - Potential asbestos-containing caulking, sealants, and mastics at rooftop ductwork, flashings, mounted equipment and pads, and/or roof penetrations.
7.1.3  **Shed 5 – Ground Floor**

Asbestos-containing pipe thread compounds are present at fittings of mechanical piping systems (some concealed) in the Crane Shop (West Open Area), Electrical Room 109, Hallway, Electrical Parts Room 108, Stairwell to Second Floor, Janitor Room 103, Ladies’ Washroom and Locker Room 104, Men’s Washroom and Locker Room 106, Lunchroom 107, Handicap Washroom 105, Electrical Shop 110, Parts Storage Room 111, Mechanical Shop 112, Carpentry Shop 113, East Open Area, Attached Valve Station 7 (interior), and Attached Valve Station 8 (interior).

Asbestos-containing pipe thread compounds are present at fittings of mechanical piping systems in the wall cavities and ceiling spaces.

7.1.4  **Shed 5 – Second Floor and Exterior**

- No asbestos-containing materials were observed on the second floor or the exterior walls, doors and windows.
- **Mechanical Systems**: asbestos-containing pipe thread compounds were observed at fittings of mechanical piping systems (some concealed).
- **Rooftop**:
  - Potential asbestos-containing sealants and/or tapes are present at joints of metal roof cladding of the main roof.
  - Potential asbestos-containing roofing membranes, papers, felts, mastics, shingles, and/or patching compounds are present on Valve Stations 7 and 8.
  - Potential asbestos-containing caulings, sealants, and mastics are present at rooftop ductwork, flashings, mounted equipment & pads, and/or roof penetrations.

7.1.5  **Diesel Shop – Ground Floor**

- **Foreman’s Offices (2 Rooms)**: asbestos-containing filling compound on gypsum board and asbestos-containing filling compound residue are present.
- **Parts Storage Room**: asbestos-containing filling compound on gypsum board and asbestos-containing filling compound residue are present.
- **West Garage Area (6 Bays)**: asbestos-containing firestop putty is present at natural gas pipe penetrations and asbestos-containing pipe thread compounds are present at fittings of mechanical piping systems (some concealed).
- **Workshop (between East and West Garages), and Battery Storage Booth**: asbestos-containing pipe thread compounds are present at fittings of mechanical piping systems (some concealed).
- **East Garage Area (3 Bays)**: asbestos-containing filling compound on gypsum board and asbestos-containing filling compound residue are present, and asbestos-containing pipe thread compounds at fittings of mechanical piping systems (some concealed).
• **Storage Room including Wash-Up Area (beneath Stairwell to Second Floor):** asbestos-containing filling compound on gypsum board and asbestos-containing filling compound residue are present, and asbestos-containing pipe thread compounds are present at fittings of mechanical piping systems (some concealed).

• **Attached Compressor Lean-To (interior), and Attached Valve Station 9 (interior):** asbestos-containing pipe thread compounds are present at fittings of mechanical piping systems (some concealed).

• **Stairwell Leading to Second Floor:** asbestos-containing filling compound on gypsum board and asbestos-containing filling compound residue are present.

• **Wall Cavities and Ceiling Spaces:** asbestos-containing firestop putty are present at natural gas pipe penetrations, and asbestos-containing pipe thread compounds are present at fittings of mechanical piping systems.

7.1.6 **Diesel Shop – Second Floor**

• **Hallway and Adjoining Mezzanine, Lunchroom, Locker Room, Washroom including Janitor Room within, and Offices (2 Rooms):** asbestos-containing filling compound on gypsum board and asbestos-containing filling compound residue are present. Asbestos-containing pipe thread compounds are present at fittings of mechanical piping systems (some concealed).

• **Floor Cavities, Wall Cavities, and Ceiling Spaces:** asbestos-containing firestop putty are present at natural gas pipe penetrations, and asbestos-containing filling compound on gypsum board and asbestos-containing filling compound residue are present.

7.1.7 **Diesel Shop Exterior**

• **Walls, Doors, and Windows:** asbestos-containing sealant is present in window units (some concealed).

• **Mechanical Systems:** asbestos-containing pipe thread compounds are present at fittings of mechanical piping systems (some concealed).

• **Rooftop:**
  - Potential asbestos-containing sealants and/or tapes are present at joints of metal roof cladding of the main roof.
  - Potential asbestos-containing roofing membranes, papers, felts, mastics, shingles, and/or patching compounds are present on Valve Station 9.
  - Potential asbestos-containing caulking, sealants, and mastics are present at rooftop ductwork, flashings, mounted equipment & pads, and/or roof penetrations.

7.1.8 **Container Truck Gate**

Potential asbestos-containing sealants and tapes are present at joints of metal roof cladding of the main roof.
7.1.9  **Shed 4 – Ground Floor**

Asbestos-containing pipe thread compounds are present at fittings of mechanical piping systems (some concealed) in the Warehouse Area, and Attached Valve Station 1 (Interior).

7.1.10  **Shed 4 – Exterior**

No asbestos materials were observed in the walls or mechanical systems.

- Rooftop:
  - Potential asbestos-containing sealants and/or tapes at joints of metal roof cladding of the main roof.
  - Potential asbestos-containing roofing membranes, papers, felts, mastics, shingles, and/or patching compounds on Valve Station 1.

7.1.11  **Substation 4 – Ground Floor**

- Interior Including Pit
  - Asbestos-containing firestop putty is present at telephone cabinet and pipe sleeve penetrations.
  - Potential asbestos-containing woven textile insulation is present on wiring and potential asbestos-containing arc shields/chutes in operating electrical cabinets.

7.1.12  **Substation 4 - Exterior**

No asbestos-containing materials were observed on the walls or rooftop. Asbestos-containing firestop putty is present at telephone wire and conduit penetrations.

7.1.13  **Substation 5 – Ground Floor**

**Interior Including Pit**

- Asbestos-containing firestop putty is present at telephone cabinet and pipe sleeve penetrations.
- Potential asbestos-containing woven textile insulation is present on wiring and potential asbestos-containing arc shields/chutes in operating electrical cabinets.

7.1.14  **Substation 5 – Exterior**

No asbestos-containing materials were observed on the walls or rooftop. Asbestos-containing firestop putty was present at telephone wire/conduit penetrations.

7.1.15  **Railway Area (at Affected Northeast Portion of Property) All Areas**

No asbestos materials were observed.
7.2 **MATERIALS CONTAINING POLYCHLORINATED BIPHENYL**

The visual inspection determined that there are approximately 290 newer and older fluorescent and HID light fixtures at the buildings. The older fixtures may have PCB-containing ballasts or capacitors. Identification of PCB in ballast and capacitor identification requires the disassembly of the light fixture to locate the manufacturer's identification code.

7.3 **LEAD**

The visual inspection and laboratory analytical results determined the following occurrences or potential occurrences of lead in the Project area.

7.3.1 **Former Bekaert Office Building**
- Red primer containing lead was used on interior structural steel surfaces.
- Grey paint containing lead was used on some interior gypsum board.
- Brown paint containing lead was used on metal doors and frames.
- Glazing finishes containing lead were used on ceramic tiles.

7.3.2 **Shed 5**
- Red primer containing lead was used on interior structural steel surfaces.
- Yellow paint containing lead was used on metal and concrete bollards.

7.3.3 **Diesel Shop**
- Red primer containing lead was used on interior structural steel surfaces.
- Yellow paint containing lead was used on metal and concrete bollards.

7.3.4 **Container Truck Gate**
- Blue paint on grey primer containing lead was used on structural steel surfaces.
- Yellow paint containing lead was used on concrete dividers.

7.3.5 **Railway Area**
- Yellow paint containing lead was used on concrete dividers.

7.3.6 **Lead Construction Materials**
- There are lead roof vents and caps located on some rooftops.
7.4 **MERCURY**

The visual inspection determined that there are approximately six (6) wall mounted thermostats in Shed 5 and Diesel Shop that contain mercury. There are also approximately nine hundred thirty (930) fluorescent and HID light tubes/bulbs (including some in storage) at the buildings and structures that contain mercury.

7.5 **STORED CHEMICALS AND OTHER HAZARDOUS MATERIALS**

The following list of materials were present in and around the buildings and structures at time of inspection:

- containers of commercially available cleaners, petroleum products, and garden chemicals,
- containers of commercially available rodent poison,
- motors, pumps, and compressors bearing petroleum product/residue,
- creosote treated wood railway ties,
- batteries in emergency lighting,
- fire extinguishers and a cylinder of compressed gas at fire suppression system,
- compressors and piping with suspect ozone depleting substances (chlorofluorocarbons) in refrigerators and air handling units,
- commercially available smoke/heat/fire detectors with a radioactive component within,
- a few areas with rodent and bird droppings,
- a small amount of visible mould on gypsum board, wood, and other building materials, and
- piping containing natural gas leading to heating equipment.

7.6 **SILICA**

All concrete, cement, ceramic tiles, gypsum board, stucco, grouts, mortars, and any other cementitious building materials are suspected of containing silica in crystalline and non-crystalline forms

7.7 **NON-ASBESTOS GYPSUM BOARD**

The visual inspection and/or analytical results determined that there is gypsum board with asbestos-containing filling compound in the Diesel Shop, and therefore would be disposed of as mixed asbestos and gypsum waste, and that there is gypsum board with non-asbestos filling compound in Shed 5.
8.0 RECOMMENDATIONS

For the storage, handling, and recycling and disposal of hazardous building materials, Hemmera recommends the work be conducted by a qualified hazardous materials abatement contractor in accordance with applicable regulations listed in Section 1.0. For each hazardous material, the abatement contractor must determine and be responsible for assessing the risk; establishing an exposure control plan for the work; and providing submittals to applicable regulatory boards including Notice of Project for work involving asbestos, lead, mould, and site-specific work procedures. Recommendations for specific hazardous materials are outlined in this section.

As noted above, two substation locations (Substation 7 and 9) were not accessed at the time of the hazardous materials surveys. In a discussion with Hemmera, Astech confirmed that the recommendations for these two locations would remain consistent with Substation 4 and 5. Specifically, destructive sampling by Astech will be required once electrical power is de-energised and locked out, and prior to demolition. Other substations or electrical distribution panels may also exist, and should be assessed consistent with the recommendation above.

Underground infrastructure has also not been assessed for hazardous materials. Demolition work required for underground structures should consider whether hazardous materials may be present (e.g. seals, coatings or wraps for pipes, tanks or bunkers).

8.1 ASBESTOS-CONTAINING MATERIALS

Prior to demolition of a building, materials containing asbestos must first be removed and disposed of by a qualified hazardous materials abatement contractor in accordance with the OHS Regulation. Disposal of materials with asbestos must be performed in accordance with the BC Environmental Management Act, SBC 2003, c.53 and the Hazardous Waste Regulation (BC Reg. 63/88).

8.2 POLYCHLORINATED BIPHENYL-CONTAINING BALLASTS OR CAPACITORS

It is recommended that qualified personnel identify PCB ballasts and capacitors prior to or in conjunction with building demolition, at a time when it becomes feasible to isolate electrical power and disassemble or disconnect the light fixtures. The ballasts and capacitors identified as containing PCBs must be removed in accordance with the OHS Regulation and disposed of in accordance with the Hazardous Waste Regulation.

8.3 LEAD-BASED PAINTS AND LEAD BUILDING MATERIALS

If lead or potential lead-based paints and primers are affected by a project, remediation work must be performed by a qualified contractor in accordance with the WCB, OHS Regulation and Lead-Containing Paints and Coatings - Preventing Exposure in the Construction Industry (Worksafe BC, WCB, 2011).
If base substrate material will be removed in conjunction with lead paint removal, the contractor should remove the base substrate and lead-based paints intact and in accordance with Project and contractor-specific risk assessment and site-specific work procedures. Workers conducting the work, particularly workers in close proximity to the work being performed, should be protected with personal protective equipment as determined by the contractor’s risk assessment and site-specific work procedures.

Paints containing lead that remain attached to wood or other building materials must be labelled as lead-based paints for transport to a licensed or approved disposal site or recycling facility; representatives of the approved facility must be informed of the lead content of these materials and agree to receive these materials. The contractor generating the waste must ensure that all waste materials containing lead-based paints are sampled intact, fastened directly to the base substrate, and representative of the waste stream created by the demolition. The contractor shall have the representative sample analysed utilising a Toxicity Characteristic Leaching Procedure test for lead (TCLP Lead) to determine the potential for soil or groundwater contamination, if deemed necessary by the site receiving the waste (WCB, Worksafe BC, April 2017).

If the lead paints will be separated or removed from the building materials by means of sanding, scraping, abrading, blasting, etc., more stringent work procedures would apply. The removed lead paints, depending on lead concentrations and leachate results, may become a hazardous waste, and therefore must be disposed of in accordance with the Hazardous Waste Regulation.

Prior to demolition of a building, the lead in bells of drain pipe, lead sleeves at toilets, and lead inserts or anchors must first be removed, and recycled or disposed of in accordance with the Hazardous Waste Regulation.

### 8.4 STORED CHEMICALS AND OTHER HAZARDOUS MATERIALS

#### 8.4.1 Stored Chemicals

Prior to demolition of a building, stored chemicals, ozone-depleting substances within refrigeration equipment, and radioactive equipment must first be removed before being recycled or disposed of in accordance with the Hazardous Waste Regulation.

#### 8.4.2 Bird and Rodent Droppings

Several areas with rodent and bird droppings were noted during the HMS. Bird and rodent droppings, which can cause infectious disease or respiratory disease in humans, should be removed as biohazardous waste by a qualified abatement contractor in accordance with the OHS Regulation prior to unprotected trades performing work in or conducting selective demolition of the buildings. In lieu of removing droppings, workers shall wear respirators and protective clothing while in contaminated areas of the buildings, and while conducting selective demolition of the buildings.
8.4.3 Mould

A small amount of visible mould was noted on gypsum board, wood, and other building materials during the HMS. The differing types of moulds or fungi that can cause infectious disease or respiratory disease in humans should be removed as biohazardous waste by a qualified abatement contractor in accordance with the OHS Regulation, prior to unprotected trades performing work in affected areas of the buildings. In lieu of removing moulds and fungi, workers shall wear respirators and protective clothing while in contaminated areas of the buildings.

Prior to the demolition of a building, mould, which is attached to gypsum board, should be removed by a qualified abatement contractor in accordance with the OHS Regulation. During the removal process and prior to the gypsum board being transported to the recycling facility, the gypsum board and mould must be treated with an approved bleaching agent (or equivalent) to destroy the mould.

Mould remains attached to building materials such as wood, metal, and concrete, and should be disposed of in a manner applicable to normal demolition waste. Workers conducting selective demolition of the building shall wear respirators and protective clothing while in contaminated areas of the buildings.

8.4.4 Natural Gas

Prior to building demolition and before any work is conducted that would affect gas supply, the natural gas that is contained in some piping must be shut off and purged by FortisBC or a qualified trades person.

8.5 Mercury

Prior to demolition of a building, the mercury containing thermostats and light tubes or bulbs must first be removed before being salvaged, recycled, or disposed of in accordance with the Hazardous Waste Regulation.

8.6 Non-Asbestos Gypsum Board

Prior to demolition of a building, gypsum board with no asbestos finishes (a provincially-regulated construction waste) must first be removed by a qualified contractor, and recycled or disposed of in accordance with the Hazardous Waste Regulation. Landfills are issued operational certificates from the BC Ministry of Environment. Certificates held by local landfills and others specify that gypsum board cannot be accepted for disposal; therefore, local depots can offer recycling services but cannot dispose of gypsum.

8.7 Silica

If Project-related demolition includes cementitious building materials that are suspected of containing silica in crystalline form, work should be performed in a controlled manner to avoid the release of crystalline silica dust. Cutting, drilling, or otherwise disturbing these building materials must be performed by a qualified contractor's trained personnel in accordance with the OHS Regulation.
9.0 OWNER’S RESPONSIBILITIES

Remediation of hazardous building materials, adherence to contract specifications, quality control, and final acceptance of the work remain the responsibility of BHP. To demonstrate responsible work practices while ensuring regulatory board compliance, Hemmera recommends that a detailed hazardous materials abatement specification be provided to a select group of qualified and properly insured hazardous materials abatement contractors (who can provide a proof of necessary asbestos inclusion insurance rider). As well, any asbestos abatement work conducted by the contractor's trained and authorised personnel should be inspected and air-monitored daily.

Hazardous materials abatement specifications will require delivery of overlapping and cross-referenced information when demolition specifications are provided by others, particularly if a portion of asbestos removal is permitted to be performed in conjunction with demolition. For example, if asbestos removal must take place for any potential sealants, caulking, and mastics on metal-clad roof systems, the demolition contractor can help achieve cost-effectiveness by tipping over portions of buildings and structures for ease of access, which is an approved industry standard for this type of work.
10.0 CONCLUSIONS

The hazardous materials identified in the HMS included: materials containing asbestos, lead paints, ballasts containing PCBs, lead, mercury, and stored chemicals. The HMS identified asbestos-containing materials, lead paints, PCB-containing ballasts, lead, mercury, and stored chemicals associated with numerous buildings and structures at the Project site.

Overall, as demolition is initiated, further identification and removal of hazardous materials should be undertaken, including assessment of other buildings or above/underground structures which may be demolished but have not yet been identified beyond this assessment scope. The recommendations identified in Section 8.0 should be followed prior to and during demolition of buildings to best address the identified hazardous materials.
11.0 CLOSING

This work was performed in accordance with Contract 8500085638 between Hemmera Envirochem Inc. (Hemmera) and BHP Billiton Canada Inc. (BHP), dated September 11, 2015. This report has been prepared by Hemmera, based on fieldwork and desktop work conducted by Hemmera, for the sole benefit and use by BHP. In performing this work, Hemmera has relied in good faith on information provided by others, and has assumed that the information provided by those individuals is both complete and accurate. This work was performed to current industry standard practice for similar environmental work, within the relevant jurisdiction and same locale. The findings presented herein should be considered within the context of the scope of work and Project terms of reference; further, the findings are time sensitive and are considered valid only at the time the report was produced. The conclusions and recommendations contained in this report are based upon the applicable guidelines, regulations, and legislation existing at the time the report was produced; any changes in the regulatory regime may alter the conclusions and/or recommendations.

We sincerely appreciate the opportunity to have assisted you with this Project. If there are any questions, please do not hesitate to contact the undersigned by phone at 604.669.0424.

Report prepared by:
Hemmera Envirochem Inc.

Matthew Beveridge, P.Eng.
Environmental Engineer

Report peer reviewed by:
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12.0 REFERENCES


APPENDIX A

Pre-Demolition Hazardous Materials Survey
HEMMERA ENVIROCHEM INC.
Metro Tower III, 18th Floor, 4730 Kingsway
Burnaby, BC V5H 0C6

Attention: Mr. Mathew Beveridge, P.Eng.
Environmental Engineer

Ref: BHP BILLITON CANADA INC. BHP POTASH EXPORT FACILITY AT SURREY FRASER DOCKS PROJECT
PRE-DEMOLITION HAZARDOUS BUILDING MATERIALS SURVEY OF NUMEROUS BUILDINGS AND STRUCTURES LOCATED AT 11041 AND 11060 ELEVATOR ROAD, SURREY, BC

1.0 INTRODUCTION

Astech Consultants were retained by Hemmera Envirochem Inc. to conduct a Pre-Demolition Hazardous Building Materials Survey and compile a detailed report on the presence and location of asbestos containing building materials, PCB containing ballasts, lead, mercury, and stored chemicals of numerous buildings and structures located at the former Bekaert Site at 11041 Elevator Road and Fraser Surrey Docks at 11060 Elevator Road, Surrey, BC. The buildings and structures are described as follows:

- 11041 Elevator Road - Former Bekaert Office Building
- 11060 Elevator Road - Shed 5
- 11060 Elevator Road - Diesel Shop
- 11060 Elevator Road - Container Truck Gate
- 11060 Elevator Road - Shed 4
- 11060 Elevator Road - Two Sub-Stations
- 11060 Elevator Road - Railway Area at Southeast portion of Property

Astech Consultants Ltd. survey and report format is designed specifically to satisfy the current applicable regulation from the Workers’ Compensation Board of British Columbia Occupational Health and Safety Regulation 20.112 regarding hazardous building material assessments by a Qualified Person for buildings and structures.

This survey was conducted on July 7, 11, & 28, and August 14, 2017 by Tom Farrell and Trevor Shendruk assisted by Cassandra Marshall of Astech Consultants and is amalgamated with previous information in our files. It must be emphasized that this survey was concerned exclusively with the subject buildings and structures. The site survey was thorough in investigating layered floor, wall, and ceiling systems. However, inaccessible floor cavities, wall cavities, and ceiling spaces which would require the actual dismantling of portions of the subject buildings and structures in order to gain access were not investigated. No attempt was made to investigate other buildings on the properties, underground services, or the surrounding properties.
2.0 BUILDING DESCRIPTION

The subject buildings and structures are described as:

11041 - Former Bekaert Office Building
- a one-storey office building faced with stucco, and concrete. The building is heated by natural gas
driven air heaters and air handling units with associated ductwork, and electric heaters. At the time
of survey, the interior and exterior of the building were in good condition.

11060 - Shed 5
- a two-storey office and shop building faced with metal cladding. The building is heated by natural
gas driven air heaters and air handling units with associated ductwork, and natural gas heaters. At
the time of survey, the interior and exterior of the building were in good condition.

11060 - Diesel Shop
- a two-storey office and shop building faced with metal cladding. The building is heated by natural
gas driven air heaters and air handling units with associated ductwork, and natural gas heaters. At
the time of survey, the interior and exterior of the building were in fair to good condition.

11060 - Container Truck Gate
- a canopy type truck gate structure faced with metal cladding. The structure is unheated. At the
time of survey, the interior and exterior of the structure were in good condition.

11060 - Shed 4
- a one-storey storage building faced with metal cladding. The building is heated by natural gas
heaters. At the time of survey, the interior and exterior of the building were in good condition.

11060 - Sub-Station 4
- a one-storey electrical sub-station building faced with concrete and concrete block. The building is
heated by natural gas heaters. At the time of survey, the interior and exterior of the building were
in good condition.

11060 - Sub-Station 5
- a one-storey electrical sub-station building faced with concrete and concrete block. The building is
heated by natural gas heaters. At the time of survey, the interior and exterior of the building were
in good condition.

11060 - Railway Area at Southeast portion of Property
- four intersecting railway spurs at the southeast portion of the property. At the time of survey, the
railways were in good condition.

3.0 METHODOLOGY

3.1 ASBESTOS CONTAINING MATERIALS

A visual inspection was undertaken in order to determine the type, location, and homogeneous nature of
asbestos and potential asbestos containing building materials located at the subject buildings and structures.
During this inspection, one hundred twenty-nine (129) bulk samples of previously unsampled potential
asbestos containing materials were collected from specific locations of the buildings and structures. The
samples collected were submitted for analysis at our in-house laboratory in accordance with the Workers’
Compensation Board of British Columbia Occupational Health and Safety Regulation, utilizing polarized light microscopy, and dispersion staining techniques. Results of laboratory analysis of samples collected during this survey and previous surveys are attached.

3.2 LEAD PAINTS/PRIMERS/GLAZING FINISHES

A visual inspection was undertaken in order to determine the type and location of paints suspected of containing lead at the subject buildings and structures. During this inspection, eighteen (18) bulk samples of potential lead paint/primer/glazing finishes were collected from specific locations of the subject buildings and structures. The samples collected were submitted for analysis at our in-house laboratory in accordance with US EPA methods and the requirements of the Workers’ Compensation Board of British Columbia Occupational Health and Safety Regulation. Results of laboratory analysis of samples collected during this survey are attached.

3.3 PCB CONTAINING MATERIALS, LEAD, MERCURY, AND STORED CHEMICALS

A visual inspection was undertaken in order to determine the presence of:

- fluorescent light fixtures & HID light fixtures suspected of containing PCB ballasts or capacitors,
- construction materials suspected of containing lead and other heavy metals,
- thermostats and associated equipment suspected of containing mercury, and
- stored chemicals suspected of being toxic, flammable, or explosive.

3.4 TABLE OF APPLICABLE REGULATIONS

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<tr>
<td>Workers’ Compensation Board of British Columbia Occupational Health and Safety Regulation</td>
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<td>Workers’ Compensation Board of British Columbia Publication Lead-Containing Paints and Coatings - Preventing Exposure in the Construction Industry</td>
</tr>
<tr>
<td>BC Ministry of Environment - Environmental Management Act - Hazardous Waste Regulation</td>
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<tr>
<td>Government of Canada - Transportation of Dangerous Goods</td>
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3.5 HAZARDOUS MATERIALS REUSE, REMOVAL, RECYCLING, AND DISPOSAL PLAN

For the storage, handling, and recycle/disposal of hazardous building materials, the work will be conducted by a qualified hazardous materials abatement contractor in accordance with applicable regulations as listed. For each hazardous material, the abatement contractor must determine and be responsible for assessing the risk and setting in place an exposure control plan for the work, and providing submittals to applicable regulatory boards including Notice of Project for work involving Asbestos, Lead, and Mould, and site specific work procedures.

In preparation for tendering the work, and through the duration of the project, Astech Consultants Ltd. will provide Third Party Project Consulting Services that include, but are not necessarily limited to, the following:

**PROJECT SCOPE OF WORK & TENDER PROCESS:**

a) **Specifications** - Liaise with Project Team and preparation of detailed Hazardous Building Materials Abatement Specification Section 02080 by Astech Consultants for inclusion with Contract
Documents to be issued to a select group of qualified and properly insured (with asbestos inclusion rider) Hazmat Abatement Contractors and qualified Demolition Contractors.

b) **Pre-Bid Site Walk-Through** - Once the documents are prepared and approved, Astech Consultants would assist in organizing and conducting a mandatory pre-bid meeting and site inspection for the select group of qualified Hazmat Abatement Contractors. Astech would assist with any clarifications or interpretations as may arise before, during, and after the close of tenders.

c) **Bid Review** - We would assist in reviewing the bids received and make recommendations for contract award.

**PROJECT SITE INSPECTIONS:**

a) **Asbestos Pre-Contamination Inspections** - Very critical third party inspections that determine if all preparation work is complete, in compliance with regulatory board requirements and the Contract Specifications, before the actual asbestos abatement can begin. Inspections ensure enforcement of safe work procedures, and review of relevant project documentation, including worker training, and respirator fit testing.

b) **Asbestos Abatement Inspections** - Once actual asbestos abatement is in progress Astech Consultants will conduct inspections inside the work areas. The perimeter of the work areas, and adjacent areas of the building/structure, will also be inspected and air monitored.

c) **Asbestos Visual Clearance Inspections** - Perhaps the most critical of all inspections. The visual clearance inspections are a comprehensive and meticulous inspection of the work areas at the conclusion of removal activities to ensure that asbestos abatement is complete, and that asbestos materials have been properly cleaned up and disposed of.

d) **Other Hazardous Materials Inspections** - Visual inspections will be conducted on an ongoing basis to ensure that other hazardous materials have been properly removed and either recycled, salvaged, or disposed of.

**PROJECT AIR SAMPLING (ASBESTOS):**

a) ambient asbestos air samples adjacent to the work areas, to verify that airborne asbestos fibres have not migrated outside the work areas.

b) occupational asbestos air samples inside the work areas to establish and assess work procedures, and ensure that work procedures do not create unnecessarily high asbestos fibre concentrations.

c) clean room asbestos air samples in the worker decontamination facility to verify that airborne asbestos fibres have not migrated outside the “High Risk” work areas, as applicable.

d) air clearance asbestos air samples at the conclusion of visual clearance inspection of the "High Risk" work areas, as applicable.

e) air sample results are documented, and submitted to the abatement contractor for posting on site daily.
PROJECT REPORTS:

Inspections requiring action by the Hazmat Abatement Contractor will be in written form and be submitted for immediate action. A Substantial and/or Final Completion letter will be submitted to the Client at the conclusion of the project. Once the project is completed, copies of all relevant documentation are retained in a comprehensive Final Report that will be submitted to the Client.

4.0 INSPECTION RESULTS

4.1 ASBESTOS CONTAINING MATERIALS

GENERAL NOTE

- Some of the asbestos containing filling compound and affected gypsum board listed below are concealed behind and/or abutting wood, concrete, and other building materials that are contaminated with the asbestos containing filling compound (some gypsum board is concealed and some is multi-layered). As well, there is asbestos containing filling compound on and within electrical junction boxes and other building materials. Additionally, there is asbestos containing filling compound residue on floors (concealed beneath carpets and other flooring materials, plumbing fixtures, cabinetry, mouldings, millwork, and other building materials).

11041 - OFFICE BUILDING - GROUND FLOOR

Front Entrance Vestibule
- Asbestos containing filling compound on gypsum board and asbestos containing filling compound residue (see General Note above).

General Office Area (open area at center) and Adjoining West Hallway
- Asbestos containing floor tiles (concealed beneath a layer of carpet and other building materials).

Meeting Room (west of Front Entrance Vestibule), Office (west of Meeting Room), and Southwest Corner Office
- Asbestos containing floor tiles (concealed beneath a layer of carpet and other building materials).
- Asbestos containing filling compound on gypsum board and asbestos containing filling compound residue (see General Note above).

Two Adjoining West Washrooms including Entrance Foyer
- Asbestos containing filling compound on gypsum board and asbestos containing filling compound residue (see General Note above).

Center West Office, Northwest Corner Office, Office (west of Boardroom), and Boardroom
- Asbestos containing floor tiles (concealed beneath a layer of carpet and other building materials).
- Asbestos containing filling compound on gypsum board and asbestos containing filling compound residue (see General Note above).
Lunchroom
- **Asbestos** containing filling compound on gypsum board and **asbestos** containing filling compound residue (see General Note above).
- **Asbestos** containing coating on underside of metal sink.

Two Adjoining East Washrooms including Entranceway to Ladies’ Washroom
- **Asbestos** containing filling compound on gypsum board and **asbestos** containing filling compound residue (see General Note above).

Janitor’s Closet (adjacent to East Washrooms), and
- **Asbestos** containing filling compound on gypsum board and **asbestos** containing filling compound residue (see General Note above).

Hallway/Entranceway (adjacent to East Washrooms)
- **Asbestos** containing filling compound on gypsum board and **asbestos** containing filling compound residue (see General Note above).

Northeast Corner Storage Room including Closet
- **Asbestos** containing floor tiles (some concealed).
- **Asbestos** containing filling compound on gypsum board and **asbestos** containing filling compound residue (see General Note above).

Two Adjoining Center East Offices, Southeast Corner Office, and Office (east of Front Entrance Vestibule)
- **Asbestos** containing floor tiles (concealed beneath a layer of carpet and other building materials).
- **Asbestos** containing filling compound on gypsum board and **asbestos** containing filling compound residue (see General Note above).

Wall Cavities and Ceiling Spaces
- **Asbestos** containing filling compound on gypsum board and **asbestos** containing filling compound residue (see General Note above).
- **Asbestos** containing adhesive on foam insulation (some on and abutting concrete, concrete block, and other building materials).
- Potential **asbestos** containing mastic at joints of ductwork (may be concealed within ductwork).
- **Asbestos** containing floor tiles and debris in storage in ceiling space accessed from and in proximity to Janitor’s Closet.
- **Asbestos** containing pipe thread compounds at fittings of mechanical piping systems.

11041 - OFFICE BUILDING - EXTERIOR

Walls, Doors, and Windows
- **Asbestos** containing grey caulkings on joints of stucco walls (some abutting concrete and concrete block, and some concealed).
- **Asbestos** containing sealant in windows of exterior metal doors (mostly concealed).
- **Asbestos** containing firestop caulking at natural gas wall penetration (some concealed).
- **Asbestos** containing firestop putty at electrical wall penetrations (some concealed).

Mechanical Systems
- **Asbestos** containing pipe thread compounds at fittings of mechanical piping systems (some concealed).
Rooftops
- **Asbestos** containing mastics on rooftop Air Handling Unit (some concealed).
- Potential **asbestos** containing roofing membranes, papers, felts, mastics, shingles, and/or patching compounds.
- Potential **asbestos** containing caulking, sealants, and mastics at rooftop ductwork, flashings, mounted equipment & pads, and/or roof penetrations.

**Note:** Roofing materials have not been sampled at this time (destructive testing required), and will be sampled by Astech Consultants once the building is no longer being utilized and prior to demolition.

**11060 - SHED 5 - GROUND FLOOR**

- Crane Shop (West Open Area),
- Electrical Room 109,
- Hallway,
- Electrical Parts Room 108,
- Stairwell to Second Floor,
- Janitor Room 103,
- Ladies’ Washroom and Locker Room 104,
- Men’s Washroom and Locker Room 106,
- Lunchroom 107,
- Handicap Washroom 105,
- Electrical Shop 110,
- Parts Storage Room 111,
- Mechanical Shop 112,
- Carpentry Shop 113,
- East Open Area,
- Attached Valve Station 7 (interior), and
- Attached Valve Station 8 (interior)
- **Asbestos** containing pipe thread compounds at fittings of mechanical piping systems (some concealed).

**Wall Cavities and Ceiling Spaces**
- **Asbestos** containing pipe thread compounds at fittings of mechanical piping systems.

**11060 - SHED 5 - SECOND FLOOR**

- Hallways,
- Crane Maintenance Manager’s Office 202,
- Office 203,
- Office 204,
- Office 205,
- Janitor Room/Washroom 206,
- Men’s Washroom/Locker Room 207,
- Ladies’ Washroom 208,
- Office 209,
- Office 210,
- Valve Room (adjacent to Office 211),
- Office 211, and
- Storage Room 212
- No asbestos materials observed.
Server Room 213,
Office 214,
Office 215,
Office 216,
Dispatch Office 217,
Office 218,
Office 219, and
Wall Cavities and Ceiling Spaces
- No asbestos materials observed.

11060 - Shed 5 - Exterior

Walls, Doors, and Windows
- No asbestos materials observed.

Mechanical Systems
- **Asbestos** containing pipe thread compounds at fittings of mechanical piping systems (some concealed).

Rooftops
- Potential **asbestos** containing sealants and/or tapes at joints of metal roof cladding of the main roof.
- Potential **asbestos** containing roofing membranes, papers, felts, mastics, shingles, and/or patching compounds on Valve Stations 7 and 8.
- Potential **asbestos** containing caulkings, sealants, and mastics at rooftop ductwork, flashings, mounted equipment & pads, and/or roof penetrations.

Note: Roofing materials have not been sampled at this time (destructive testing required), and will be sampled by Astech Consultants once the building is no longer being utilized and prior to demolition.

11060 - Diesel Shop - Ground Floor

Foreman’s Offices (2 rooms)
- **Asbestos** containing filling compound on gypsum board and **asbestos** containing filling compound residue (see General Note above).

Parts Storage Room
- **Asbestos** containing filling compound on gypsum board and **asbestos** containing filling compound residue (see General Note above).
- **Asbestos** containing pipe thread compounds at fittings of mechanical piping systems (some concealed).

West Garage Area (6 bays)
- **Asbestos** containing firestop putty at natural gas pipe penetrations.
- **Asbestos** containing pipe thread compounds at fittings of mechanical piping systems (some concealed).

Workshop (between East and West Garages), and
Battery Storage Booth
- **Asbestos** containing pipe thread compounds at fittings of mechanical piping systems (some concealed).
East Garage Area (3 bays)
- Asbestos containing filling compound on gypsum board and asbestos containing filling compound residue (see General Note above).
- Asbestos containing pipe thread compounds at fittings of mechanical piping systems (some concealed).

Storage Room including Wash-Up Area (beneath Stairwell to Second Floor)
- Asbestos containing filling compound on gypsum board and asbestos containing filling compound residue (see General Note above).
- Asbestos containing pipe thread compounds at fittings of mechanical piping systems (some concealed).

Attached Compressor Lean-To (interior), and Attached Valve Station 9 (interior)
- Asbestos containing pipe thread compounds at fittings of mechanical piping systems (some concealed).

Stairwell to Second Floor
- Asbestos containing filling compound on gypsum board and asbestos containing filling compound residue (see General Note above).

Wall Cavities and Ceiling Spaces
- Asbestos containing firestop putty at natural gas pipe penetrations.
- Asbestos containing pipe thread compounds at fittings of mechanical piping systems.

11060 - Diesel Shop - Second Floor

Hallway and Adjoining Mezzanine, Lunchroom, Locker Room, Washroom including Janitor Room within, and Offices (2 rooms)
- Asbestos containing filling compound on gypsum board and asbestos containing filling compound residue (see General Note above).
- Asbestos containing pipe thread compounds at fittings of mechanical piping systems (some concealed).

Floor Cavities, Wall Cavities, and Ceiling Spaces
- Asbestos containing firestop putty at natural gas pipe penetrations.
- Asbestos containing filling compound on gypsum board and asbestos containing filling compound residue (see General Note above).

11060 - Diesel Shop - Exterior

Walls, Doors, and Windows
- Asbestos containing sealant in window units (some concealed).

Mechanical Systems
- Asbestos containing pipe thread compounds at fittings of mechanical piping systems (some concealed).
Rooftops
- Potential asbestos containing sealants and/or tapes at joints of metal roof cladding of the main roof.
- Potential asbestos containing roofing membranes, papers, felts, mastics, shingles, and/or patching compounds on Valve Station 9.
- Potential asbestos containing caulking, sealants, and mastics at rooftop ductwork, flashings, mounted equipment & pads, and/or roof penetrations.

Note: Roofing materials have not been sampled at this time (destructive testing required), and will be sampled by Astech Consultants once the building is no longer being utilized and prior to demolition.

11060 - CONTAINER TRUCK GATE

All Areas including Rooftop
- Potential asbestos containing sealants and/or tapes at joints of metal roof cladding of the main roof.

Note: Not sampled at this time (destructive testing required), and will be sampled by Astech Consultants once the building is no longer being utilized and prior to demolition.

11060 - SHED 4 - GROUND FLOOR

Warehouse Area, and
Attached Valve Station 1 (interior)
- Asbestos containing pipe thread compounds at fittings of mechanical piping systems (some concealed).

11060 - SHED 4 - EXTERIOR

Walls, and
Mechanical Systems
- No asbestos materials observed.

Rooftops
- Potential asbestos containing sealants and/or tapes at joints of metal roof cladding of the main roof.
- Potential asbestos containing roofing membranes, papers, felts, mastics, shingles, and/or patching compounds on Valve Station 1.

Note: Not sampled at this time (destructive testing required), and will be sampled by Astech Consultants once the building is no longer being utilized and prior to demolition.

11060 - SUBSTATION 4 - GROUND FLOOR

Interior including Pit
- Asbestos containing firestop putty at telephone cabinet and pipe sleeve penetrations.
- Potential asbestos containing woven textile insulation on wiring and potential asbestos containing arc shields/chutes in operating electrical cabinets.

Note: Not sampled at this time (destructive testing required), and will be sampled by Astech Consultants once electrical power is de-energized and locked out, and prior to demolition.
11060 - **SUBSTATION 4 - EXTERIOR**

**Walls**
- No asbestos materials observed.

**Mechanical Systems**
- **Asbestos** containing firestop putty at telephone wire/conduit penetrations.

**Rooftop**
- No asbestos materials observed.

11060 - **SUBSTATION 5 - GROUND FLOOR**

**Interior including Pit**
- **Asbestos** containing firestop putty at telephone cabinet and pipe sleeve penetrations.
- Potential **asbestos** containing woven textile insulation on wiring and potential **asbestos** containing arc shields/chutes in operating electrical cabinets.

**Note:** Not sampled at this time (destructive testing required), and will be sampled by Astech Consultants once electrical power is de-energized and locked out, and prior to demolition.

11060 - **SUBSTATION 5 - EXTERIOR**

**Walls**
- No asbestos materials observed.

**Mechanical Systems**
- **Asbestos** containing firestop putty at telephone wire/conduit penetrations.

**Rooftop**
- No asbestos materials observed.

11060 - **RAILWAY AREA (AT AFFECTED NORTHEAST PORTION OF PROPERTY)**

**All Areas**
- No asbestos materials observed.

4.2 **PCB CONTAINING MATERIALS**

The visual inspection determined that there are approximately two hundred ninety (290) newer and older fluorescent and high intensity discharge (HID) light fixtures at the buildings and structures, and lighting poles. The older fixtures may have PCB containing ballasts/capacitors. PCB ballast/capacitor identification requires the disassembly of the light fixture in order to locate the manufacturer’s identification code.
4.3 LEAD

The visual inspection and/or laboratory analytical results determined the following:

Lead Paints, Primers, and Glazing Finishes

11041 - Office Building
- red primer containing lead was used on interior structural steel surfaces,
- grey paint containing lead was used on some interior gypsum board,
- brown paint containing lead was used on metal doors and frames, and
- glazing finishes containing lead were used on ceramic tiles.

11060 - Shed 5
- red primer containing lead was used on interior structural steel surfaces, and
- yellow paint containing lead was used on metal and concrete bollards.

11060 - Diesel Shop
- red primer containing lead was used on interior structural steel surfaces, and
- yellow paint containing lead was used on metal and concrete bollards.

11060 - Container Truck Gate
- blue paint on grey primer containing lead was used on structural steel surfaces, and
- yellow paint containing lead was used on concrete dividers.

11060 - Railway Area
- yellow paint containing lead was used on concrete dividers.

Lead Construction Materials
- there are lead roof vents and caps located on some rooftops.

4.4 MERCURY

The visual inspection determined that there are approximately six (6) wall mounted thermostats in Shed 5 and Diesel Shop that contain mercury. There are also approximately nine hundred thirty (930) fluorescent and HID light tubes/bulbs (including some in storage) at the buildings and structures that contain mercury.

4.5 STORED CHEMICALS AND OTHER HAZARDOUS MATERIALS

The following list of materials were present in and around the buildings and structures at time of inspection:
- containers of commercially available paints, cleaners, petroleum products, and garden chemicals,
- containers of commercially available rodent poison,
- motors, pumps, and compressors bearing petroleum product/residue,
- creosote treated wood railway ties,
- batteries in emergency lighting,
- fire extinguishers and a cylinder of compressed gas at fire suppression system,
- compressors and piping with suspect ozone depleting substances (CFC’s) in refrigerators and air handling units,
- commercially available smoke/heat/fire detectors with a radioactive component within,
- a few areas with rodent and bird droppings,
- a small amount of visible mould on gypsum board, wood, and other building materials, and
- piping containing natural gas leading to heating equipment.
4.6 SILICA

All concrete, cement, ceramic tiles, gypsum board, stucco, grouts, mortars, and any other cementitious building materials are suspected of containing silica in crystalline and non-crystalline forms.

4.7 NON-ASBESTOS GYPSUM BOARD

The visual inspection and/or analytical results determined the following:

- there is gypsum board with asbestos containing filling compound in the Diesel Shop (see Section 4.1 including General Note above), and therefore would be disposed of as mixed asbestos and gypsum waste, and
- there is gypsum board with non-asbestos filling compound in Shed 5.

5.0 RECOMMENDATIONS

5.1 ASBESTOS CONTAINING MATERIALS

Prior to demolition of a building or structure, asbestos containing materials must first be removed and disposed of by a qualified hazardous materials abatement contractor in accordance with the Workers’ Compensation Board of British Columbia Occupational Health and Safety Regulation. Disposal of asbestos containing materials must be performed in accordance with the BC Ministry of Environment - Environmental Management Act - Hazardous Waste Regulation.

5.2 POLYCHLORINATED BIPHENYL (PCB) CONTAINING BALLASTS/CAPACITORS

It is recommended that the identification of PCB ballasts/capacitors be performed by qualified personnel prior to or in conjunction with the demolition of the buildings and structures, at a time when it becomes feasible to isolate electrical power and disassemble/disconnect the light fixtures. The ballasts/capacitors that are identified as PCB containing must be removed in accordance with the Workers’ Compensation Board of British Columbia Occupational Health and Safety Regulation, and disposed of in accordance with the BC Ministry of Environment - Environmental Management Act - Hazardous Waste Regulation.

5.3 LEAD BASED PAINTS AND LEAD BUILDING MATERIALS

Where lead based paints and/or primers are affected by a project, the work must be performed by a qualified contractor in accordance with the Workers’ Compensation Board of British Columbia Occupational Health and Safety Regulation and the WCB publication entitled Lead-Containing Paints and Coatings - Preventing Exposure in the Construction Industry.

Where the base substrate material is to be removed in conjunction with lead paint removal, the base substrate and lead based paints and/or primers should be removed intact by the contractor, in accordance with the contractor’s risk assessment and site specific work procedures. The workers conducting the work and workers in close proximity to the work being performed, should be protected with personal protective equipment as determined by the contractor’s risk assessment and site specific work procedures.

Lead containing paints which remain attached to wood and/or other building materials must be labelled as lead based paints (LBP) for transporting to a licensed/approved disposal site or recycling facility. A licensed/approved facility receiving the waste must be informed of the lead content of these materials and be agreeable to receiving these materials. Prior to acceptance of waste with lead paints at a licensed/
approved disposal facility, the contractor generating the waste must ensure that all waste materials containing LBPs are sampled intact, fastened directly to the base substrate, and representative of the waste stream created by demolition. The contractor shall have the representative sample analyzed utilizing a Toxicity Characteristic Leachate Procedure for lead (TCLP lead) test to determine the potential for soil and/or groundwater contamination, if deemed necessary by the site receiving the waste.

If the lead paints are to be separated or removed from the building materials by means of sanding, scraping, abrading, blasting, etc., more stringent work procedures would apply. The removed lead paints, depending on lead concentrations and leachate results, may become a Hazardous Waste and therefore must be disposed of in accordance with the BC Ministry of Environment - Environmental Management Act - Hazardous Waste Regulation.

Prior to demolition of a building or structure, the lead roof jacks must first be removed, and be recycled or disposed of, in accordance with the BC Ministry of Environment - Environmental Management Act - Hazardous Waste Regulation.

### 5.4 MERCURY

Prior to demolition of a building or structure, the mercury containing thermostats and light tubes/bulbs must first be removed, and be salvaged, recycled, or disposed of, in accordance with the BC Ministry of Environment - Environmental Management Act - Hazardous Waste Regulation.

### 5.5 STORED CHEMICALS AND OTHER HAZARDOUS MATERIALS

**Stored Chemicals**

Prior to demolition of a building or structure, stored chemicals, ozone depleting substances within refrigeration equipment, and radioactive equipment must first be removed, and be recycled or disposed of, in accordance with the BC Ministry of Environment - Environmental Management Act - Hazardous Waste Regulation.

**Bird and Rodent Droppings**

Bird and rodent droppings which can cause infectious disease and/or respiratory disease in humans should be removed as biohazardous waste by a qualified abatement contractor in accordance with the Workers’ Compensation Board of BC Occupational Health and Safety Regulation, prior to unprotected trades performing work in or conducting selective demolition of the buildings and structures. In lieu of removing droppings, workers shall wear respirators and protective clothing while in contaminated areas of the buildings and structures, and while conducting selective demolition.

**Mould**

The differing types of moulds and/or fungi which can cause infectious disease and/or respiratory disease in humans should be removed as biohazardous waste by a qualified abatement contractor in accordance with the Workers’ Compensation Board of British Columbia Occupational Health and Safety Regulation, prior to unprotected trades performing work in affected areas of the buildings and structures. In lieu of removing moulds and fungi, workers shall wear respirators and protective clothing while in contaminated areas of the buildings and structures.

Prior to demolition of a building or structure, mould which is attached to gypsum board to be recycled, should be removed by a qualified abatement contractor in accordance with the Workers’ Compensation Board of British Columbia Occupational Health and Safety Regulation. During the removal process and prior to the gypsum board being transported to the recycling facility, the gypsum board and mould must be treated with an approved bleaching agent (or equivalent) to destroy the mould. Mould which remains attached to building materials such as wood, metal and concrete may be disposed of in a manner applicable
to normal demolition waste. Workers conducting selective demolition of the building/structure shall wear respirators and protective clothing while in contaminated areas of the buildings and structures.

**Natural Gas**
The natural gas that is contained in some piping must be shut off and purged by Fortis BC or a qualified trades person prior to work that would affect the gas, and prior to demolition.

**5.6 SILICA**
Where cementitious building materials that are suspected of containing silica in crystalline form are directly impacted by the project (i.e. drill, cut, or abrade), the work should be performed in a controlled manner to avoid the release of crystalline silica dust. Cutting, drilling, or otherwise disturbing these building materials must be performed by a qualified contractor’s trained personnel in accordance with the Workers’ Compensation Board of British Columbia Occupational Health and Safety Regulation.

**5.7 NON-ASBESTOS GYPSUM BOARD**
Prior to demolition of a building or structure, gypsum board with no asbestos finishes (a provincially regulated construction waste) must first be removed by a qualified contractor, and be recycled or disposed of in accordance with the BC Ministry of Environment - Environmental Management Act - Hazardous Waste Regulation. Landfills are issued operational certificates from the BC Ministry of Environment, and for local landfills and others their certificate specifies that gypsum board cannot be accepted for disposal, and therefore local depots offer recycling services.

**6.0 OWNER’S RESPONSIBILITIES**
For the remediation of hazardous building materials, contract specifications, quality control, and final acceptance of the work remain the responsibility of the Owner. In order to ensure that the Owner has acted in a responsible manner, and to ensure regulatory board compliance, it is recommended that a detailed hazardous materials abatement specification be provided to a select group of qualified and properly insured (with proof of necessary asbestos inclusion rider) hazardous materials abatement contractors. As well, the performance of the asbestos abatement work by the contractor’s trained and authorized personnel should be inspected and air monitored on a daily basis. **Importantly**, Hazardous Materials Abatement Specifications will require overlapping/cross referenced information for the Demolition Specifications by others, insomuch as a portion of asbestos removal may be performed in conjunction with demolition. For example, the portion of asbestos removal for the asbestos sealants/caulkings/mastics that may be present on metal clad roof systems, in order to be cost effective, will require the demolition contractor’s assistance in tipping over portions of the buildings and structures for ease of access, which is an approved industry standard for this type of work.

We hope you have found the above information useful. If you have any questions, or require clarification please contact this office.

Sincerely,

Tom Farrell
Astech Consultants Ltd.
Ref: 18168HE01R2.SWP
ASBESTOS BULK SAMPLE REPORT

Date: August 22, 2017

Client: HEMMERA ENVIROCHEM INC.

Location: Former Bekaert Site at 11041 Elevator Road
Fraser Surrey Docks at 11060 Elevator Road
Surrey, BC

Comments: 1) Analyzed as per NIOSH 9002, except for Vermiculite as per EPA/600/R-04/004.
2) WCB defines asbestos containing material as 0.5% or more asbestos, with the exception of Vermiculite which is defined as “any asbestos”.
3) Sample(s) will be disposed of after 90 days, unless the Client requests otherwise.

Sample(s) Collected on July 7, 2017

<table>
<thead>
<tr>
<th>Sample</th>
<th>Location</th>
<th>Description</th>
<th>Layer: Colour</th>
<th>Non-Asbestos</th>
<th>Asbestos</th>
</tr>
</thead>
<tbody>
<tr>
<td>18168BS01</td>
<td>11060 - Shed 5 - Second Floor - Server Room 213</td>
<td>Firestop Putty (at Wall Penetration of Electrical Cable)</td>
<td>1: Grey</td>
<td>20% Cellulose 80% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS02</td>
<td>11060 - Shed 5 - Second Floor - Server Room 213</td>
<td>Sealant (in Window of Interior Metal Door)</td>
<td>1: Black</td>
<td>2% Cellulose 98% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS03</td>
<td>11060 - Shed 5 - Second Floor - Dispatch Office 217</td>
<td>Adhesive (on Back of Carpet)</td>
<td>1: Beige</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS04</td>
<td>11060 - Shed 5 - Second Floor - Hallway</td>
<td>Paint Filling Compound on Gypsum Board (Wall)</td>
<td>1: White</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS05</td>
<td>11060 - Shed 5 - Second Floor - Dispatch Office 217</td>
<td>Sealant (in Interior Metal-Framed Window)</td>
<td>1: Black</td>
<td>2% Cellulose 98% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS06</td>
<td>11060 - Shed 5 - Second Floor - Dispatch Office 217</td>
<td>Sealant (in Exterior Metal-Framed Window)</td>
<td>1: Black</td>
<td>2% Cellulose 98% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS07</td>
<td>11060 - Shed 5 - Second Floor - Hallway</td>
<td>Cove Base</td>
<td>1: Blue</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS08</td>
<td>11060 - Shed 5 - Second Floor - Hallway</td>
<td>Cove Base Adhesive</td>
<td>2: Beige</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>Sample</td>
<td>Location</td>
<td>Description</td>
<td>Layer: Colour</td>
<td>Non-Asbestos</td>
<td>Asbestos</td>
</tr>
<tr>
<td>-----------</td>
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<td>---------------</td>
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<td>----------</td>
</tr>
<tr>
<td>18168BS09</td>
<td>11060 - Shed 5 - Second Floor - Hallway</td>
<td>Paint Filling Compound on Gypsum Board (Wall)</td>
<td>1: White 2: White</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS10</td>
<td>11060 - Shed 5 - Second Floor - Hallway</td>
<td>Sealant (in Window of Exterior Metal Door)</td>
<td>1: Black</td>
<td>2% Cellulose 98% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS11</td>
<td>11060 - Shed 5 - Second Floor - Hallway</td>
<td>Paint 2' X 4' Ceiling Tile (Small Fissures)</td>
<td>1: White 2: Grey</td>
<td>60% Cellulose 30% Glass 10% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS12</td>
<td>11060 - Shed 5 - Second Floor - Hallway</td>
<td>Coating (on Underside of Metal Sink)</td>
<td>1: Off-White</td>
<td>20% Cellulose 80% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS13</td>
<td>11060 - Shed 5 - Second Floor - Office 209</td>
<td>Sealant (in Exterior Metal-Framed Window)</td>
<td>1: Black</td>
<td>2% Cellulose 98% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS14</td>
<td>11060 - Shed 5 - Second Floor - Office 209</td>
<td>Pipe Thread Compound (at Fitting of Sprinkler Piping)</td>
<td>1: Blue</td>
<td>99% Non-Fibrous 1% Tremolite</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS15</td>
<td>11060 - Shed 5 - Second Floor - Office 209</td>
<td>Filling Compound on Gypsum Board (Wall)</td>
<td>1: White</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS16</td>
<td>11060 - Shed 5 - Second Floor - Office 209</td>
<td>Paint 2' X 4' Ceiling Tile (Small Fissures)</td>
<td>1: White 2: Grey</td>
<td>60% Cellulose 30% Glass 10% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS17</td>
<td>11060 - Shed 5 - Second Floor - Office 209</td>
<td>Sealant (in Window of Interior Metal Door)</td>
<td>1: Black</td>
<td>2% Cellulose 98% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS18</td>
<td>11060 - Shed 5 - Second Floor - Men’s Washroom</td>
<td>Sheet Flooring</td>
<td>1: Grey Mosaic</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS19</td>
<td>11060 - Shed 5 - Second Floor - Men’s Washroom</td>
<td>Sheet Flooring Adhesive</td>
<td>2: Cream</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS20</td>
<td>11060 - Shed 5 - Second Floor - Hallway</td>
<td>12” Floor Tile</td>
<td>1: Grey &amp; White</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS21</td>
<td>11060 - Shed 5 - Second Floor - Hallway</td>
<td>Floor Tile Adhesive</td>
<td>2: Beige</td>
<td>1% Cellulose 99% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS22</td>
<td>11060 - Shed 5 - Ground Floor - Stairwell to Second Floor</td>
<td>Sheet Flooring</td>
<td>1: Grey Mosaic</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS23</td>
<td>11060 - Shed 5 - Ground Floor - Stairwell to Second Floor</td>
<td>Sheet Flooring Adhesive</td>
<td>2: Cream</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS24</td>
<td>11060 - Shed 5 - Ground Floor - Stairwell to Second Floor</td>
<td>Stair Tread</td>
<td>1: Blue</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS25</td>
<td>11060 - Shed 5 - Ground Floor - Stairwell to Second Floor</td>
<td>Stair Tread Adhesive</td>
<td>2: Beige</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>Sample</td>
<td>Location</td>
<td>Description</td>
<td>Layer: Colour</td>
<td>Non-Asbestos</td>
<td>Asbestos</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------------------------</td>
<td>-------------------------------------------------------</td>
<td>---------------</td>
<td>--------------</td>
<td>----------</td>
</tr>
<tr>
<td>18168BS26</td>
<td>11060 - Shed 5 - Ground Floor - Stairwell to Second Floor</td>
<td>Stair Tread</td>
<td>1: Grey</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS27</td>
<td>11060 - Shed 5 - Ground Floor - Stairwell to Second Floor</td>
<td>Stair Tread Adhesive</td>
<td>2: Beige</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS28</td>
<td>11060 - Shed 5 - Ground Floor - Crane Shop</td>
<td>Spray Applied Insulation (Debris on Workbench)</td>
<td>1: White &amp; Grey</td>
<td>95% Glass 5% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS29</td>
<td>11060 - Shed 5 - Ground Floor - Crane Shop</td>
<td>Pipe Thread Compound (at Fitting of Air Compressor Piping)</td>
<td>1: Off-White</td>
<td>5% Cellulose 95% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS30</td>
<td>11060 - Shed 5 - Ground Floor - Crane Shop</td>
<td>Pipe Thread Compound (at Fitting of Sprinkler Piping)</td>
<td>1: Off-White</td>
<td>5% Cellulose 95% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS31</td>
<td>11060 - Shed 5 - Exterior</td>
<td>Paint Caulking (at Metal Wall Flashing)</td>
<td>1: Black 2: Grey</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS32</td>
<td>11060 - Shed 5 - Exterior</td>
<td>Caulking (at Metal Cladding of East Canopy)</td>
<td>1: Off-White</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS33</td>
<td>11060 - Shed 5 - Exterior</td>
<td>Caulking (at Wall Penetration of Natural Gas Pipe)</td>
<td>1: Off-White</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS34</td>
<td>11060 - Shed 5 - Exterior</td>
<td>Pipe Thread Compound (at Fitting of Natural Gas Piping)</td>
<td>1: Blue</td>
<td>99% Non-Fibrous 1% Actinolite</td>
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<tr>
<td>18168BS35</td>
<td>11060 - Shed 5 - Exterior</td>
<td>Caulking (around Exterior Metal Door Frame)</td>
<td>1: Grey</td>
<td>8% Cellulose 92% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS36</td>
<td>11060 - Shed 5 - Exterior</td>
<td>Caulking (at Wall Penetration of Mechanical Piping)</td>
<td>1: Off-White</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS37</td>
<td>11060 - Shed 5 - Exterior</td>
<td>Caulking (around Metal Exhaust Vent)</td>
<td>1: White</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS38</td>
<td>11060 - Shed 5 - Exterior</td>
<td>Caulking (at Wall Penetration of Mechanical Piping)</td>
<td>1: Off-White</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
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<tr>
<td>18168BS39</td>
<td>11060 - Shed 5 - Exterior</td>
<td>Mastic (on Mechanical Pipe)</td>
<td>1: Red</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
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<tr>
<td>18168BS40</td>
<td>11060 - Shed 5 - Exterior</td>
<td>Caulking (at Wall Penetration of Mechanical Piping)</td>
<td>1: White</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS41</td>
<td>11060 - Shed 5 - Valve Station 7 - Exterior</td>
<td>Firestop Putty (at Wall Alarm Case)</td>
<td>1: Grey</td>
<td>20% Cellulose 80% Non-Fibrous</td>
<td>None Detected</td>
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<tr>
<td>18168BS42</td>
<td>11060 - Shed 5 - Valve Station 7 - Exterior</td>
<td>Caulking (at Wall Alarm Case)</td>
<td>1: Off-White</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
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Analyst(s): Jesse James, Jessica Young
Sample(s) Collected on July 11, 2017

<table>
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<th>Sample</th>
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<th>Layer: Colour</th>
<th>Non-Asbestos Type</th>
<th>Asbestos Type</th>
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<tbody>
<tr>
<td>18168BS43</td>
<td>11060 - Shed 5 - Ground Floor - Crane Shop</td>
<td>Spray Applied Insulation (Wall)</td>
<td>1: Grey</td>
<td>65% Glass</td>
<td>None Detected</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>20% Cellulose</td>
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<td>15% Non-Fibrous</td>
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<tr>
<td>18168BS44</td>
<td>11060 - Shed 5 - Ground Floor - Crane Shop</td>
<td>Paint Filling Compound on Gypsum Board (Wall)</td>
<td>1: White</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>2: White</td>
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<tr>
<td>18168BS45</td>
<td>11060 - Shed 5 - Ground Floor - Crane Shop</td>
<td>Pipe Thread Compound (at Fitting of Air Compressor Piping)</td>
<td>1: Off-White</td>
<td>4% Cellulose</td>
<td>1% Tremolite</td>
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<tr>
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<td></td>
<td>95% Non-Fibrous</td>
<td></td>
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<tr>
<td>18168BS46</td>
<td>11060 - Substation 4 - Ground Floor - Open Area</td>
<td>Firestop Putty (at Telephone Cabinet Penetration)</td>
<td>1: Grey</td>
<td>80% Non-Fibrous</td>
<td>20% Chrysotile</td>
</tr>
<tr>
<td>18168BS47a</td>
<td>11060 - Substation 4 - Exterior</td>
<td>Caulking (around Exterior Metal Door Frame)</td>
<td>1: Grey</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
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<tr>
<td>18168BS47b</td>
<td>11060 - Substation 4 - Exterior</td>
<td>Caulking (around Exterior Metal Door Frame)</td>
<td>2: Black</td>
<td>90% Non-Fibrous</td>
<td>10% Chrysotile</td>
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<tr>
<td>18168BS48</td>
<td>11060 - Substation 4 - Exterior</td>
<td>Firestop Grout (at Wall Penetration of Mechanical Piping)</td>
<td>1: Grey</td>
<td>2% Cellulose</td>
<td>None Detected</td>
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<td>98% Non-Fibrous</td>
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<tr>
<td>18168BS49</td>
<td>11060 - Shed 5 - Valve Station 8 - Ground Floor - Open Area</td>
<td>Pipe Thread Compound (at Fitting of Mechanical Piping)</td>
<td>1: Blue</td>
<td>4% Cellulose</td>
<td>1% Tremolite</td>
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<td>95% Non-Fibrous</td>
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<tr>
<td>18168BS50</td>
<td>11060 - Shed 5 - Valve Station 8 - Ground Floor - Open Area</td>
<td>Pipe Thread Compound (at Fitting of Mechanical Piping)</td>
<td>1: Black</td>
<td>99% Non-Fibrous</td>
<td>1% Tremolite</td>
</tr>
<tr>
<td>18168BS51</td>
<td>11060 - Shed 5 - Valve Station 8 - Ground Floor - Open Area</td>
<td>Pipe Thread Compound (at Fitting of Mechanical Piping)</td>
<td>1: Off-White</td>
<td>99% Non-Fibrous</td>
<td>1% Tremolite</td>
</tr>
<tr>
<td>18168BS52</td>
<td>11060 - Shed 5 - Valve Station 8 - Ground Floor - Open Area</td>
<td>Firestop Grout (at Wall Penetration of Mechanical Piping)</td>
<td>1: Grey</td>
<td>2% Cellulose</td>
<td>None Detected</td>
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<td>98% Non-Fibrous</td>
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<tr>
<td>18168BS53</td>
<td>11060 - Shed 5 - Valve Station 8 - Ground Floor - Open Area</td>
<td>Firestop Putty (at Wall Penetration)</td>
<td>1: Grey</td>
<td>75% Cellulose</td>
<td>None Detected</td>
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<td>25% Non-Fibrous</td>
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<td>18168BS54</td>
<td>11060 - Substation 5 - Exterior</td>
<td>Caulking (around Exterior Metal Door Frame)</td>
<td>1: Grey</td>
<td>5% Cellulose</td>
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<td>95% Non-Fibrous</td>
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<td>18168BS55</td>
<td>11060 - Substation 5 - Exterior</td>
<td>Caulking (at Metal Exhaust Vent)</td>
<td>1: Grey</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
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Analyst(s): Brittany Ford

Sample(s) Collected on July 28, 2017

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<th>Description</th>
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<th>Non-Asbestos Type</th>
<th>Asbestos Type</th>
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<tbody>
<tr>
<td>18168BS56</td>
<td>11060 - Shed 5 - Ground Floor - Hallway</td>
<td>Paint Filling Compound on Gypsum Board (Wall)</td>
<td>1: Off-White</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2: White</td>
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<td>Sample</td>
<td>Location</td>
<td>Description</td>
<td>Layer: Colour</td>
<td>% Type</td>
<td>Asbestos</td>
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<tr>
<td>18168BS57</td>
<td>11060 - Shed 5 - Ground Floor - Hallway</td>
<td>Sealant (in Window of Exterior Metal Door)</td>
<td>1: Black</td>
<td>2% Cellulose 98% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS58a</td>
<td>11060 - Shed 5 - Ground Floor - Stairwell To Second Floor</td>
<td>Sheet Flooring</td>
<td>1: Grey Mosaic</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS58b</td>
<td>11060 - Shed 5 - Ground Floor - Stairwell To Second Floor</td>
<td>Sheet Flooring Adhesive</td>
<td>1: Cream</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS59</td>
<td>11060 - Shed 5 - Ground Floor - Stairwell To Second Floor</td>
<td>Cove Base</td>
<td>1: Blue</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS60</td>
<td>11060 - Shed 5 - Ground Floor - Stairwell To Second Floor</td>
<td>Cove Base Adhesive</td>
<td>2: Beige</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS61</td>
<td>11060 - Shed 5 - Ground Floor - Stairwell To Second Floor</td>
<td>Pipe Thread Compound (at Fitting of Sprinkler Piping)</td>
<td>1: Blue</td>
<td>99% Non-Fibrous 1% Tremolite</td>
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<tr>
<td>18168BS62a</td>
<td>11060 - Shed 5 - Ground Floor - Janitor Room</td>
<td>Sheet Flooring</td>
<td>1: Grey</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS62b</td>
<td>11060 - Shed 5 - Ground Floor - Janitor Room</td>
<td>Sheet Flooring Adhesive</td>
<td>2: Beige</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS63a</td>
<td>11060 - Shed 5 - Ground Floor - Janitor Room</td>
<td>Cove Base</td>
<td>1: Blue</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS63b</td>
<td>11060 - Shed 5 - Ground Floor - Janitor Room</td>
<td>Cove Base Adhesive</td>
<td>2: Beige</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS64</td>
<td>11060 - Shed 5 - Ground Floor - Janitor Room</td>
<td>Pipe Thread Compound (at Fitting of Mechanical Piping)</td>
<td>1: Blue</td>
<td>99% Non-Fibrous 1% Tremolite</td>
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<tr>
<td>18168BS65</td>
<td>11060 - Shed 5 - Ground Floor - Janitor Room</td>
<td>Paint Filling Compound on Gypsum Board (Wall)</td>
<td>1: Grey 2: White</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS66a</td>
<td>11060 - Shed 5 - Ground Floor - Electrical Parts Room</td>
<td>12&quot; Floor Tile</td>
<td>1: Grey</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS66b</td>
<td>11060 - Shed 5 - Ground Floor - Electrical Parts Room</td>
<td>Floor Tile Adhesive</td>
<td>2: Cream</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS67</td>
<td>11060 - Shed 5 - Ground Floor - Lunch Room</td>
<td>Sealant (in Window of Interior Metal Door)</td>
<td>1: Black</td>
<td>2% Cellulose 98% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS68</td>
<td>11060 - Shed 5 - Ground Floor - Electrical Shop</td>
<td>Pipe Thread Compound (at Fitting of Mechanical Piping)</td>
<td>1: Off-White</td>
<td>99% Non-Fibrous 1% Tremolite</td>
<td></td>
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<tr>
<td>18168BS69</td>
<td>11060 - Shed 5 - Ground Floor - Electrical Shop</td>
<td>Pipe Thread Compound (at Fitting of Air Compressor Piping)</td>
<td>1: Off-White</td>
<td>99% Non-Fibrous 1% Tremolite</td>
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</tbody>
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## Non-Asbestos Asbestos

<table>
<thead>
<tr>
<th>Sample</th>
<th>Location Description</th>
<th>Layer: Colour</th>
<th>Non-Asbestos</th>
<th>Asbestos</th>
</tr>
</thead>
<tbody>
<tr>
<td>18168BS70</td>
<td>Shed 5 - Ground Floor - Parts Storage Room</td>
<td>1: Grey</td>
<td>80% Glass 20% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS71</td>
<td>Shed 5 - Ground Floor - Lunch Room</td>
<td>1: White 2: Grey</td>
<td>60% Cellulose 30% Glass 10% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS72</td>
<td>Shed 5 - Ground Floor - Lunch Room</td>
<td>1: Off-White</td>
<td>5% Cellulose 95% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS73</td>
<td>Ground Floor - Lunch Room</td>
<td>1: Grey</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
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<tr>
<td>18168BS74</td>
<td>Railway Area</td>
<td>1: Grey</td>
<td>10% Cellulose 90% Non-Fibrous</td>
<td>None Detected</td>
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</table>

**Analyst(s): Jessica Young**

**Sample(s) Collected on August 14, 2017**

<table>
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<th>Layer: Colour</th>
<th>Non-Asbestos</th>
<th>Asbestos</th>
</tr>
</thead>
<tbody>
<tr>
<td>18168BS75</td>
<td>Office Building - Ground Floor - Front Entrance Vestibule</td>
<td>1: Grey</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS76</td>
<td>Office Building - Ground Floor - General 11041 - Office Area</td>
<td>1: Cream &amp; Beige</td>
<td>99% Non-Fibrous 1% Chrysotile</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS77</td>
<td>Office Building - Ground Floor - General 11041 - Office Area</td>
<td>2: Black</td>
<td>3% Cellulose 97% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS78</td>
<td>Office Building - Ground Floor - General 11041 - Office Area</td>
<td>3: Grey</td>
<td>2% Cellulose 98% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS79</td>
<td>Office Building - Ground Floor - General 11041 - Office Area</td>
<td>1: Black</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
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<tr>
<td>18168BS80</td>
<td>Office Building - Ground Floor - General 11041 - Office Area</td>
<td>2: Cream</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS81</td>
<td>Office Building - Ground Floor - General 11041 - Office Area</td>
<td>3: Brown</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS82</td>
<td>Office Building - Ground Floor - General 11041 - Office Area</td>
<td>1: White 2: Grey</td>
<td>97% Non-Fibrous 3% Chrysotile</td>
<td>None Detected</td>
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<tr>
<td>Sample</td>
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<tr>
<td>18168BS83</td>
<td>11041 - Office Building - Ground Floor - General 11041 - Office Area</td>
<td>Paint 2' X 4' Ceiling Tile</td>
<td>1: White</td>
<td>65% Cellulose 30% Glass 5% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS84</td>
<td>11041 - Office Building - Ground Floor - General 11041 - Office Area</td>
<td>Mastic (on Fibreglass Insulation on Rain Water Leader)</td>
<td>1: White</td>
<td>100% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS85</td>
<td>11041 - Office Building - Ground Floor - General 11041 - Office Area</td>
<td>Mastic (beneath Fibreglass Insulation on Rain Water Leader)</td>
<td>1: Black</td>
<td>8% Glass 92% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS86</td>
<td>11041 - Office Building - Ground Floor - Ceiling Space</td>
<td>Pipe Thread Compound (at Fitting of Mechanical Piping)</td>
<td>1: Off-White</td>
<td>3% Cellulose 97% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS87</td>
<td>11041 - Office Building - Ground Floor - Janitor Closet</td>
<td>Filling Compound on Gypsum Board (Ceiling)</td>
<td>1: White</td>
<td>100% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS88</td>
<td>11041 - Office Building - Ground Floor - Lunch Room</td>
<td>Coating (on Underside of Metal Sink)</td>
<td>1: Gold &amp; Black</td>
<td>85% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS89</td>
<td>11041 - Office Building - Ground Floor - Lunch Room</td>
<td>Caulking (at Counter Top)</td>
<td>1: White</td>
<td>100% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS90</td>
<td>11041 - Office Building - Ground Floor - Meeting Room</td>
<td>Cove Base</td>
<td>1: Black</td>
<td>100% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS91</td>
<td>11041 - Office Building - Ground Floor - Meeting Room</td>
<td>Cove Base Adhesive</td>
<td>2: Cream</td>
<td>100% Non-Fibrous</td>
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<tr>
<td>18168BS92</td>
<td>11041 - Office Building - Ground Floor - Meeting Room</td>
<td>Cove Base Adhesive</td>
<td>3: Brown</td>
<td>100% Non-Fibrous</td>
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<tr>
<td>18168BS93</td>
<td>11041 - Office Building - Ground Floor - Southwest Corner 11041 - Office</td>
<td>Adhesive (on Back of Gypsum Board)</td>
<td>1: Brige</td>
<td>2% Cellulose 98% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS94</td>
<td>11041 - Office Building - Ground Floor - Southwest Corner 11041 - Office - Ceiling Space</td>
<td>Adhesive (on Back of Foam Panel)</td>
<td>1: Black</td>
<td>85% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS95</td>
<td>11041 - Office Building - Ground Floor - Entrance to West Ladies Washroom</td>
<td>12&quot; Floor Tile</td>
<td>1: White &amp; Grey</td>
<td>100% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS96</td>
<td>11041 - Office Building - Ground Floor - Entrance to West Ladies Washroom</td>
<td>Floor Tile Adhesive</td>
<td>2: Beige</td>
<td>100% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS97</td>
<td>11041 - Office Building - Ground Floor - Entrance to West Ladies Washroom</td>
<td>Floor Tile Adhesive</td>
<td>3: Black</td>
<td>2% Cellulose 98% Non-Fibrous</td>
</tr>
<tr>
<td>Sample</td>
<td>Location</td>
<td>Description</td>
<td>Layer: Colour</td>
<td>Non-Asbestos</td>
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</tr>
<tr>
<td>18168BS98</td>
<td>11041 - Office Building - Ground Floor - 11041 - Office at Centre West</td>
<td>Paint 2' X 4' Ceiling Tile</td>
<td>1: White 2: Grey</td>
<td>65% Cellulose 30% Glass 5% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS99</td>
<td>11041 - Office Building - Ground Floor - Northwest Corner 11041 - Office</td>
<td>Adhesive (on Back of Foam Panel)</td>
<td>1: Black</td>
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<tr>
<td>18168BS100</td>
<td>11041 - Office Building - Ground Floor - Northwest Corner 11041 - Office</td>
<td>Adhesive (on Back of Wood Wall)</td>
<td>1: Beige</td>
<td>100% Non-Fibrous</td>
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<tr>
<td>18168BS101</td>
<td>11041 - Office Building - Ground Floor - Hallway/Entrance Way</td>
<td>12&quot; Floor Tile</td>
<td>1: White &amp; Grey</td>
<td>100% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS102</td>
<td>11041 - Office Building - Ground Floor - Hallway/Entrance Way</td>
<td>Floor Tile Adhesive</td>
<td>2: Beige</td>
<td>100% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS103</td>
<td>11041 - Office Building - Ground Floor - Hallway/Entrance Way</td>
<td>Floor Tile Adhesive</td>
<td>3: Black</td>
<td>2% Cellulose 98% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS104</td>
<td>11041 - Office Building - Ground Floor - Pipe Chase</td>
<td>Mastic (on Fibreglass Pipe Insulation)</td>
<td>1: White</td>
<td>100% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS105</td>
<td>11041 - Office Building - Ground Floor - Pipe Chase</td>
<td>Pipe Thread Compound (at Fitting of Natural Gas Piping)</td>
<td>1: Cream</td>
<td>3% Cellulose 97% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS106</td>
<td>11041 - Office Building - Ground Floor - Pipe Chase</td>
<td>Pipe Thread Compound (at Fitting of Natural Gas Piping)</td>
<td>2: Blue</td>
<td>99% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS107</td>
<td>11041 - Office Building - Ground Floor - Hallway/Entrance Way</td>
<td>Sealant (in Window of Exterior Metal Door)</td>
<td>1: Black</td>
<td>90% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS108</td>
<td>11041 - Office Building - Ground Floor - East Men’s Washroom</td>
<td>Ceramic Wall Tile Grout</td>
<td>1: Grey</td>
<td>100% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS109</td>
<td>11041 - Office Building - Ground Floor - East Men’s Washroom</td>
<td>Ceramic Wall Tile Adhesive</td>
<td>2: Cream</td>
<td>100% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS110</td>
<td>11041 - Office Building - Ground Floor - Two Adjoining Centre East 11041 - Offices</td>
<td>Caulking (at Exterior Brown Metal Window)</td>
<td>1: Grey</td>
<td>100% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS111</td>
<td>11041 - Office Building - Ground Floor - Two Adjoining Centre East 11041 - Offices</td>
<td>Mastic (on Ductwork above T-Bar Ceiling)</td>
<td>1: Grey</td>
<td>100% Non-Fibrous</td>
</tr>
<tr>
<td>18168BS112</td>
<td>11041 - Office Building - Ground Floor - Two Adjoining Centre East 11041 - Offices</td>
<td>Mastic (on Ductwork above T-Bar Ceiling)</td>
<td>1: Grey</td>
<td>100% Non-Fibrous</td>
</tr>
<tr>
<td>Sample</td>
<td>Location Description</td>
<td>Layer: Colour</td>
<td>Non-Asbestos Type</td>
<td>Asbestos Type</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>18168BS113</td>
<td>Floor Levelling Compound Ground Floor - 11041 - Office East of Front Entrance Vestibule</td>
<td>1: Grey</td>
<td>3% Cellulose 97% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS114</td>
<td>Carpet Adhesive Ground Floor - 11041 - Office East of Front Entrance Vestibule</td>
<td>1: Beige</td>
<td>5% Synthetic 95% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS115</td>
<td>Caulking (around Exterior Metal-Framed Window)</td>
<td>1: Grey</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS116</td>
<td>Wall Stucco (North Wall)</td>
<td>1: Beige</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS117</td>
<td>Caulking (where Wall Stucco abuts Concrete)</td>
<td>1: Grey</td>
<td>92% Non-Fibrous 8% Chrysotile</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS118</td>
<td>Caulking (where Wall Stucco abuts Concrete)</td>
<td>1: Grey</td>
<td>15% Glass 85% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS119</td>
<td>Pipe Thread Compound (at Fitting of Natural Gas Piping)</td>
<td>1: Off-White</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS120</td>
<td>Firestop Putty (at Electrical Cable Wall Penetration)</td>
<td>1: Grey</td>
<td>80% Non-Fibrous 20% Chrysotile</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS121</td>
<td>Wall Stucco (South Wall)</td>
<td>1: Beige</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS122</td>
<td>Wall Stucco (West Wall)</td>
<td>1: Beige</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS123</td>
<td>Caulking (at Sill of Metal Window)</td>
<td>1: Grey</td>
<td>100% Non-Fibrous</td>
<td>None Detected</td>
</tr>
<tr>
<td>18168BS124</td>
<td>Firestop Putty (at Electrical Cable Wall Penetration)</td>
<td>1: Grey</td>
<td>92% Non-Fibrous 8% Chrysotile</td>
<td>None Detected</td>
</tr>
</tbody>
</table>

Analyst(s): Jesse James

American Industrial Hygiene Association (AIHA) Bulk Asbestos Proficiency Analytical Testing (BAPAT)
Astech Consultants Ltd. Laboratory Participant ID# 200542
**ASBESTOS BULK SAMPLE REPORT**

**Date:**     August 22, 2017

**Client:**     HEMMERA ENVIROCHEM INC.

**Location:**    Fraser Surrey Docks
11060 Elevator Road
Surrey, BC

---

**Comments:**
1) Analysed as per WCB of BC OH&S Regulation.
2) WCB defines asbestos containing material as 1% or more asbestos.
3) Quantitation limit for asbestos analysis is 1%.
4) Sample(s) results report fibre composition only.
5) Sample(s) will be disposed of after 90 days, unless the client requests otherwise.

---

**Samples Collected on October 28, 2008**

<table>
<thead>
<tr>
<th>Bulk Sample #</th>
<th>Location</th>
<th>Sample Type</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>7976BS45</td>
<td>Diesel Shop - Ground Floor - Foreman’s Office</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Type</td>
<td>12” Floor Tile (Cream)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Result</td>
<td>No Asbestos Fibres Observed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7976BS46</td>
<td>Diesel Shop - Ground Floor - Foreman’s Office</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Type</td>
<td>Floor Tile Adhesive (Black)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Result</td>
<td>25 - 30% Cellulose Fibres</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Result</td>
<td>No Asbestos Fibres Observed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7976BS47</td>
<td>Diesel Shop - Ground Floor - Foreman’s Office</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Type</td>
<td>Gypsum Board Filling Compound (Wall) (First Layer)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Result</td>
<td>1 - 5% Cellulose Fibres</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Result</td>
<td>No Asbestos Fibres Observed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Type</td>
<td>Gypsum Board Filling Compound (Wall) (Second Layer)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Result</td>
<td>1 - 5% Chrysotile Asbestos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7976BS48</td>
<td>Diesel Shop - Ground Floor - Parts Storage Room</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Type</td>
<td>Gypsum Board Filling Compound (Wall)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Result</td>
<td>No Asbestos Fibres Observed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Samples Collected on November 3, 2008

<table>
<thead>
<tr>
<th>Bulk Sample #</th>
<th>Location</th>
<th>Sample Type</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>7976BS49</td>
<td>Diesel Shop - Ground Floor - Parts Storage Room</td>
<td>Jute Backed Sheet Flooring (Brown)</td>
<td>25 - 30% Cellulose Fibres</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No Asbestos Fibres Observed</td>
</tr>
<tr>
<td>7976BS50</td>
<td>Diesel Shop - Ground Floor - Parts Storage Room</td>
<td>Gypsum Board Filling Compound (Ceiling)</td>
<td>1 - 5% Cellulose Fibres</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No Asbestos Fibres Observed</td>
</tr>
<tr>
<td>7976BS51</td>
<td>Diesel Shop - Ground Floor - Wash Area (beneath Stairwell)</td>
<td>Gypsum Board Filling Compound (Ceiling)</td>
<td>1 - 5% Chrysotile Asbestos</td>
</tr>
<tr>
<td>7976BS52</td>
<td>Diesel Shop - Exterior</td>
<td>Firestop Putty (Light Grey) (at West Side Wall Electrical Penetration)</td>
<td>25 - 30% Cellulose Fibres</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No Asbestos Fibres Observed</td>
</tr>
<tr>
<td>7976BS53</td>
<td>Diesel Shop - Exterior</td>
<td>Firestop Putty (Silver) (at Natural Gas Pipe Wall Penetration)</td>
<td>10 - 15% Chrysotile Asbestos</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 - 5% Cellulose Fibres</td>
</tr>
<tr>
<td>7976BS54</td>
<td>Diesel Shop - Second Floor - Hallway</td>
<td>Gypsum Board Filling Compound (Wall)</td>
<td>No Asbestos Fibres Observed</td>
</tr>
<tr>
<td>7976BS55</td>
<td>Diesel Shop - Second Floor - Lunchroom</td>
<td>Sheet Flooring (Grey)</td>
<td>No Asbestos Fibres Observed</td>
</tr>
<tr>
<td>7976BS56</td>
<td>Diesel Shop - Second Floor - Locker Room</td>
<td>Jute Backed Sheet Flooring (Tan)</td>
<td>25 - 30% Cellulose Fibres</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No Asbestos Fibres Observed</td>
</tr>
<tr>
<td>7976BS57</td>
<td>Diesel Shop - Second Floor - Locker Room</td>
<td>2' X 4' Ceiling Tile (Tan)</td>
<td>60 - 65% Cellulose Fibres</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>35 - 40% Glass Fibres</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No Asbestos Fibres Observed</td>
</tr>
<tr>
<td>7976BS58</td>
<td>Diesel Shop - Second Floor - Office</td>
<td>12&quot; Floor Tile (Off-White &amp; Beige)</td>
<td>No Asbestos Fibres Observed</td>
</tr>
<tr>
<td>7976BS59</td>
<td>Diesel Shop - Second Floor - Office</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Type</td>
<td>Result</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>---------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Window Sealant (Black) (on Exterior Window Unit)</td>
<td>10 - 15% <strong>Chrysotile Asbestos</strong>&lt;br&gt;5 - 10% Cellulose Fibres</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Bulk Sample # 7976BS60**<br>Sample Type: Diesel Shop - Second Floor - Office Ceiling Space<br>Sample Type: Spray Applied Insulation (Brown) (Ceiling)<br>Result: 95 - 100% Cellulose Fibres<br>No Asbestos Fibres Observed
# LEAD (in Paint) BULK SAMPLE REPORT

**Date:** August 22, 2017  
**Client:** HEMMERA ENVIROCHEM INC.  
**Location:** Former Bekaert Site at 11041 Elevator Road  
Fraser Surrey Docks at 11060 Elevator Road  
Surrey, BC

**Comments:**  
1) Analyzed by X-Ray Fluorescence (XRF) with direct read PPM.  
2) Sample results report lead only.  
3) WCB defines lead-containing surface coating material as a paint or other similar material that dries to a solid film that contains over 90 PPM (90 mg/kg or 90 µg/g or 0.009%) dry weight of lead.  
4) Samples will be disposed of after 25 days, unless the client requests otherwise.  
5) < means less than.

Sample(s) Collected on July 7, 2017

<table>
<thead>
<tr>
<th>Bulk Sample #</th>
<th>Location</th>
<th>Sample Type</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>18168LS01</td>
<td>11060 - Shed 5 - Second Floor - Hallway</td>
<td>Paint (Off-White) (on Gypsum Board Wall)</td>
<td>&lt;5.5 PPM</td>
</tr>
<tr>
<td>18168LS02</td>
<td>11060 - Shed 5 - Exterior</td>
<td>Paint (Yellow) (on Metal &amp; Concrete Bollard)</td>
<td>1,427 PPM</td>
</tr>
<tr>
<td>18168LS03</td>
<td>11060 - Shed 5 - Ground Floor - Crane Shop</td>
<td>Primer (Red) (on Structural Steel Column)</td>
<td>601 PPM</td>
</tr>
<tr>
<td>18168LS04</td>
<td>11060 - Shed 5 - Ground Floor - Crane Shop</td>
<td>Primer (Red) (on Structural Steel Beam)</td>
<td>149 PPM</td>
</tr>
<tr>
<td>18168LS05</td>
<td>11060 - Shed 5 - Exterior</td>
<td>Paint (Cream) (on Metal Wall)</td>
<td>&lt;9 PPM</td>
</tr>
</tbody>
</table>
Bulk Sample # 18168LS06 : 11060 - Shed 5 - Exterior
    Sample Type : Paint (Blue) (on Metal Stairs)
    Result : <9 PPM

Analyst: Trevor Shendruk

Sample(s) Collected on July 11, 2017

Bulk Sample # 18168LS07 : 11060 - Substation 5 - Exterior
    Sample Type : Paint (Yellow) (on Concrete Block Wall)
    Result : <8 PPM

Analyst: Trevor Shendruk

Sample(s) Collected on July 28, 2017

Bulk Sample # 18168LS08 : 11060 - Container Truck Gate
    Sample Type : Paint (Blue) on Primer (Grey) (on Structural Steel Column)
    Result : 160 PPM

Bulk Sample # 18168LS09 : 11060 - Railway Area
    Sample Type : Paint (Yellow) (on Concrete Divider)
    Result : 665 PPM

Bulk Sample # 18168LS10 : 11060 - Railway Area
    Sample Type : Paint (Yellow) (on Concrete Divider)
    Result : 2,173 PPM

Analyst: Trevor Shendruk

Sample(s) Collected on August 14, 2017

Bulk Sample # 18168LS11 : 11041 - Office Building - Ground Floor - Ceiling Space
    Sample Type : Primer (Red) (on Open Web Steel Joist)
    Result : 260 PPM

Bulk Sample # 18168LS12 : 11041 - Office Building - Ground Floor - General Office Area
    Sample Type : Paint (Grey) (on Gypsum Board Wall)
    Result : 640 PPM

Bulk Sample # 18168LS13 : 11041 - Office Building - Ground Floor - Lunch Room
    Sample Type : Paint (Grey on Off-White) (on Gypsum Board Wall)
    Result : <7 PPM

Bulk Sample # 18168LS14 : 11041 - Office Building - Ground Floor - General Office Area
    Sample Type : Paint (Cream) (on Gypsum Board Wall)
    Result : <10 PPM
Bulk Sample # 18168LS15: 11041 - Office Building - Ground Floor - Meeting Room (West of Front Entrance Vestibule)
Sample Type: Paint (Tan on Off-White) (on Gypsum Board Wall)
Result: <6 PPM

Bulk Sample # 18168LS16: 11041 - Office Building - Ground Floor - Northwest Corner Office
Sample Type: Paint (Brown) (on Metal Door Frame)
Result: 337 PPM

Bulk Sample # 18168LS17: 11041 - Office Building - Ground Floor - East Men’s Washroom
Sample Type: Glazing Finish (Blue) (on Ceramic Wall Tile)
Result: 254 PPM

Bulk Sample # 18168LS18: 11041 - Office Building - Ground Floor - East Men’s Washroom
Sample Type: Glazing Finish (Cream) (on Concrete Block Wall)
Result: <10 PPM

Analyst: Jessica Young