

**XCG File No. 1-336-191-01**

December 2, 2014

**DESIGNATED SUBSTANCES AND  
HAZARDOUS MATERIALS SURVEY  
CANADA'S COAST GUARD BASE  
PARRY SOUND, ONTARIO  
R.064667.007**

Prepared for:

**PUBLIC WORKS AND GOVERNMENT SERVICES CANADA**

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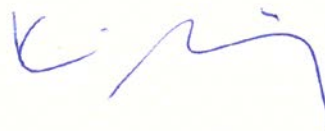
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## **ES 1. EXECUTIVE SUMMARY**

XCG Consultants Ltd. (XCG) was retained by Public Works and Government Services Canada (PWGSC) on behalf of the Department of Fisheries and Oceans Canada (DFO) to complete a Designated Substances and Hazardous Materials Survey (DSHMS) at Canada's Coast Guard Base located in Parry Sound, Ontario.

The DSHMS work was requested in support of the proposed renovation and refurbishment of six buildings and the demolition of one building. In addition, XCG surveyed the remaining four buildings on the property, which were not listed in PWGSC's Statement of Work (SOW), but were added at the request of PWGSC. PWGSC provided a summary of the buildings impacted by the project and their proposed repairs and renovations. Those proposed renovations included the following: roof replacement; heating, ventilation, and air conditioning (HVAC) system replacement; door and siding repairs; interior wall and floor repairs; window sealant replacement; etc.

The purpose of the DSHMS is to determine what, if any, designated substances are present in the buildings and to provide recommendations to PWGSC on how best to alleviate the concerns associated with these substances (abatement or control program) for persons entering the buildings and conducting demolition or renovation activities.

The survey included all of the Designated Substances defined by the Occupational Health and Safety Act (OHSA), with particular emphasis placed on (but not limited to) asbestos-containing materials (ACMs), lead-based paints, mercury-containing equipment, and silica.

### ***Asbestos-Containing Materials***

A total of 60 bulk building material samples were submitted to the laboratory for asbestos analysis. Materials sampled included drywall joint compound, caulking, mastic, kickplate fireproofing, vinyl floor tiles, ceiling tiles, and roofing materials. The laboratory results indicated that no materials are ACMs.

In the event that ACMs are encountered at the site during future demolition or renovation work, handling and removal of asbestos should be conducted as specified in Ontario Regulation (O. Reg.) 278/05, as amended. The type of removal procedures to be conducted should be defined on a case-by-case basis. Any suspect material encountered should be treated as asbestos unless otherwise indicated by sampling and analytical testing. If additional potential ACMs (currently hidden or inaccessible) are identified as demolition or renovation work proceeds, these materials should be examined, tested, and handled appropriately. Any asbestos removal needs to be completed by a trained abatement contractor.

### ***Lead-Containing Materials***

A total of 19 paint samples were submitted for lead analysis. Seven of the 19 paint samples were found to have lead concentrations greater than 90 mg/kg [parts per million (ppm)] and were therefore determined to be lead-containing. Surface coatings, such as paint are considered lead-containing if they have lead concentrations above the permissible concentration of 90 ppm or [0.009 percent by weight] as specified in



the Federal Hazardous Products Act – Surface Coating Material Regulation (2005), as amended.

The paints with confirmed lead concentrations above the standard in the buildings are:

- Main Building Room 179 – Blue interior floor paint;
- Main Building Room 123 – Light green interior wall paint;
- Main Building Exterior – Red exterior trim paint;
- Flammable Storage – Cream interior wall paint;
- Marine Storage – Grey interior floor paint;
- Main Building Exterior – Red exterior siding paint;
- Main Building Exterior – Grey exterior siding paint; and
- Storage Building – White exterior paint.

All lead-based paints, potential lead-based solder, and potential lead-based pipe should be managed in accordance with O. Reg. 490/09 during renovation or demolition activities. If the materials are not to be recycled, the materials should be disposed of in accordance with O. Reg. 347 (as amended).

#### *Chlorofluorocarbons (CFCs) and Ozone-Depleting Substances (ODSs)*

Based on observations made during the site reconnaissance, a refrigerator and multiple air conditioning (A/C) units potentially containing chlorofluorocarbons (CFCs) were identified, but not sampled. Disposal and repairs of any refrigeration equipment and/or refrigerant containers is regulated under the Federal Halocarbon Regulations, 2003, (SOR/2003-289). In accordance with the Federal Halocarbon Regulations, any removal, disposal, and/or repair of refrigeration equipment during construction and removal activities should only be undertaken by a certified person.

#### *Mercury*

Fluorescent lighting observed in the subject buildings is likely to contain small quantities of mercury. There is no occupational or environmental concern associated with mercury in its current state and condition. However, when the buildings are renovated or demolished, the fluorescent lights and any mercury-containing thermostat, if present, must be handled and disposed of in accordance with O. Reg. 490/09 (as amended) and O. Reg. 347/90 (as amended).

#### *Silica*

Concrete and mortar-based building materials were observed at the subject site. Silica is assumed to be present as free crystalline silica if concrete and mortar are visually identified within the building construction materials. Exposure to airborne silica is regulated under O. Reg. 490/09 regarding silica under the OHSA. Airborne silica can be generated through such processes as blasting, grinding, crushing, and sandblasting silica-containing material. Precautions must be taken to prevent silica-containing particles from becoming airborne during the application of such processes. Such precautions include wetting of silica-containing area(s) to be disturbed, and daily wet sweeping or HEPA vacuuming of silica dust. Additionally, appropriate respiratory



protection and ventilation must be utilized during disturbance of silica-containing structures.

#### *Mould*

Based on observations made during the assessment, XCG recommends further investigation of the ceiling and attic space of the building identified on-site as “Garage (Samuel Risley Storage).” As a result of historic roof leakage, there was mould growth and significant water staining observed on the underside of the plywood ceiling. The potential for additional mould exists within the attic space.

Additionally, the areas where roof leaks are occurring within the Main Building should be monitored for mould growth. If mould growth is discovered, appropriate mould abatement measures should be employed based on the amounts discovered.

#### *Fuel, Oil and/or Waste Oil Storage and Chemical Storage*

Based on observations made during the assessment, XCG recommends that an environmental compliance audit be conducted to assess whether the fuel, oil, waste oil, and chemicals are being stored and managed in accordance with applicable legislation and federal policies/procedures. This compliance assessment was beyond the scope of this DSHMS.

#### *Other Designated Substances and Hazardous Materials*

The following designated substances and hazardous materials were either not noted in the building, or not likely to be a concern based on the site visit: acrylonitrile, arsenic, benzene, coke oven emissions, ethylene oxide, isocyanates, vinyl chloride, polychlorinated biphenyls (PCBs), urea formaldehyde foam insulation (UFFI), and radioactive materials.



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## 1. INTRODUCTION

XCG Consultants Ltd. (XCG) was retained by Public Works and Government Services Canada (PWGSC) on behalf of the Department of Fisheries and Oceans Canada (DFO) to complete a Designated Substances and Hazardous Materials Survey (DSHMS) at Canada's Coast Guard Base located in Parry Sound, Ontario.

The DSHMS work was requested in support of the proposed renovation and refurbishment of six buildings and the demolition of one building. In addition, XCG surveyed the remaining four buildings on the property, which were not listed in PWGSC's Statement of Work (SOW), but were added at the request of PWGSC. PWGSC provided a summary of the buildings impacted by the project and their proposed repairs and renovations. The proposed renovations included the following: roof replacement; heating, ventilation, and air conditioning (HVAC) replacement; door and siding repairs; interior wall and floor repairs; window sealant replacement; etc.

The purpose of the DSHMS is to determine what, if any, designated substances are present in the buildings and to provide recommendations to PWGSC on how best to alleviate the concerns associated with these substances (abatement or control program) for persons entering the buildings and conducting demolition or renovation activities.

The objectives of this DSHMS were as follows:

- To determine if designated substances are present in the buildings of the subject site.
- To provide professional advice and recommendations as to how to deal with the identified substances, notably with respect to:
  - Health and safety of workers and others;
  - Protection of the environment; and
  - Material management and waste disposal.
- To use the information gathered as a management tool for any future renovations in the buildings at the subject site.



## 2. SCOPE OF WORK

The primary objectives of the DSHMS were to identify readily accessible designated substances, and compile an inventory of such materials at the subject site, to satisfy the requirements of the Occupational Health and Safety Act (OHSA), Ontario's Designated Substance Regulation Ontario Regulation (O. Reg.) 490/09 (as amended), and O. Reg. 278/05, *Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations*, as amended. A DSHMS is required under O. Reg. 278/05, as outlined in the OHSA, and enforced by the Ontario Ministry of Labour (MOL).

The following Designated Substances were included in this survey:

- Acrylonitrile;
- Arsenic;
- Asbestos;
- Benzene;
- Coke oven emissions;
- Ethylene oxide;
- Isocyanates;
- Lead;
- Mercury;
- Silica; and
- Vinyl chloride.

In addition to the 11 regulated Designated Substances listed above, the following other potentially hazardous materials were included as part of this survey:

- Polychlorinated biphenyls (PCBs) Containing Equipment;
- Chlorofluorocarbons/ozone depleting substances (CFCs and ODSs);
- Urea formaldehyde foam insulation (UFFI);
- Fuel, oil and/or waste oil storage;
- Chemical storage;
- Radioactive materials; and
- Mould.

The scope of work for this DSHMS is outlined in the sections below.





### **3. INVESTIGATIVE METHODOLOGY**

Through discussions with XCG, PWGSC indicated that the DSHMS would generally apply to the on-site buildings at Canada's Coast Guard Base in Parry Sound, Ontario.

The scope of work for this DSHMS included the following activities:

- Inspection and sampling of potential hazardous materials in the buildings that could be reasonably accessed by workers and the general public;
- Documentation of the locations of identified hazardous materials and estimation of quantities;
- Submission of representative samples of potential hazardous materials for laboratory analysis (asbestos and lead in paint only). All other materials (i.e. PCBs, CFCs, etc.), if present, were inspected, quantified, and documented for reporting purposes; and
- Preparation of a report submitted to PWGSC summarizing the results of the DSHMS for the subject site.

The field survey included an inspection of each reasonably accessible area of the subject site, and the visual identification of potential designated substances. Where confirmation was required to verify the presence or absence of certain designated substances within a building material, representative samples were collected for laboratory analysis.

Access was made to the roofs via doors, windows, ladders, and fixed ladder access points. XCG collected a sufficient number of asbestos samples from all the roofs on-site to determine if ACMs are present. Sampling locations were then patched using either roofing tar or roofing tar covered by an additional layer of Blueskin weather barrier self-adhered membrane.



## **4. INDUSTRY STANDARDS AND GUIDELINES**

### **4.1 Asbestos**

Asbestos was used in building materials such as mechanical pipe insulation, fireproofing, and interior finishes (i.e. plaster and drywall joint compound) until the mid-1980s. Asbestos was also commonly used in vinyl and linoleum flooring products, acoustic ceiling tiles, adhesives, and caulking, among other materials.

The following govern the management of asbestos-containing materials (ACMs):

- OHSA, 1990;
- Asbestos: O. Reg. 278/05 (as amended): Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations; and
- PWGSC Department Policy 057, 1997-12-03, Asbestos Management.

### **4.2 Lead**

Lead is a heavy metal and is typically found in inorganic compounds often occurring as components of products such as insecticides, pigments, varnishes, paints, and glass.

Lead exposure is a particular concern from lead paint dust during renovation, demolition, or construction activities, or from deterioration of wall coatings.

Surface coatings such as paint are considered lead-containing if they have lead concentrations above the permissible concentration of 90 mg/kg [90 parts per million (ppm), 0.009 percent by weight] as specified in the Federal Hazardous Products Act – Surface Coating Material Regulation (2005), as amended.

Under the OHSA O. Reg. 490/09 (as amended) respecting lead, workers shall be protected from exposure to airborne lead. Workers are not at risk of being exposed to lead unless they are undertaking an activity that disturbs surfaces covered with lead-based paint. Special precautions are required during renovation or demolition activities to ensure that worker exposure to lead does not exceed the limits specified in the OHSA, and its associated regulations.

### **4.3 Mould**

Mould spores are present in all indoor and outdoor environments and cannot be completely eliminated. Cellulose-based building materials provide a nutrient base for many mould species; however, moulds generally do not grow unless a food source and adequate moisture is present.

There are no defined regulatory limits for determining the exposure to moulds, or clear numerical guidelines for determining safe or unsafe concentrations of mould contamination. The American Conference of Government Industrial Hygienists (ACGIH) recommends that individual sensory indicators (i.e. visual identification and odour perception) are the most effective way of determining mould presence, thus interpretation of sample analysis is subjective. The guidelines listed below can be used to evaluate visual inspection and sampling results:



- “Guidelines for the Investigation, Assessment, & Remediation of Mould in Workplaces,” Manitoba Department of Labour and Immigration, Workplace Safety and Health Division, March 2001;
- “Fungal Contamination in Public Buildings: A Guide to Recognition and Management,” Health Canada, Federal-Provincial Committee on Environmental and Occupational Health, June 1995;
- “Mold Remediation in Schools and Commercial Buildings,” U.S. E.P.A. Office of Air and Radiation, Indoor Environments Division March 2001;
- “Guidelines on Assessment and Remediation of Fungi in Indoor Environments,” New York City Department of Health, January 2002;
- “S-500 Standard and Reference Guide for Professional Water Damage Restoration,” IICRC, 1999;
- “S520 Standard and Reference Guide for Professional Mold Remediation,” IICRC;
- “1996, Field Guide for the Determination of Biological Contaminants in Environmental Samples,” AIHA;
- “Hazard Alert” fact sheet entitled, “Mould in Workplace Buildings,” Ontario Ministry of Labour, December 2000;
- “Mould Guidelines for the Canadian Construction Industry,” Standard Construction Document CCA 82, 2004; and
- “Mould Abatement Guidelines,” Environmental Abatement Council of Ontario (EACO), 2004.

Currently, the potential or degree of exposure to moulds has been based on the quantity of moulds identified, assuming that potential exposure increases with an increase in overall mould concentrations. The criteria used during the assessment was based on the New York City Department of Health Guideline (NYCDOH) (2002), as well as the Manitoba Department of Labour and Immigration guidelines (2001).

NYCDOH 2002 provides guidance on the assessment and remediation of fungi in indoor environments. These guidelines were initially developed in the 1990s because of mould growth problems in several New York City buildings. The 2002 guidelines are a revised and expanded version of the original guidelines. The guidelines are based on a review of fungi literature and information obtained from a review panel consisting of experts in microbiology and health sciences fields. They are intended for use by building engineers, environmental consultants, health professionals, and the public. The NYCDOH 2002 guidelines may be used for quantifying the amount of mould present, and the Manitoba Department of Labour and Immigration 2001 Guideline can be used as an additional reference for mould abatement procedures.

All moulds need water to grow, and mould can grow anywhere there is water damage, high humidity, or dampness and a nutrient source. When mouldy material becomes damaged or disturbed, mould spores can be released into the air. Exposure occurs if people inhale the spores. Mould can cause allergic reactions or infections. The most



common symptoms are runny nose, eye irritation, cough, congestion, and aggravation of asthma. The most common indoor moulds are *Cladosporium*, *Penicillium*, *Aspergillus*, and *Alternaria*.

Inhalation of very large concentrations of fungal spores can cause hypersensitivity pneumonitis, but this rarely results from building exposure. Chronic exposure to most fungi can induce allergenic or asthmatic reactions in humans, and a very few can cause diseases directly. Some moulds are “toxigenic,” producing mycotoxins that often accumulate in the spores. The inhalation of spores containing certain mycotoxins has been shown to induce many of the symptoms normally associated with Sick Building Syndrome (SBS). Other products of fungi include certain volatile organic compounds (VOCs). Such compounds (characterized by mouldy smells) occur only when there is active and considerable fungi growth. There is some evidence to suggest that these can contribute to SBS.

The five most important mycotoxins to human health are aflatoxin (produced by *Aspergillus*), ochratoxin (produced by *Penicillium*), fumonisins, trichothecenes (produced by *Stachybotrys*), and zearalenone.

Fungal spores, especially *Cladosporium* and *Alternaria*, are common in outdoor air during the growing season, and the principal fungi that grow on leaves constitute 60 to 70 percent of the spores in air. These fungi can introduce allergies, but most people are not particularly affected.

#### **4.4 Silica**

Silica occurs naturally as crystalline or amorphous material. It is normally found in concrete, mortar, acoustic ceiling tiles, and stucco finishes. Silica exposure is a particular concern from airborne silica dust during renovation, demolition, or construction activities.

Crystalline silica is more toxic than amorphous silica, and therefore, is regulated under the OHSA. The time-weighted average exposure limit (TWael) of a worker to silica dust is to be maintained at the lowest practical level with a view to achieving an ambient air concentration lower than 0.10 mg/m<sup>3</sup> of air for quartz and tripoli, and 0.05 mg/m<sup>3</sup> of air for cristobalite and tridymite.

Under the OHSA O. Reg. 490/09 (as amended) respecting silica, workers shall be protected from exposure to airborne silica. Workers are not at risk of being exposed to silica unless they are undertaking an activity that disturbs the silica-containing materials. Special precautions are required during renovation or demolition activities to ensure that worker exposure to silica does not exceed the limits specified in the OHSA, and its associated regulations.

#### **4.5 Mercury**

Mercury is contained within thermostats, electrical switches, and fluorescent light bulbs. Mercury exposure may occur from airborne vapours or through skin absorption.

The TWael of a worker to mercury is to be maintained at the lowest practical level with a view to achieving an ambient air concentration lower than 0.01 mg/m<sup>3</sup> of air



for alkyl compounds of mercury, and 0.025 mg/m<sup>3</sup> of air for all forms of mercury except alkyl compounds.

Under the OHSA O. Reg. 490/09, as amended respecting mercury, workers shall be protected from exposure to airborne mercury. Workers are not at risk of being exposed to mercury unless they are undertaking an activity that disturbs the mercury-containing materials. Special precautions are required during renovation or demolition activities to ensure that worker exposure to mercury does not exceed the limits specified in the OHSA, and its associated regulations.

#### **4.6 Other Designated Substances and/or Hazardous Materials**

The other designated substances and hazardous materials that were part of the survey are regulated by the following Ontario or Canadian Regulations:

Acrylonitrile, Arsenic, Benzene, Coke Oven Emissions, Ethylene Oxide, Isocyanates, and Vinyl Chloride	O. Reg. 490/09
Chlorofluorocarbons	O. Reg. 463/10 Ozone Depleting Substances and Other Halocarbons
PCBs	SOR/2008-273
UFFI	Under the Hazardous Products Act (R.S. C. H-3, S.1)



## 5. INVESTIGATION RESULTS

Mr. Greg Mallette and Mr. Dale White of XCG conducted the DSHMS on February 3, 4, and 5, 2014. A follow up site visit was conducted on April 24, 2014, to collect samples from the various on-site building roofs that could not be accessed in February due to heavy snow accumulation.

XCG field staff were given an initial tour of the facility by Mr. Morley MacDonald (Area Supervisor). Once familiar with the site, XCG staff conducted the site inspection and sampling unaccompanied.

Figures 1, 2, and 3 (end of text) depict the sample collection locations and approximate locations of designated substances. In addition, Laboratory Certificates of Analysis are provided in Appendix A.

Summaries of the survey activities and findings for each of the designated substances are provided in the following sections.

### 5.1 Summary of Results Based on Visual Identification

The likely presence or absence of designated substances and hazardous materials within the buildings was initially assessed through visual observations and discussions with personnel knowledgeable about the building. Table 1 summarizes the potential presence or absence of each designated substance and/or hazardous material at the subject site.

**Table 1** *Summary of Suspected Designated Substances and Hazardous Materials at the Subject Site Based on Visual Identification and Analytical Results*

Substance	Not Identified	Potentially Present
Acrylonitrile	X	
Arsenic	X	
Asbestos		X
Benzene	X	
Coke Oven Emissions	X	
Ethylene Oxides	X	
Isocyanates	X	
Lead		X
Mercury		X
Silica		X
Vinyl Chloride	X	
PCBs		X
CFCs and ODSs		X
UFFI	X	
Fuel, oil and/or waste oil storage		X
Chemical Storage		X
Radioactive Materials	X	
Mould		X

The following is a description of the survey results for each designated substance:



- **Acrylonitrile:** Acrylonitrile is a clear colourless or yellow liquid, which is explosive, flammable, and toxic. It is used to produce polymers such as acrylonitrile-butadiene-styrene (ABS) resins. These polymers are used in the manufacture of a wide range of commercial products (i.e. automotive parts, clothing, carpets, etc.). The TWAEL of a worker to airborne acrylonitrile is to be maintained at the lowest practical level, and not exceed an eight-hour average concentration of  $4.3 \text{ mg/m}^3$  of air [2 parts per million volume (ppmv)]. In its hardened polymer form, acrylonitrile is not expected to release emissions that would exceed the allowable limits. Acceptable levels may also be present in newer installations (i.e. carpets).

**Pure acrylonitrile was not visually identified or suspected to be present on the subject property.**

- **Arsenic:** Arsenic can be found in minor levels in paint coating on roofing flashings, floors, walls, and the underside of the concrete ground floor structures of old buildings. The TWAEL of a worker to airborne arsenic is to be maintained at the lowest practical level, and not to exceed an eight-hour average concentration of  $10 \text{ } \mu\text{g/m}^3$  of air.

**Arsenic is not expected to be present in the buildings. If any base building materials within the subject site are suspected to contain arsenic, they should be tested prior to renovation activities.**

- **Asbestos:** Asbestos was commonly used as a thermal insulator or fire retardant and is often found in a friable state on piping systems (including domestic water, heating, drains, etc.), air handling systems, ductwork, tanks, and vessels. Asbestos is also found in friable building materials, such as acoustic ceiling tiles, sprayed fireproofing, drywall joint compound, plaster, and textured plaster finishes. Asbestos is present in many manufactured products typically found in a non-friable state such as vinyl flooring, cement board and pipes, mastics, roofing felt and shingles, and flexible duct connectors. The installation of asbestos-containing materials in Ontario was banned in 1985. The TWAEL of a worker to airborne asbestos is to be maintained at the lowest practical level, and not to exceed an eight-hour average concentration of  $0.1 \text{ fibre/cm}^3$  of air. Building materials found to have 0.5 percent or greater asbestos by dry weight are considered to be ACMs.

**Potential ACMs were visually identified in the buildings. Samples of drywall joint compound, caulking, mastic, kickplate fireproofing, vinyl floor tiles, ceiling tiles, and roofing materials, were collected and submitted for laboratory analysis, as detailed in Section 5.2.1.**

- **Benzene:** Benzene is typically found in petroleum-based products such as gasoline and diesel fuels, asphalt, and other hydrocarbon-based products. Benzene may also be found in stable form in paints and adhesives. The TWAEL of a worker to airborne benzene is to be maintained at the lowest practical level, with a view to achieving an ambient air concentration lower than  $3.2 \text{ mg/m}^3$  of air (1 ppmv) and not to exceed an eight-hour average concentration of  $16 \text{ mg/m}^3$  of air (5 ppmv).





**Direct sources of benzene emissions were not visually identified or suspected to be present at the subject property buildings.**

- **Coke Oven Emissions:** Coke oven emissions result from the burning of coke. The TWAEEL of a worker to coke oven emissions is to be maintained at the lowest practical level, and not exceed an eight-hour average concentration of 0.15 mg/m<sup>3</sup> in air.

**No coke ovens were visually identified or suspected to be present at the subject property buildings.**

- **Ethylene Oxides:** Ethylene oxides are a common by-product of fumigation or sterilization procedures. The TWAEEL of a worker to airborne ethylene oxide is to be maintained at the lowest practical level, and not to exceed an eight-hour average concentration of 1.8 mg/m<sup>3</sup> of air (1 ppmv).

**Materials or processes that may release ethylene oxides to ambient air were not visually identified or suspected to be present at the subject property buildings.**

- **Isocyanates:** Isocyanates are compounds that contain at least one group of atoms made up of nitrogen (N), carbon (C), and oxygen (O). They are usually classified by the number of NCO groups contained in each molecule (monoisocyanates, diisocyanates, and polyisocyanates). Isocyanates are mainly used in the manufacture of plastics, foams, and coatings. The TWAEEL of a worker to isocyanate dust is to be maintained at the lowest practical level, and not to exceed an eight-hour average concentration of 0.2 µmoles/m<sup>3</sup> of air (0.005 ppmv). Manufactured products under normal conditions do not pose a health risk. However, sawing or scraping uncured polyurethane that still contains some unreacted-NCO groups will release isocyanate dust.

**Pure isocyanates were not visually identified or suspected to be present at the subject property buildings.**

- **Lead:** Lead may be present as an additive in gasoline, in solder joints, glazing on ceramic finishes, and on copper piping. Paints applied prior to 1980 have the potential to contain lead and should be tested prior to any renovations or demolition. In Canada, it is also advisable to consider any exterior paint applied until at least the end of the 1980s to be possibly lead-contaminated. Canadian regulations did not apply to exterior paint until the late 1980s. According to the Surface Coating Materials Regulations, the maximum allowable lead content in paint is 90 mg/kg (90 ppm, 0.009% by weight). If work on lead paint or other lead-containing materials is likely to produce lead dust or fumes, for example during welding, torch cutting, grinding, sanding, or sandblasting, then proper precautions as outlined under O. Reg. 490/09 should be followed. The eight-hour TWA exposure of a worker to airborne lead shall not exceed 0.05 milligrams of lead per cubic metre of air.

**Potential lead-containing paints were visually identified at the subject buildings. Samples of these materials were collected and submitted for laboratory analysis, as detailed in Section 5.2.2.**





- **Mercury:** Mercury may be commonly found in thermostats, fluorescent lamp tubes, or High Intensity Discharge (HID) light bulbs. The TWael of a worker to mercury compounds is to be maintained at the lowest practical level, and not to exceed an eight-hour average concentration of 0.05 mg/m<sup>3</sup> of air for all mercury, except alkyl mercury oxide, for which a concentration of 0.01 mg/m<sup>3</sup> of air should not be exceeded. Any switches or thermostats that may contain mercury should be managed and serviced appropriately and by qualified, licensed personnel.

**Small quantities of mercury are likely present within fluorescent lighting observed within the Main building. No samples were collected and submitted for laboratory analysis due to the scope of work of the survey.**

- **Silica:** Silica occurs naturally as crystalline or amorphous material. It is normally found in concrete, mortar, acoustic ceiling tiles, and stucco finishes. Crystalline silica is more toxic than amorphous silica, and therefore is regulated under the OHSA. The TWael of a worker to silica dust is to be maintained at the lowest practical level with a view to achieving an ambient air concentration lower than 0.10 mg/m<sup>3</sup> of air for quartz and tripoli, and 0.05 mg/m<sup>3</sup> of air for cristobalite and tridynite.

**Typically, samples for silica are not collected during a DSHMS if concrete and mortar are visually identified within the building construction materials (this applies to the majority of buildings). Free crystalline silica is expected to be present within all concrete and mortar-based building materials in the buildings on the subject property. Workers should wear personal protective equipment (PPE) and should take appropriate precautions to minimize the levels of airborne dust when concrete and/or mortar dust are being generated within the work areas.**

- **Vinyl Chloride:** Vinyl chloride is found in many applications such as PVC pipes and fittings. The TWael of a worker to vinyl chloride emission is to be maintained at the lowest practical level and not exceed an eight-hour average concentration of 5.2 mg/m<sup>3</sup> of air (2 ppmv).

**Vinyl chloride in PVC compounds is bound in a solid matrix and is unlikely to become airborne. Vinyl chloride emissions are not likely to exceed the prescribed limits on the subject property.**

The following is a description of the survey results for each hazardous material included in the survey:

- **PCBs:** PCBs can be found in equipment such as transformers, capacitors, electromagnets, heat transfer units, hydraulic engines, and fluorescent lamp ballasts. Two Federal Canadian Environmental Protection Act (CEPA) regulations apply to the use and storage of PCBs. The Chlorobiphenyls Regulation (SOR/2008-273) limits the quantity of out-of-service PCB materials that can be stored at a facility for more than six months to 1 kilogram of PCBs. There are also several government policies and guidelines that outline safe practices for the handling and storage of PCB-containing materials. Fluorescent lamp ballasts may contain minor quantities of PCBs, and if they are to be removed in bulk, the ballasts



should be inspected for PCB content prior to disposal. Magnetic ballasts manufactured before 1979 contain PCBs in the dielectric of their capacitors. Estimates indicate that about one-half of these old ballasts have a potting compound contaminated by leaking PCB capacitors. This environmental problem requires the attention of technicians in recycling magnetic ballasts, especially those with date codes of 1979 or earlier.

**Fluorescent lighting was noted in the subject buildings. Light ballasts located in the electrical room were inspected and found to generally be labelled as non-PCB. Other installed light ballasts in the building were not inspected for safety reasons as they were generally installed in the upper ceiling space. A PCB storage shed on-site was observed to be empty.**

- **CFCs and ODSs:** CFCs, also referred to as ODSs, have been widely used in many industrial, commercial, and residential applications. They can be found in applications such as refrigerants in heat pumps, refrigerators, freezers and air conditioners (A/C), blowing agents for plastics, foam product, and insulation, cleaning agents for metals, electronic equipment and components; and as dry-cleaning fluids. Any equipment (i.e. refrigerators, A/C units, etc.) should be managed and serviced appropriately and by qualified, licensed personnel.

**Based on observations made during the site reconnaissance, refrigerators were observed in the lunch rooms of the Main Building and within the Hangar Building. Observed wall-mounted A/C units nameplate information could not be identified. Roof-mounted A/C units were not inspected due to access issues.**

- **Urea Formaldehyde Foam Insulation (UFFI):** UFFI was developed as an improved means of insulating difficult to reach cavities in house walls. It is typically made at a construction site from a mixture of urea-formaldehyde resin, a foaming agent, and compressed air. When the mixture is injected into the wall, urea and formaldehyde unite and “cure” into an insulating foam plastic. Most installations occurred between 1977 and its ban in Canada in 1980. UFFI was sometimes improperly installed or used in locations where it should not have been. While small amounts of formaldehyde are harmless, it becomes irritating and toxic gas when present in significant concentrations. Health Canada has determined that 0.1 ppm is a safe level of formaldehyde in the home.

**No indication of UFFI being present within the subject property buildings was visually identified during the DSHMS; however, no destructive investigation for UFFI was conducted (i.e. wall penetrations through concrete block).**

- **Fuel, Oil, and/or Waste Oil Storage and Chemical Storage:** Various chemicals were observed within the Flammable Storage. The chemicals observed included, but were not necessarily limited to: gasoline, fuel, oil, various gases, hydraulic oils, and paints. Two large above ground tanks (ASTs) containing aircraft jet fuels were observed south of the Flammable Storage building. A waste oil storage AST was observed north of the Helicopter Hangar. In addition, other chemicals such as hydraulic oil, injection oil, battery acid, paints, and finishes were observed stored



in various areas of the Main building (i.e. paint shop, automotive, boat maintenance, etc.).

**Based on observations made during the site reconnaissance, no obvious issues/concerns were observed related to the on-site storage of chemicals. It is recommended that an environmental compliance audit be conducted to assess whether the fuel, oil, waste oil and chemicals are being stored and managed in accordance with applicable legislation and federal policies/procedures. This compliance assessment was beyond the scope of this DSHMS.**

- **Radioactive Materials:** No sources of radioactive materials were observed during the site reconnaissance. No signage was observed indicating the presence of radioactive materials.
- **Mould:** Mould is commonly observed as a downy or furry coating on porous, organic building materials, and is associated with dampness or water intrusion.

**Mould/water damage was observed within the storage building identified as “Garage (Samuel Risley Storage)” located near the entrance to the subject site. The mould/water damage was observed on the underside of the plywood ceiling and was most likely caused by a leaking roof. On-site staff commented that the leaking roof has been repaired. No other evidence of mould/water damage was observed; however, numerous on-site staff commented that the Main building has had reported leaks recently. Based on the comments made by on-site staff, the potential for mould growth exists, even if not observed during XCG’s site reconnaissance.**

## **5.2 Summary of Results Based on Laboratory Analysis**

During the site reconnaissance on February 3, 4, and 5, 2014, and the subsequent site visit on April 24, 2014, XCG collected 60 bulk samples of building materials for asbestos analysis and 19 chip samples for lead in paint analysis. The results of these analyses are presented in Sections 5.2.1 and 5.2.2.

### **5.2.1 Target Materials (Asbestos)**

Suspect ACMs were identified by visual inspection within the buildings of the subject site. On the basis of this assessment, samples of suspected ACMs were collected, assigned numbers, and submitted for laboratory analyses.

According to O. Reg. 278/05, as amended, a material containing asbestos is considered to be friable if it can be crumbled, pulverized, or powdered by hand pressure when dry, or is found in a crumbled, pulverized, or powdered form.

A total of 20 homogenous types of building material samples were suspected to contain asbestos at the subject property buildings. In accordance with O. Reg. 278/05 (as amended), a minimum of three samples of each homogenous material was obtained and analysed from the seven suspected materials. At least 5 to 10 grams of each sample were collected and placed in a labelled, sealable, plastic bag and submitted to International Asbestos Testing Laboratory (IATL), a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory, for analysis by polarized light microscopy (PLM) with dispersion staining, following



USEPA method 600/R-93/ 116. As requested by PWGSC, all vinyl floor tiles were additionally analyzed by transmission electron microscopy (TEM) analysis following ELAP 198.4 and EPA-600/R-93/116. Materials sampled were dampened with an amended water solution using a spray bottle.

The following building components were assessed individually during the survey as part of routine field procedures:

- Walls;
- Ceiling;
- Window caulking;
- Floors;
- Thermal insulation; and
- Various roofing materials.

Table 2 provides a summary of the asbestos analyses by PLM and TEM of submitted building materials for the surveyed areas on February 3, 4, and 5, 2014, at the subject site.

**Table 2**      **Summary of Sampling Results for Suspect ACM Samples Collected from the Subject Property**

Sample ID	Sample Description	Sample Location	Asbestos Content PLM	Asbestos Content TEM
174-CT-01A, B, C	White Ceiling Tile (12"x12")	Main Bldg. Room 174	None Detected	-
174-PL-02A, B, C	Drywall joint compound	Main Bldg. Room 174	None Detected	-
174-MAS-04A, B, C	Kick plate mastic	Main Bldg. Room 174	None Detected	-
176-PL-06A, B, C	Drywall joint compound	Main Bldg. Room 176	None Detected	-
191-FT-09A, B, C	Off white floor tile (12"x12")	Main Bldg. Room 191	None Detected	Trace Tremolite <0.25%
191-MAS-10A, B, C	Brown cove base	Main Bldg. Room 191	None Detected	-
	2 <sup>nd</sup> layer – brown mastic	Main Bldg. Room 191	None Detected	-
191-MAS-11A, B, C	Black floor tile mastic	Main Bldg. Room 191	None Detected	-
182-FP-13A, B, C	Grey fireproofing	Main Bldg. Room 182	None Detected	-
186-CT-15A, B, C	Grey/white ceiling tile (12"x12")	Main Bldg. Room 186	None Detected	-
216-PL-19A, B, C	Drywall joint compound	Main Bldg. Room 216	None Detected	-



## INVESTIGATION RESULTS

**Table 2** Summary of Sampling Results for Suspect ACM Samples Collected from the Subject Property

Sample ID	Sample Description	Sample Location	Asbestos Content PLM	Asbestos Content TEM
Admin-CLK-21A, B, C	Black exterior window caulking	Main Bldg. exterior	None Detected	-
Admin-CLK-22A, B, C	Red exterior window caulking	Main Bldg. exterior	None Detected	-
Admin-CLK-24A, B, C	White exterior window caulking	Main Bldg. exterior	None Detected	-
<b>Notes:</b> <b>Bold</b> Asbestos containing material with a concentration equal to or greater than 0.5% asbestos. <b>PLM</b> Polarized Light Microscopy PLM Analytical Method: EPA 600/R-93/116. <b>TEM</b> Transmission Electron Microscopy (TEM) Analytical Method: ELAP 198.4 "Method for Identifying and Quantitating Asbestos in Non-Friable Organically Bound Bulk Samples," Revised 1/11/2005. EPA-600/R-93/116 Section 2.5 "Asbestos in Bulk Building Materials by TEM Gravimetry."				

The locations of all of the samples collected in Table 2 are depicted on Figures 1 and 2. If sampling results confirmed ACM material to be present, it is depicted on Figure 1 or 2. The Laboratory Certificates of Analysis are included in Appendix A.

The below Table 3 provides a summary of the asbestos analyses by PLM of submitted building roofing materials for the surveyed areas collected on April 24, 2014, at the subject site.

**Table 3** Summary of Roof Sampling Results for Suspect ACM Samples Collected from the Subject Property

Sample ID	Sample Description	Sample Location	Asbestos Content PLM
MB-RB-01A, B	Tan fibrous roof decking board	Main Bldg.	None Detected
MB-RB-01C	Tan fibrous roof decking board	Main Bldg.	None Detected
	2 <sup>nd</sup> layer - Silver tar roof decking board	Main Bldg.	None Detected
MB-RF-02A,B,C	Black roofing felt/membrane	Main Bldg.	None Detected
HH-RF-03A,B,C	Black roofing felt/membrane	Helicopter Hanger	None Detected
HH-RB-04A,B,C	Off-shite sheet rock roof decking board	Helicopter Hanger	None Detected
WH-RF-05A,B,C	Black roofing felt/membrane	Winch House	None Detected
SB-SHL-06A	Red/black shingle	Storage Bldg.	None Detected
	Black tar	Storage Bldg.	None Detected
SB-SHL-06B	Red/black shingle	Storage Bldg.	None Detected
SB-SHL-06C	Red/black shingle	Storage Bldg.	None Detected
	Black tar	Storage Bldg.	None Detected
CS-SHL-07A,B	Red /black shingle	Compound Storage	None Detected
CS-SHL-07C	Red /black shingle	Compound Storage	None Detected
	Black tar	Compound Storage	None Detected
<b>Notes:</b> <b>Bold</b> Asbestos containing material with a concentration equal to or greater than 0.5% asbestos. <b>PLM</b> Polarized Light Microscopy PLM Analytical Method: EPA 600/R-93/116.			



Based on XCG observations during the site reconnaissance, the tar and gravel roofs appeared to be constructed of similar roofing materials which is consistent with comments made by on-site staff. The locations of roofing material samples collected are listed in Table 3 and depicted on Figure 3. If sampling results confirmed ACM material to be present, it is depicted on Figure 3. The Laboratory Certificates of Analysis are included in Appendix A.

The laboratory results indicated that none of the sampled materials are ACMs.

### 5.2.2 Target Materials (Lead)

Nineteen samples of visibly different paints were collected through small scrapings of the paint from the substrate and/or where paint was observed to be peeling or flaking. IATL analyzed all samples by EPA 7420 Atomic Absorption Spectrophotometry.

Table 4 provides a summary of the lead analyses for the surveyed areas within the building.

**Table 4**      **Summary of Sampling Results for Suspect Lead-Based Paint Samples Collected from the Subject Site**

Sample ID	Sample Description	Sample Location	Condition / Quantity	Lead Concentration by % weight
174-P-03	Beige interior wall paint	Main Bldg. Room 174	-	<0.0088
176-P-05	Beige/brown interior wall paint	Main Bldg. Room 176	-	<0.0076
166-P-07	White interior wall paint	Main Bldg. Room 166	-	<0.0087
191-P-08	Cream interior wall paint	Main Bldg. Room 191	-	<0.0079
<b>179-P-12</b>	<b>Blue interior floor paint</b>	<b>Main Bldg. Room 179</b>	<b>Poor / 4 m<sup>2</sup></b>	<b>0.16</b>
182-P-14	White interior wall paint	Main Bldg. Room 182	-	<0.0091***
146-P-16	White interior wall paint	Main Bldg. Room 132	-	<0.0080
146-P-17	Yellow interior wall paint	Main Bldg. Room 131	-	<0.0079
<b>123-P-18</b>	<b>Light green interior wall paint</b>	<b>Main Bldg. Room 123</b>	<b>Fair / 90 m<sup>2</sup></b>	<b>&lt;0.011*</b>
207-P-20	White interior wall paint	Main Bldg. Room 207	-	<0.0075
<b>Admin-P-23</b>	<b>Red exterior door and trim paint</b>	<b>Main Bldg.</b>	<b>Good / 20 m<sup>2</sup></b>	<b>2.2</b>
<b>Haz-P-25</b>	<b>Cream interior wall paint</b>	<b>Flammable Storage</b>	<b>Poor / 200 m<sup>2</sup></b>	<b>0.3</b>
HNG-P-26	Grey interior floor paint	Helicopter Hangar	-	<0.0073





**Table 4 Summary of Sampling Results for Suspect Lead-Based Paint Samples Collected from the Subject Site**

Sample ID	Sample Description	Sample Location	Condition / Quantity	Lead Concentration by % weight
<b>SHP-P-27</b>	<b>Grey interior floor paint</b>	Marine Storage	Poor / 300 m <sup>2</sup>	<b>0.14</b>
WIN-P-28	White interior wall paint	Winch House	-	<0.0089
<b>Admin-P-29</b>	<b>Red exterior siding paint</b>	Main Bldg.	Good / 75 m <sup>2</sup>	<b>5.2</b>
<b>Admin-P-30</b>	<b>Grey exterior siding paint</b>	Main Bldg.	Good / 1500 m <sup>2</sup>	<b>Void**</b>
<b>STR1-P-31</b>	<b>White exterior siding paint</b>	Storage Bldg.	Poor / 100 m <sup>2</sup>	<b>12</b>
STR1-P-32	Red exterior door paint	Storage Bldg.	-	0.0089
<b>Notes:</b> <b>Bold &amp; Highlighted</b> – Lead concentration exceeds of the Surface Coating Regulation standard of 90 ppm (0.009% by Weight). * Insufficient sample to perform QC re-analysis. Void** Insufficient sample to perform analysis; paint too well adhered. *** Sample not considered an exceedance based on two other samples of the same paint finish having analytical results below applicable regulations. See below for further information.				

The locations of all lead-based paint samples are depicted on Figures 1 and 2. The samples with confirmed lead-based paint are identified on Figures 1 and 2. The Laboratory Certificate of Analysis is included in Appendix A. Site photographs of all lead-based paints are included in Appendix B.

The laboratory results indicate that the following paints are considering lead-containing as their lead concentration exceeds the regulatory threshold of 90 ppm (0.009% by weight):

- Main Building Room 179 – Blue interior floor paint;
- Main Building Room 123 – Light green interior wall paint;
- Main Building Exterior – Red exterior trim paint;
- Flammable Storage – Cream interior wall paint;
- Marine Storage – Grey interior floor paint;
- Main Building Exterior – Red exterior siding paint;
- Main Building Exterior – Grey exterior siding paint; and
- Storage Building – White exterior paint.

One of the three samples of the white interior wall paint collected from within the Main Building had a lead concentration of <0.0091 percent by weight. The detection limit for this sample marginally exceeds the Surface Coating Regulation standard of 0.009 percent by weight. Two other samples collected of the same white interior paint had concentrations of <0.0079 percent and <0.008 percent, respectively. When all



## ***INVESTIGATION RESULTS***

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three samples values are averaged, the resulting value is <0.0082 percent. As such, XCG does not consider the Main Building white interior paint as lead-containing.

As identified in above Table 4, sample Admin-P-30 was laboratory reported as “Void” due to insufficient sample to analyze. This was due to the extremely thin well adhered factory finish on the grey exterior siding. XCG recommends that the grey exterior siding be treated as lead-containing. In order to collect sufficient sample volume, XCG estimates approximately >2 square metres of paint would need to be removed, which exceeds normal sample collection expectations.





## **6. DISCUSSION AND RECOMMENDATIONS**

The designated substances and hazardous materials found to be present, or potentially present, on the subject property are identified in the sections below, along with recommendations for appropriate management of the materials.

### **6.1 Asbestos**

XCG collected 60 bulk samples of building materials that were suspected to contain asbestos at the subject property buildings. The laboratory results indicated that none of the sampled materials are ACMs. As such, no further recommendations are warranted.

### **6.2 Lead**

Seven of the 19 paint samples collected from the buildings on-site and submitted by XCG for lead analysis were found to have lead concentrations greater than 90 mg/kg (ppm) and are determined to be lead-containing.

The paints with confirmed lead concentrations above the standard in the buildings are:

- Main Building Room 179 – Blue interior floor paint;
- Main Building Room 123 – Light green interior wall paint;
- Main Building Exterior – Red exterior trim paint;
- Flammable Storage – Cream interior wall paint;
- Marine Storage – Grey interior floor paint;
- Main Building Exterior – Red exterior siding paint;
- Main Building Exterior – Grey exterior siding paint; and
- Storage Building – White exterior paint.

All lead-based paints, potential lead-based solder, and potential lead-based pipe should be managed in accordance with O. Reg. 490/09 during renovation or demolition activities. If the materials are not to be recycled, the materials should be disposed of in accordance with O. Reg. 347 (as amended).

### **6.3 Chlorofluorocarbons (CFCs) and Ozone-Depleting Substances (ODSs)**

Based on observations made during the site reconnaissance, refrigerators and multiple air conditioning (A/C) units potentially containing CFCs were identified, but not sampled. Disposal and repairs of any refrigeration equipment and/or refrigerant containers is regulated under the Federal Halocarbon Regulations, 2003, (SOR/2003-289). In accordance with the Federal Halocarbon Regulations, any removal, disposal and/or repair of refrigeration equipment during construction and removal activities should only be undertaken by a certified person.

**6.4 Mercury**

Fluorescent lighting observed in the subject buildings is likely to contain small quantities of mercury. There is no occupational or environmental concern associated with mercury in its current state and condition. However, when the buildings are renovated or demolished, the fluorescent lights and any mercury-containing thermostat, if present, must be handled and disposed of in accordance with O. Reg. 490/09 (as amended) and O. Reg. 347/90 (as amended).

**6.5 Silica**

Concrete and mortar-based building materials were observed at the subject site. Exposure to airborne silica is regulated under O. Reg. 490/09 regarding silica under the OHSA. Airborne silica can be generated through such processes as blasting, grinding, crushing, and sandblasting silica-containing material. Precautions must be taken to prevent silica-containing particles from becoming airborne during the application of such processes. Such precautions include wetting of silica-containing area(s) to be disturbed, and daily wet sweeping or HEPA vacuuming of silica dust. Additionally, appropriate respiratory protection and ventilation must be utilized during disturbance of silica-containing structures.

**6.6 Mould**

Based on observations made during the assessment, XCG recommends further investigation of the ceiling and attic space of the building identified on-site as “Garage (Samuel Risley Storage).” As a result of historic roof leakage there was mould growth and significant water staining observed on the underside of the plywood ceiling. The potential for additional mould exists within the attic space.

Additionally, the areas where roof leaks have been and continue to occur within the Main Building should be monitored for mould growth. If mould growth is discovered, appropriate mould abatement measures should be employed based on the amounts discovered.

**6.7 Fuel, Oil, and/or Waste Oil Storage and Chemical Storage**

Based on observations made during the assessment, XCG recommends that an environmental compliance audit be conducted to assess whether the fuel, oil, waste oil and chemicals are being stored and managed in accordance with applicable legislation and federal policies/procedures. This compliance assessment was beyond the scope of this DSHMS.



## **7. *LIMITATIONS***

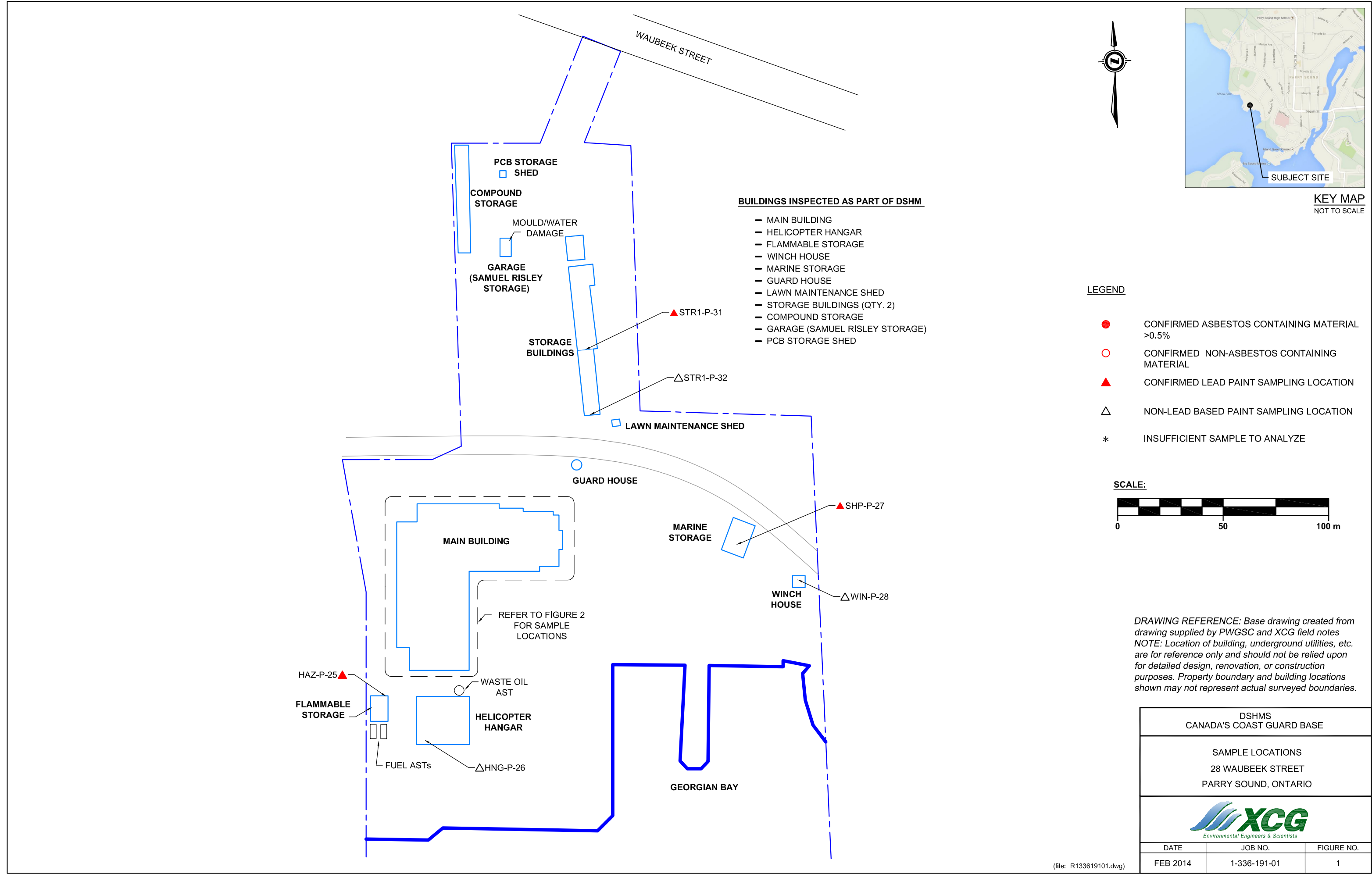
Limited sampling of building materials was undertaken as part of this investigation. As such, detailed investigations or testing in subsequent studies may encounter conditions not apparent at this time, or at other locations.

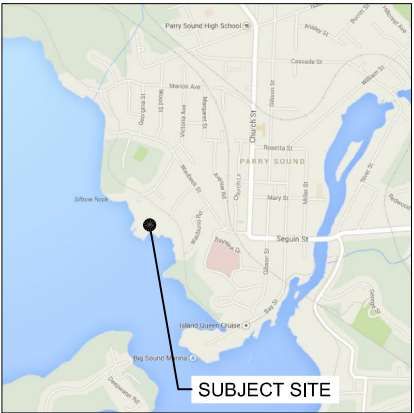
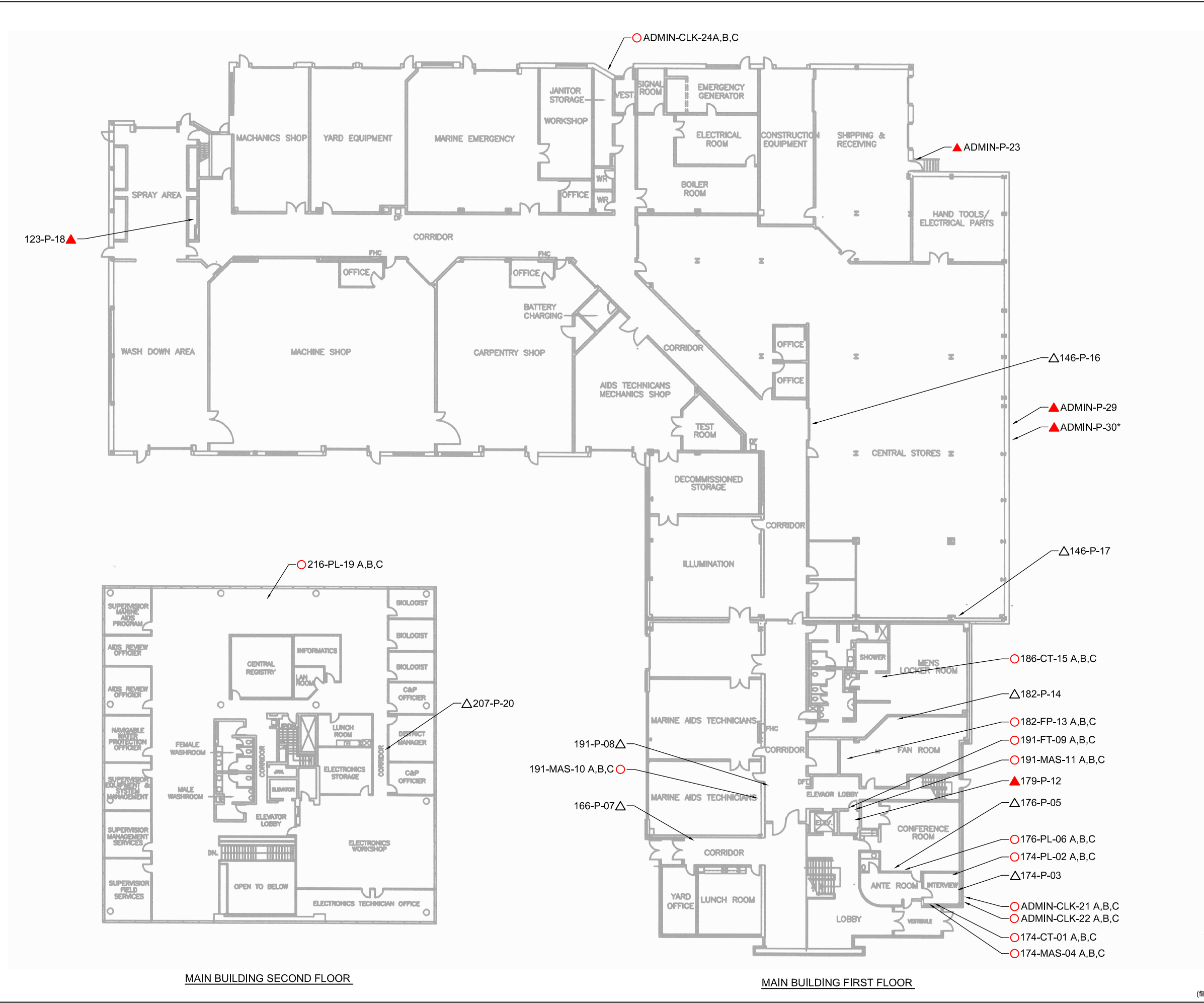
The conclusions presented in this report are professional opinions based on visual observations, limited information provided by persons familiar with the subject building, and analytical results. As such, XCG cannot be held responsible for environmental conditions at the site which were not apparent from the available information.

The scope of this work is limited to the matters expressly covered. This report is prepared for the sole benefit of Public Works and Government Services Canada (PWGSC), the Department of Fisheries and Oceans Canada (DFO), and PWGSC-hired contractors, and may not be relied upon by any other person or entity without the written authorization of XCG Consultants Limited. The scope of services performed in the execution of this investigation may not be appropriate to satisfy the needs of other users, and any use or reuse of this document or the findings and conclusions represented herein is at the sole risk of the said users.



***FIGURES***



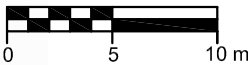


KEY MAP  
NOT TO SCALE

LEGEND

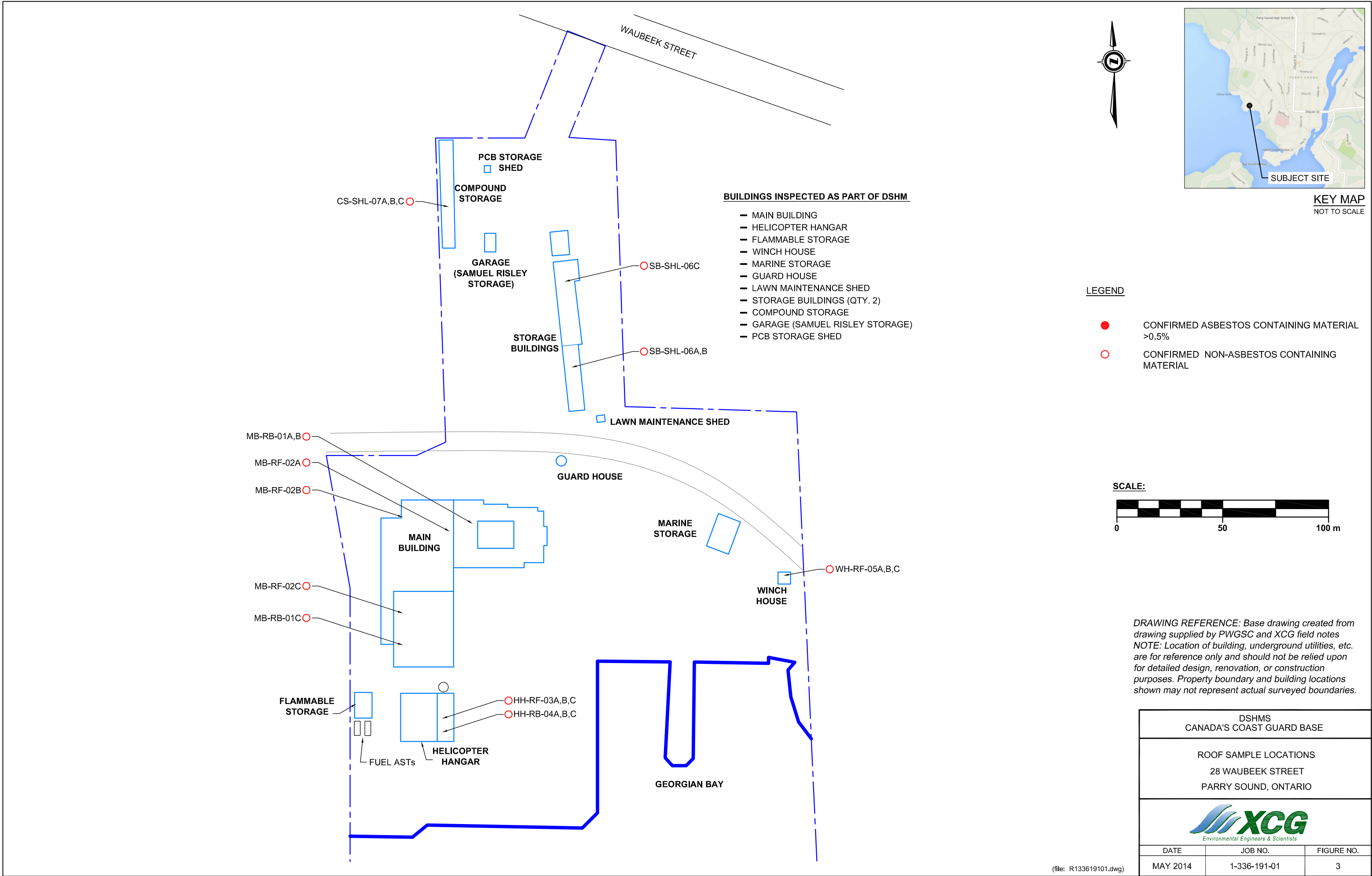
- CONFIRMED ASBESTOS CONTAINING MATERIAL >0.5%
- CONFIRMED NON-ASBESTOS CONTAINING MATERIAL
- ▲ CONFIRMED LEAD PAINT SAMPLING LOCATION
- △ NON-LEAD BASED PAINT SAMPLING LOCATION
- \* INSUFFICIENT SAMPLE TO ANALYZE

SCALE:



DRAWING REFERENCE: Base drawing supplied by PWGSC and XCG field notes  
NOTE: Location of building, underground utilities, etc. are for reference only and should not be relied upon for detailed design, renovation, or construction purposes. Property boundary and building locations shown may not represent actual surveyed boundaries.

DSHMS CANADA'S COAST GUARD BASE		
MAIN BLDG. SAMPLE LOCATIONS 28 WAUBECK STREET PARRY SOUND, ONTARIO		
DATE	JOB NO.	FIGURE NO.
FEB 2014	1-336-191-01	2







**APPENDIX A**  
**LABORATORY CERTIFICATES OF ANALYSIS**



## CERTIFICATE OF ANALYSIS

**Client:** XCG Consultants Ltd.  
6 Cataraqui St; Woolen Mill  
Kingston Ontario K7K 1Z7

**Report Date:** 2/18/2014  
**Report Number:** 325327  
**Project:** Parry Sound  
**Project No.:** 1-336-191-01

### LEAD PAINT SAMPLE ANALYSIS SUMMARY

<u>Lab No.</u>	<u>Client No.</u>	<u>Location / Description</u>	<u>Concentration Lead By Weight (%)</u>
5229568	174-P-03	Beige Paint Rm 174	<0.0088
5229569	176-P-05	Beige/Brown Paint Rm 176	<0.0076
5229570	166-P-07	White Wall Paint Rm 166	<0.0087
5229571	191-P-08	Cream Wall Paint Rm 191	<0.0079
5229572	179-P-12	Blue Floor Paint Rm 179	0.16
5229573	182-P-14	White Wall Paint Rm 182	<0.0091
5229574	146-P-16	White Wall Paint Rm 132	<0.0080
5229575	146-P-17	Yellow Wall Paint Rm 131	<0.0079
5229576	123-P-18	Lt.Green Wall Paint Rm 123	<0.011 *
5229577	207-P-20	White Wall Paint Rm 207	<0.0075

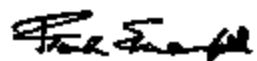
**Accreditations:** **NATIONAL LEAD LABORATORY ACCREDITATION PROGRAM (NLLAP)**  
AIHA-LAP, LLC No. 100188 NYSDOH-ELAP No. 11021

**Analytical Methods:** ASTM D3335-85A "Standard Method To Test For Low Concentrations Of Lead In Paint By Atomic Absorption Spectrophotometry"  
EPA SW846-(3050B:7000B) "Standard Method To Test For Low Concentrations Of Lead In Soils, Sludges and Sediments By AAS"

**Comments:** Regulatory limit is 0.5% lead by weight (EPA/HUD guidelines). Recommend multiple sampling for all samples less than regulatory limit for confirmation. All results are based on the samples as received at the lab. IATL assumes that appropriate sampling methods have been used and the data upon which these results are based have been accurately supplied by the client. Method Detection Limit (MDL) per EPA Method 40CFR Part 136 Appendix B. Reporting Limit (RL) based upon Lowest Standard Determined (LSD) in accordance with AIHA-ELLAP policies. LSD=0.2 ppm MDL=0.0044% by weight. RL= 0.010% by weight (based upon 100 mg sampled). \* Insufficient sample provided to perform QC reanalysis (<200 mg) \*\* Not enough sample provided to analyze (<50 mg) \*\*\* Matrix / substrate interference possible. Sample results are not corrected for contamination by field or analytical blanks. This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA or any government agency. This report shall not be reproduced except in full, without written approval of the laboratory.

**Date Received:** 2/11/2014  
**Date Analyzed:** 2/18/2014  
**Analyst:** C. Shaffer

**Approved By:**



Frank E. Ehrenfeld, III  
Laboratory Director

## CERTIFICATE OF ANALYSIS

<b>Client:</b>	XCG Consultants Ltd.	<b>Report Date:</b>	2/18/2014
	6 Cataraqui St; Woolen Mill	<b>Report Number:</b>	325327
	Kingston Ontario K7K 1Z7	<b>Project:</b>	Parry Sound
		<b>Project No.:</b>	1-336-191-01

### LEAD PAINT SAMPLE ANALYSIS SUMMARY

<u>Lab No.</u>	<u>Client No.</u>	<u>Location / Description</u>	<u>Concentration Lead By Weight (%)</u>
5229578	Admin-P-23	Red Exterior Paint Admin	2.2
5229579	Haz-P-25	Cream Wall Paint Hazmat Storage	0.30
5229580	HNG-P-26	Grey Floor Paint Hanger	<0.0073
5229581	SHP-P-27	Grey Floor Paint Ship Stores	0.14
5229582	WIN-P-28	White Interior Paint Winch House	<0.0089
5229583	Admin-P-29	Red Exterior Paint Admin	5.2
5229584	Admin-P-30	Grey Exterior Paint Admin	Void **
5229585	STR1-P-31	White Siding Paint Storage Bldg 1	12
5229586	STR1-P-32	Red Exterior Door Paint Storage Bldg 1	0.0089

**Accreditations:** **NATIONAL LEAD LABORATORY ACCREDITATION PROGRAM (NLLAP)**  
AIHA-LAP, LLC No. 100188 NYSDOH-ELAP No. 11021

**Analytical Methods:** ASTM D3335-85A "Standard Method To Test For Low Concentrations Of Lead In Paint By Atomic Absorption Spectrophotometry"  
EPA SW846-(3050B:7000B) "Standard Method To Test For Low Concentrations Of Lead In Soils, Sludges and Sediments By AAS"

**Comments:** Regulatory limit is 0.5% lead by weight (EPA/HUD guidelines). Recommend multiple sampling for all samples less than regulatory limit for confirmation. All results are based on the samples as received at the lab. IATL assumes that appropriate sampling methods have been used and the data upon which these results are based have been accurately supplied by the client. Method Detection Limit (MDL) per EPA Method 40CFR Part 136 Appendix B. Reporting Limit (RL) based upon Lowest Standard Determined (LSD) in accordance with AIHA-ELLAP policies. LSD=0.2 ppm MDL=0.0044% by weight. RL= 0.010% by weight (based upon 100 mg sampled). \* Insufficient sample provided to perform QC reanalysis (<200 mg) \*\* Not enough sample provided to analyze (<50 mg) \*\*\* Matrix / substrate interference possible. Sample results are not corrected for contamination by field or analytical blanks. This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA or any government agency. This report shall not be reproduced except in full, without written approval of the laboratory.

**Date Received:** 2/11/2014  
**Date Analyzed:** 2/18/2014  
**Analyst:** C. Shaffer

## CERTIFICATE OF ANALYSIS

<b>Client:</b>	XCG Consultants Ltd.	<b>Report Date:</b>	2/14/2014
	6 Cataraqui St; Woolen Mill	<b>Report No.:</b>	325328
	Kingston Ontario K7K 1Z7	<b>Project:</b>	Parry Sound
		<b>Project No.:</b>	1-336-191-01

### BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b>	5229587	<b>Description / Location:</b>	White Ceiling Tile; 12x12
<b>Client No.:</b>	174-CT-01A		Rm 174
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	30	Cellulose
		60	Fibrous Glass

<b>Lab No.:</b>	5229588	<b>Description / Location:</b>	White Ceiling Tile; 12x12
<b>Client No.:</b>	174-CT-01B		Rm 174
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	30	Cellulose
		60	Fibrous Glass

<b>Lab No.:</b>	5229589	<b>Description / Location:</b>	White Ceiling Tile; 12x12
<b>Client No.:</b>	174-CT-01C		Rm 174
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	30	Cellulose
		60	Fibrous Glass

<b>Lab No.:</b>	5229590	<b>Description / Location:</b>	White Joint Compound
<b>Client No.:</b>	174-PL-02A		Rm 174
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	None Detected	None Detected
			100


**Accreditations:** **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

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**Analysis Performed By:** S. Clay

**Approved By:** 

**Date:** 2/14/2014

Frank E. Ehrenfeld, III  
Laboratory Director

## CERTIFICATE OF ANALYSIS

<b>Client:</b>	XCG Consultants Ltd.	<b>Report Date:</b>	2/14/2014
	6 Cataraqui St; Woolen Mill	<b>Report No.:</b>	325328
	Kingston Ontario K7K 1Z7	<b>Project:</b>	Parry Sound
		<b>Project No.:</b>	1-336-191-01

### BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b>	5229591	<b>Description / Location:</b>	White Joint Compound	
<b>Client No.:</b>	174-PL-02B		Rm 174	
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	None Detected	None Detected	100

<b>Lab No.:</b>	5229592	<b>Description / Location:</b>	White Joint Compound	
<b>Client No.:</b>	174-PL-02C		Rm 174	
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	None Detected	None Detected	100

<b>Lab No.:</b>	5229593	<b>Description / Location:</b>	Tan Mastic	
<b>Client No.:</b>	174-MAS-04A		Rm 174; Kick Plate	
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	None Detected	None Detected	100

<b>Lab No.:</b>	5229594	<b>Description / Location:</b>	Tan Mastic	
<b>Client No.:</b>	174-MAS-04B		Rm 174; Kick Plate	
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	None Detected	None Detected	100

**Accreditations:** **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

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**Analysis Performed By:** S. Clay

**Date:** 2/14/2014

## CERTIFICATE OF ANALYSIS

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	6 Cataraqui St; Woolen Mill	<b>Report No.:</b>	325328
	Kingston Ontario K7K 1Z7	<b>Project:</b>	Parry Sound
		<b>Project No.:</b>	1-336-191-01

### BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b>	5229595	<b>Description / Location:</b>	Tan Mastic	
<b>Client No.:</b>	174-MAS-04C		Rm 174; Kick Plate	
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	None Detected	None Detected	100

<b>Lab No.:</b>	5229596	<b>Description / Location:</b>	White Joint Compound	
<b>Client No.:</b>	176-PL-06A		Rm 176	
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	None Detected	None Detected	100

<b>Lab No.:</b>	5229597	<b>Description / Location:</b>	White Joint Compound	
<b>Client No.:</b>	176-PL-06B		Rm 176	
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	None Detected	None Detected	100

<b>Lab No.:</b>	5229598	<b>Description / Location:</b>	White Joint Compound	
<b>Client No.:</b>	176-PL-06C		Rm 176	
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	None Detected	None Detected	100

**Accreditations:** **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

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**Analysis Performed By:** S. Clay

**Date:** 2/14/2014

## CERTIFICATE OF ANALYSIS

<b>Client:</b>	XCG Consultants Ltd.	<b>Report Date:</b>	2/14/2014
	6 Cataraqui St; Woolen Mill	<b>Report No.:</b>	325328
	Kingston Ontario K7K 1Z7	<b>Project:</b>	Parry Sound
		<b>Project No.:</b>	1-336-191-01

### BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b>	5229599	<b>Description / Location:</b>	Off-White Floor Tile; 12x12	
<b>Client No.:</b>	191-FT-09A		Rm 191	
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	None Detected	None Detected	100

<b>Lab No.:</b>	5229600	<b>Description / Location:</b>	Off-White Floor Tile; 12x12	
<b>Client No.:</b>	191-FT-09B		Rm 191	
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	None Detected	None Detected	100

<b>Lab No.:</b>	5229601	<b>Description / Location:</b>	Off-White Floor Tile; 12x12	
<b>Client No.:</b>	191-FT-09C		Rm 191	
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	None Detected	None Detected	100

**Accreditations:** **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

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**Analysis Performed By:** S. Clay

**Date:** 2/14/2014

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	6 Cataraqui St; Woolen Mill	<b>Report No.:</b>	325328
	Kingston Ontario K7K 1Z7	<b>Project:</b>	Parry Sound
		<b>Project No.:</b>	1-336-191-01

### BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b>	5229602	<b>Description / Location:</b>	Brown Cove Base	
<b>Client No.:</b>	191-MAS-10A		Rm 191	
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	None Detected	None Detected	100

<b>Lab No.:</b>	5229602	<b>Description / Location:</b>	Dk Brown Mastic		<b>Layer No.:</b>	2
<b>Client No.:</b>	191-MAS-10A		Rm 191			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>		
None Detected	None Detected	None Detected	None Detected	100		

<b>Lab No.:</b>	5229603	<b>Description / Location:</b>	Brown Cove Base	
<b>Client No.:</b>	191-MAS-10B		Rm 191	
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	None Detected	None Detected	100

<b>Lab No.:</b>	5229603	<b>Description / Location:</b>	Dk Brown Mastic		<b>Layer No.:</b>	2
<b>Client No.:</b>	191-MAS-10B		Rm 191			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>		
None Detected	None Detected	None Detected	None Detected	100		

**Accreditations:** **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

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**Analysis Performed By:** R. Shumate

**Date:** 2/14/2014

## CERTIFICATE OF ANALYSIS

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	6 Cataraqui St; Woolen Mill	<b>Report No.:</b>	325328
	Kingston Ontario K7K 1Z7	<b>Project:</b>	Parry Sound
		<b>Project No.:</b>	1-336-191-01

### BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b>	5229604	<b>Description / Location:</b>	Brown Cove Base
<b>Client No.:</b>	191-MAS-10C		Rm 191
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	None Detected	None Detected
			100

<b>Lab No.:</b>	5229604	<b>Description / Location:</b>	Dk Brown Mastic	<b>Layer No.:</b>	2
<b>Client No.:</b>	191-MAS-10C		Rm 191		
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>	
None Detected	None Detected	None Detected	None Detected	100	

<b>Lab No.:</b>	5229605	<b>Description / Location:</b>	Black Mastic
<b>Client No.:</b>	191-MAS-11A		Rm 191
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	None Detected	None Detected
			100

<b>Lab No.:</b>	5229606	<b>Description / Location:</b>	Black Mastic
<b>Client No.:</b>	191-MAS-11B		Rm 191
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	None Detected	None Detected
			100

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**Analysis Performed By:** R. Shumate

**Date:** 2/14/2014



## CERTIFICATE OF ANALYSIS

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	6 Cataraqui St; Woolen Mill	<b>Report No.:</b>	325328
	Kingston Ontario K7K 1Z7	<b>Project:</b>	Parry Sound
		<b>Project No.:</b>	1-336-191-01

### BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b>	5229607	<b>Description / Location:</b>	Black Mastic
<b>Client No.:</b>	191-MAS-11C		Rm 191
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	None Detected	None Detected
			100

<b>Lab No.:</b>	5229608	<b>Description / Location:</b>	Grey Fireproofing
<b>Client No.:</b>	182-FP-13A		Rm 182
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	70	Mineral Wool
			30

<b>Lab No.:</b>	5229609	<b>Description / Location:</b>	Grey Fireproofing
<b>Client No.:</b>	182-FP-13B		Rm 182
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	70	Mineral Wool
			30

<b>Lab No.:</b>	5229610	<b>Description / Location:</b>	Grey Fireproofing
<b>Client No.:</b>	182-FP-13C		Rm 182
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	70	Mineral Wool
			30

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**Analysis Performed By:** R. Shumate

**Date:** 2/14/2014

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	6 Cataraqui St; Woolen Mill	<b>Report No.:</b>	325328
	Kingston Ontario K7K 1Z7	<b>Project:</b>	Parry Sound
		<b>Project No.:</b>	1-336-191-01

### BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b>	5229611	<b>Description / Location:</b>	Grey/White Ceiling Tile; 12x12
<b>Client No.:</b>	186-CT-15A		Rm 186
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	30	Fibrous Glass
		10	Cellulose

<b>Lab No.:</b>	5229612	<b>Description / Location:</b>	Grey/White Ceiling Tile; 12x12
<b>Client No.:</b>	186-CT-15B		Rm 186
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	30	Fibrous Glass
		10	Cellulose

<b>Lab No.:</b>	5229613	<b>Description / Location:</b>	Grey/White Ceiling Tile; 12x12
<b>Client No.:</b>	186-CT-15C		Rm 186
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	30	Fibrous Glass
		10	Cellulose

<b>Lab No.:</b>	5229614	<b>Description / Location:</b>	White Joint Compound
<b>Client No.:</b>	216-PL-19A		Rm 216
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	None Detected	None Detected
			100

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**Analysis Performed By:** R. Shumate

**Date:** 2/14/2014

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	6 Cataraqui St; Woolen Mill	<b>Report No.:</b>	325328
	Kingston Ontario K7K 1Z7	<b>Project:</b>	Parry Sound
		<b>Project No.:</b>	1-336-191-01

### BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b>	5229615	<b>Description / Location:</b>	White Joint Compound
<b>Client No.:</b>	216-PL-19B		Rm 216
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	None Detected	None Detected
			100

<b>Lab No.:</b>	5229616	<b>Description / Location:</b>	White Joint Compound
<b>Client No.:</b>	216-PL-19C		Rm 216
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	None Detected	None Detected
			100

<b>Lab No.:</b>	5229617	<b>Description / Location:</b>	Black Caulk
<b>Client No.:</b>	Admin-CLK-21A		Admin Window
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	None Detected	None Detected
			100

<b>Lab No.:</b>	5229618	<b>Description / Location:</b>	Black Caulk
<b>Client No.:</b>	Admin-CLK-21B		Admin Window
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	None Detected	None Detected
			100

**Accreditations:** **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

*This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA or any agency of the U.S. government  
This report shall not be reproduced except in full, without written approval of the laboratory.*

**Analytical Method:** US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

**Comments:** Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

**Analysis Performed By:** R. Shumate

**Date:** 2/14/2014

## CERTIFICATE OF ANALYSIS

<b>Client:</b>	XCG Consultants Ltd.	<b>Report Date:</b>	2/14/2014
	6 Cataraqui St; Woolen Mill	<b>Report No.:</b>	325328
	Kingston Ontario K7K 1Z7	<b>Project:</b>	Parry Sound
		<b>Project No.:</b>	1-336-191-01

### BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b>	5229619	<b>Description / Location:</b>	Black Caulk
<b>Client No.:</b>	Admin-CLK-21C		Admin Window
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	None Detected	None Detected
			100

<b>Lab No.:</b>	5229620	<b>Description / Location:</b>	Red Caulk
<b>Client No.:</b>	Admin-CLK-22A		Admin Window
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	None Detected	None Detected
			100

<b>Lab No.:</b>	5229621	<b>Description / Location:</b>	Red Caulk
<b>Client No.:</b>	Admin-CLK-22B		Admin Window
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	None Detected	None Detected
			100

<b>Lab No.:</b>	5229622	<b>Description / Location:</b>	Red Caulk
<b>Client No.:</b>	Admin-CLK-22C		Admin Window
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	None Detected	None Detected
			100

**Accreditations:** **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

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**Comments:** Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

**Analysis Performed By:** R. Shumate

**Date:** 2/14/2014

## CERTIFICATE OF ANALYSIS

<b>Client:</b>	XCG Consultants Ltd.	<b>Report Date:</b>	2/14/2014
	6 Cataraqui St; Woolen Mill	<b>Report No.:</b>	325328
	Kingston Ontario K7K 1Z7	<b>Project:</b>	Parry Sound
		<b>Project No.:</b>	1-336-191-01

### BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b>	5229623	<b>Description / Location:</b>	White Caulk
<b>Client No.:</b>	Admin-CLK-24A		Admin Window
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	None Detected	None Detected
			100

<b>Lab No.:</b>	5229624	<b>Description / Location:</b>	White Caulk
<b>Client No.:</b>	Admin-CLK-24B		Admin Window
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	None Detected	None Detected
			100

<b>Lab No.:</b>	5229625	<b>Description / Location:</b>	White Caulk
<b>Client No.:</b>	Admin-CLK-24C		Admin Window
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	None Detected	None Detected
			100

**Accreditations:** **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

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This report shall not be reproduced except in full, without written approval of the laboratory.*

**Analytical Method:** US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

**Comments:** Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

**Analysis Performed By:** R. Shumate

**Date:** 2/14/2014

## CERTIFICATE OF ANALYSIS

**Client:** XCG Consultants Ltd.

6 Cataraqui St; Woolen Mill

Kingston

Ontario

K7K 1Z7

**Report Date:** 2/18/2014

**Report No.:** 325683

**Project:** Parry Sound

**Project No.:** 1-336-191-01

### TEM BULK SAMPLE ANALYSIS SUMMARY

**IATL No.:** 145229599A

**Description / Location:**

Off-White Floor Tile

Rm 191

**Client No.:** 191-FT-09A

**Organic Fraction:** 84.1 %

**Gravimetrically Reduced Subsample:** 15.9 %

**Percent Asbestos Detected:** ND None Detected

**Percent Non-Asbestos Fibrous Material:** ND None Detected

**Percent Non-Fibrous Material:** 15.9 % Other

**Comments:**

**NIST-NVLAP No. 101165-0**

**AIHA-LAP, LLC No. 100188**

**NYS-DOH No. 11021**

**Methodology:** Transmission Electron Microscopy (TEM) In Accordance With :  
ELAP 198.4 "Method For Identifying And Quantitating Asbestos In Non-Friable Organically Bound Bulk Samples", Revised 1/11/2005.  
EPA-600/R-93/116 Section 2.5 "Asbestos In Bulk Building Materials By TEM Gravimetry."

*IATL assumes that all sampling methods and data upon which these results are based have been accurately supplied by the client.*

*The "Gravimetrically Reduced Subsample" is the portion of the submitted sample remaining following the ashing and acid treatment processes. TEM analysis occurs on this portion of the sample. Final results are calculated to represent the sample as submitted.*

*This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA or any agency of the U.S. government.*

*Results are verifiable for only those operations and analyses performed in the laboratory.*

**Analysis Performed By:** C. Liska

**Approved By:**



**Date:** 2/18/2014

Frank E. Ehrenfeld, III  
Laboratory Director

## CERTIFICATE OF ANALYSIS

**Client:** XCG Consultants Ltd.

6 Cataraqui St; Woolen Mill

Kingston

Ontario

K7K 1Z7

**Report Date:** 2/18/2014**Report No.:** 325683**Project:** Parry Sound**Project No.:** 1-336-191-01

## TEM BULK SAMPLE ANALYSIS SUMMARY

**IATL No.:** 145229600A**Description / Location:**

Off-White Floor Tile

Rm 191

**Client No.:** 191-FT-09B**Organic Fraction:** 84.0 %**Gravimetrically Reduced Subsample:** 16.0 %**Percent Asbestos Detected:** Trace Tremolite, Detected at < 0.25%**Percent Non-Asbestos Fibrous Material:** ND None Detected**Percent Non-Fibrous Material:** 16.0 % Other**Comments:****NIST-NVLAP No. 101165-0****AIHA-LAP, LLC No. 100188****NYS-DOH No. 11021**

Methodology: Transmission Electron Microscopy (TEM) In Accordance With :  
ELAP 198.4 "Method For Identifying And Quantitating Asbestos In Non-Friable Organically Bound Bulk Samples", Revised 1/11/2005.  
EPA-600/R-93/116 Section 2.5 "Asbestos In Bulk Building Materials By TEM Gravimetry."

*IATL assumes that all sampling methods and data upon which these results are based have been accurately supplied by the client.*

*The "Gravimetrically Reduced Subsample" is the portion of the submitted sample remaining following the ashing and acid treatment processes. TEM analysis occurs on this portion of the sample. Final results are calculated to represent the sample as submitted.*

*This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA or any agency of the U.S. government.*

*Results are verifiable for only those operations and analyses performed in the laboratory.*

**Analysis Performed By:** C. Liska**Date:** 2/18/2014

## CERTIFICATE OF ANALYSIS

Client: XCG Consultants Ltd.

6 Cataraqui St; Woolen Mill

Kingston

Ontario

K7K 1Z7

Report Date: 2/18/2014

Report No.: 325683

Project: Parry Sound

Project No.: 1-336-191-01

## TEM BULK SAMPLE ANALYSIS SUMMARY

IATL No.: 145229601A

Description / Location:

Off-White Floor Tile

Rm 191

Client No.: 191-FT-09C

Organic Fraction: 85.2 %

Gravimetrically Reduced Subsample: 14.8 %

Percent Asbestos Detected: Trace Tremolite, Detected at &lt; 0.25%

Percent Non-Asbestos Fibrous Material: ND None Detected

Percent Non-Fibrous Material: 14.8 % Other

## Comments:

NIST-NVLAP No. 101165-0

AIHA-LAP, LLC No. 100188

NYS-DOH No. 11021

Methodology: Transmission Electron Microscopy (TEM) In Accordance With :  
ELAP 198.4 "Method For Identifying And Quantitating Asbestos In Non-Friable Organically Bound Bulk Samples", Revised 1/11/2005.  
EPA-600/R-93/116 Section 2.5 "Asbestos In Bulk Building Materials By TEM Gravimetry."

IATL assumes that all sampling methods and data upon which these results are based have been accurately supplied by the client.

The "Gravimetrically Reduced Subsample" is the portion of the submitted sample remaining following the ashing and acid treatment processes. TEM analysis occurs on this portion of the sample. Final results are calculated to represent the sample as submitted.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA or any agency of the U.S. government.

Results are verifiable for only those operations and analyses performed in the laboratory.

Analysis Performed By: C. Liska

Date: 2/18/2014

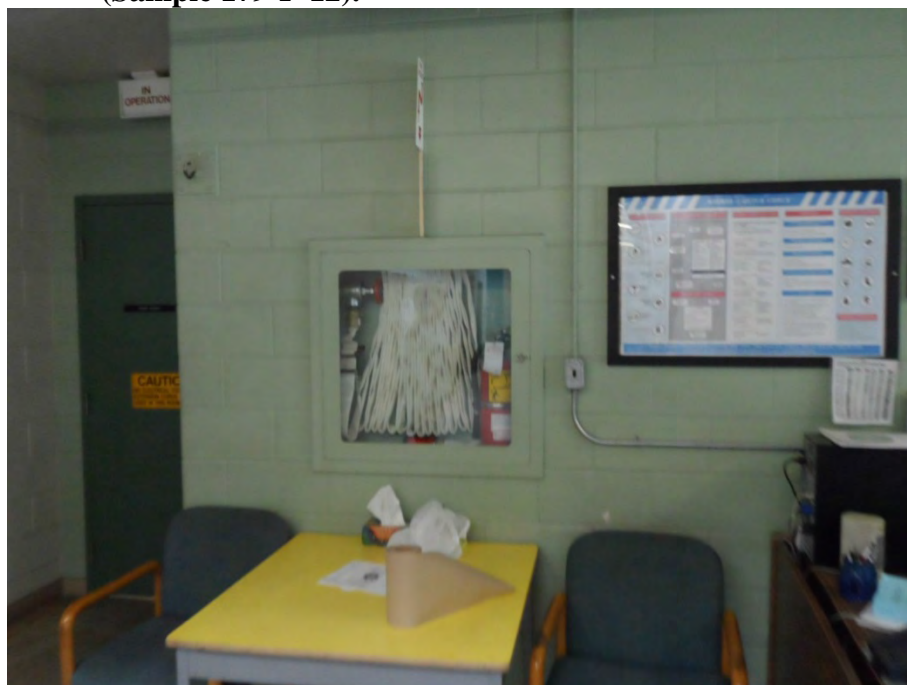




**APPENDIX B**  
**SITE PHOTOS**



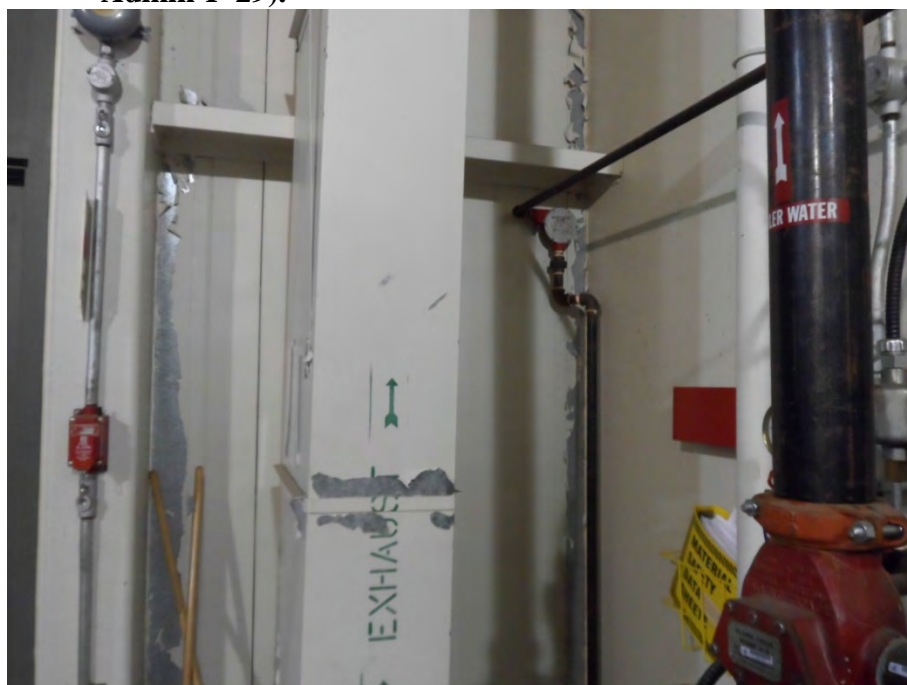
**Photo 1: Main Building Room 179 blue interior floor paint – Lead-containing (Sample 179-P-12).**



**Photo 2: Main Building Room 123 Light green interior wall paint – Lead-containing (Sample 123-P-18).**



**Photo 3: Main Building exterior red trim paint–Lead-containing (Sample Admin-P-29).**



**Photo 4: Hazard Storage Building cream interior wall paint – Lead-containing (Sample Haz-P-25).**



**Photo 5: Ship stores grey floor paint – Lead-containing (Sample SHP-P-27).**

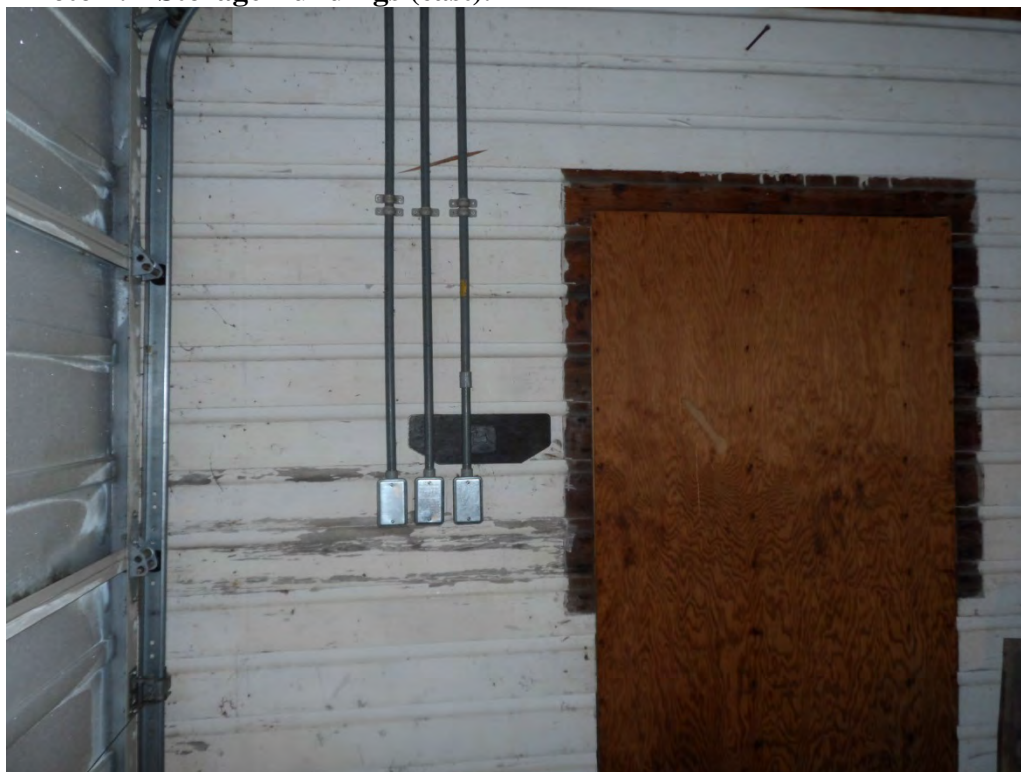


**Photo 6: Main Building exterior red siding – Lead-containing (Sample Admin-P-29).**





**Photo 7: Storage Buildings (east).**



**Photo 8: Storage Building (east) white interior siding paint – Lead-containing (Sample STR1-P-31).**



**Photo 9: Main Building grey exterior siding paint - Lead-Containing (Sample Admin-P-30).**



**Photo 10: Flammable Storage.**





**Photo 11: Flammable Storage.**



**Photo 12: Flammable Storage.**



**Photo 13: Compound Storage ACM Sample CS-SHL-07A,B,C.**



**Photo 14: Main Bldg. ACM Sample MB-RF-02A.**





**Photo 15: Main Bldg. ACM Sample MB-RF-02C.**



**Photo 16: Helicopter Hanger ACM Sample HH-RF-03A,B,C and HH-RB-04A,B,C.**





**Photo 17: Storage Buildings ACM Sample SB-SHL-06A,B,C.**



**Photo 18: Winch House ACM Sample WH-RF-05A,B,C.**





**Photo 19: Marine Storage steel roof.**



**Photo 20: Garage (Samuel Risley Storage) recently replaced shingle roof.**