

### SECTION 6.0 EXECUTIVE SUMMARY

Hazardous materials identified at the light tower (and attached shed) during the March 2013 HBMS and the current demolition HMBA are summarized in Table E-6.

**Table E-6: Hazardous Material Description**

Hazardous Material	Regulatory Guidelines	Location	Quantity (Approx.)	Disposal
Leachable Lead-Based White Paint on Wooden Siding and Metal Panels	Federal Hazardous Products Act (R.S.1985, c. H-3); NL Department of Environment 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1); Federal Transportation of Dangerous Goods Act (1992, c. 34)	Site Building Exterior	80 m <sup>2</sup>	These materials (painted wooden siding and painted metal panels) are considered hazardous wastes and must be disposed according to NL policy and the Solid Waste Management Authority by an approved hazardous waste disposal company and transported under the federal Transportation of Dangerous Goods (TDG) Act. Alternatively, the painted metal panels may be sent to a metal recycling facility, provided the facility is informed about the concentration of lead in the paint.
Lead and Mercury-Based Paint		All Other Paint Finishes (Sampled for Lead and Mercury in Paint)	-	All painted materials that were sampled and analyzed for lead and mercury, with the exception of the painted wooden siding and painted metal panels on the Site building exterior, may be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Mercury-Containing HID Light Bulbs	Federal Hazardous Products Act (R.S.1985, c. H-3)	Site Building Interior	One (1) HID light fixture. It is assumed that there are two (2) light bulbs for each fixture.	These materials can be disposed of at a recycling facility.
Silica Dust	American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), 2010	Concrete Building Materials	-	All concrete can be disposed of at a Construction & Demolition Site or at a Regional Solid Waste Disposal Facility.



**TABLE OF CONTENTS**

	<b>PAGE</b>
<b>SECTION 6.0 EXECUTIVE SUMMARY.....</b>	<b>6-i</b>
<b>6.0 LIGHT TOWER .....</b>	<b>6-1</b>
6.1 BUILDING DESCRIPTION.....	6-1
6.2 FINDINGS.....	6-2
6.2.1 Asbestos-Containing Materials (ACMs).....	6-2
6.2.1.1 Friable Materials .....	6-2
6.2.1.2 Non-Friable and Potentially Friable Materials .....	6-2
6.2.2 Paint Finishes.....	6-4
6.2.2.1 Lead in Paint.....	6-5
6.2.2.2 Leachable Lead in Paint .....	6-5
6.2.2.3 Mercury in Paint.....	6-5
6.2.2.4 Leachable Mercury in Paint .....	6-5
6.2.2.5 PCBs in Paint.....	6-6
6.2.3 Urea Formaldehyde Foam Insulation (UFFI).....	6-6
6.2.4 Suspected Visible Mould Growth (SVG).....	6-6
6.2.5 Mercury-Containing Thermostats .....	6-6
6.2.6 PCB-Containing Light Ballasts .....	6-6
6.2.7 Potential Sources of ODSs and Halocarbons.....	6-6
6.2.8 Petroleum Storage Tanks.....	6-6
6.2.9 Other Potentially Hazardous Building Materials or Substances .....	6-6
6.2.9.1 Mercury.....	6-7
6.2.9.2 Lead.....	6-7
6.2.9.3 Silica .....	6-7
6.2.9.4 Ash.....	6-7
6.3 CONCLUSIONS AND RECOMMENDATIONS.....	6-7

**APPENDICES**

APPENDIX A6	Figures
APPENDIX B6	Photographic Record
APPENDIX C6	Sample and Analytical Summary Tables

## 6.0 LIGHT TOWER

The light tower (and attached shed) are located on the light tower area of the Bacalhao Island Lightstation (refer to Figures 1.1 and 1.2, Appendix A1 and Photos 3 and 4, Appendix B1). Based on Heritage Canada's list of heritage potential active lighthouses, the light tower on Bacalhao Island was constructed in 1894.

### 6.1 BUILDING DESCRIPTION

A description of the Site building is outlined in Table 6-1. Photographs of the light tower and attached shed are provided in Appendix B6.

**Table 6-1: Site Building Description**

<b>Building Name</b>	<b>Light Tower</b>	<b>Photo (Appendix B6)</b>
Number of Levels	Four	Photos 1 and 10
Basement	No	Not Applicable
Attic	No	Not Applicable
Type of Structure	Metal	Photos 1, 3 and 10
Type of Foundation	Concrete	Photo 4
Exterior	Painted Metal	Photo 3
Window/Door Frames	Painted Metal	Photos 9 and 10
Exterior Doors	Metal	Photo 9
Roofing Materials	Painted Metal	Photo 1
Interior Walls Finishes	Painted Metal	Photo 10
Ceiling Finishes	Painted Metal	Photo 12
Floor Finishes	Painted Concrete, Painted Wooden Planks	Photo 21
Interior Doors	None	Not Applicable
Interior Lighting	Potential High Intensity Discharge (HID)	Photo 23
Exterior Lighting	None	Not Applicable
Heating	None	Not Applicable
Chimney	None	Not Applicable
Aboveground Storage Tank	None	Not Applicable
Plumbing	None	Not Applicable
<b>Building Name</b>	<b>Attached Shed</b>	<b>Photo (Appendix B6)</b>
Number of Stories	One	Photo 2
Basement	No	Not Applicable
Attic	No	Not Applicable
Type of Structure	Wooden Frame	Photo 2
Type of Foundation	Concrete	Photo 1
Exterior	Painted Wooden Siding	Photos 1 and 2
Window/Door Frames	Painted Wooden Frames	Photos 1 and 2
Exterior Doors	None	Photo 2
Roofing Materials	Wooden Shingles	Photo 2
Interior Walls Finishes	Unfinished	Photo 5
Ceiling Finishes	Unfinished	Photo 9
Floor Finishes	Concrete, Painted Wooden Planks	Photo 5
Interior Doors	None	Not Applicable
Interior Lighting	None	Not Applicable
Exterior Lighting	None	Not Applicable
Heating	None	Not Applicable
Chimney	None	Not Applicable
Aboveground Storage Tank	None	Not Applicable
Plumbing	None	Not Applicable

It is important to note that the metal handrail around the platform located at the top of the light tower is in a state of disrepair and several window panes at the top of the light tower are also broken (refer to Photos 3, 13, 14 and 15, Appendix B6).

## **6.2 FINDINGS**

The findings documented in this section are based on observations made by AMEC personnel at the time of the Site visits and laboratory analyses of samples collected from the light tower and attached shed.

### **6.2.1 Asbestos-Containing Materials (ACMs)**

There are over 3,000 ACMs that are commercially available, which can be divided into two broad categories: friable and non-friable. Friable ACMs are defined as materials that can be crumbled, pulverized and reduced to powder when dry using hand pressure. Typical friable materials include acoustical or decorative spray applications, fireproofing and thermal insulation. Non-friable ACMs are hard or manufactured products such as floor tiles, fire blankets, pre-formed manufactured cementitious insulation and wallboards, pipes, and siding, wherein the asbestos fibres are bound to the substrate.

Note that although a product may be considered non-friable when new, the product may release fine dust when disturbed (e.g., deterioration, removal, renovations) and the free dust is considered friable.

ACMs were discontinued from use in Canada in the late 1970s/early 1980s, although non-friable asbestos is still found in many more recent buildings.

A total of two (2) building material samples (BAC-AS-37 and BAC-AS-38) were collected from the light tower and analyzed for asbestos content (refer to Photos 16 and 17, Appendix B6). Sample descriptions and analytical results are summarized in Table C6-1, Appendix C6. Sample locations and analytical results are graphically illustrated in Figures 6.1, Appendix A6.

#### **6.2.1.1 Friable Materials**

##### **6.2.1.1.1 Spray-Applied Fireproofing, Insulation and Texture Finishes**

No spray-applied fireproofing, insulation or texture finishes were observed within the light tower and attached shed during the Site visits; therefore, no samples were collected for analysis during the March 2013 HBMS and the current demolition HMBA.

#### **6.2.1.2 Non-Friable and Potentially Friable Materials**

##### **6.2.1.2.1 Ceiling Tile**

There were no ceiling tiles observed in the light tower and attached shed during the Site visits; therefore, no samples of ceiling tile were collected for analysis during the March 2013 HBMS and the current demolition HMBA.

#### **6.2.1.2.2 Drywall Joint Compound**

There was no drywall or associated joint compound observed in the light tower and attached shed during the Site visits; therefore, no samples of drywall joint compound were collected for analysis during the March 2013 HBMS and the current demolition HMBA.

#### **6.2.1.2.3 Vinyl Flooring Products and Mastics**

There was no vinyl flooring or associated mastics observed in the light tower and attached shed during the Site visits; therefore, no samples of vinyl flooring or mastics were not collected for analysis during the March 2013 HBMS and the current demolition HMBA.

#### **6.2.1.2.4 Baseboard, Carpet and Stair Tread Adhesives/Mastics**

There were no baseboard, carpet or stair tread adhesives/mastics observed in the light tower and attached shed during the Site visits; therefore, no samples of these types of adhesives/mastics were collected for analysis during the March 2013 HBMS and the current demolition HMBA.

#### **6.2.1.2.5 Roofing Products**

There were no asphalt shingles observed on the roof of the light tower and attached shed; therefore, no samples of these types of roofing products were collected for analysis during the March 2013 HBMS and the current demolition HMBA.

#### **6.2.1.2.6 Thermal System Insulation**

There was no insulation observed in the light tower and attached shed during the Site visits; therefore, no samples of insulation were collected for analysis during the March 2013 HBMS and the current demolition HMBA.

#### **6.2.1.2.7 Weather Stripping and Caulking**

No samples of weather stripping were collected from the light tower and attached shed during the March 2013 HBMS or the current demolition HMBA.

One (1) sample of window caulking (BAC-AS-37) was collected from the interior of the light tower and analyzed for asbestos content (refer to Photo 16, Appendix B6). Asbestos was not detected in the caulking sample collected and submitted for analysis.

#### **6.2.1.2.8 Mortar, Grout and Other Cementitious Materials**

No samples of mortar, grout or other cementitious materials were collected from the light tower and attached shed during the March 2013 HBMS or the current demolition HMBA.

#### **6.2.1.2.9 Other Potential ACMs**

One sample of an unknown deteriorated material (BAC-AS-38) was collected from the seam between metal plates at the top of the light tower and analyzed for asbestos content (refer to Photo 17, Appendix B6). Asbestos was not detected in the unknown material sample collected and submitted for analysis.

Other potential ACMs were observed and were not sampled due to the nature of the materials. These materials included, but are not limited to, electrical components and insulators such as wiring and gaskets inside electrical panels and/or electronic equipment for operation of the light in the light tower. Other possible hidden and inaccessible ACMs have the potential to be present at the Site but were not identified during the Site visits. These possible ACMs could include caulking, sealant and/or gaskets between metal connections in the light tower, fire rated structures or building materials and underground infrastructure and piping.

#### **6.2.2 Paint Finishes**

The condition of the paint visible on the interior and exterior of the light tower and attached shed was generally in poor condition (refer to Photos 2, 3, 12, 20 and 21, Appendix B6).

A total of four (4) samples (BAC-PS-21 to BAC-PS-24), plus one (1) field duplicate (BAC-PS-DUP-3; duplicate BAC-PS-23), were collected from painted surfaces of the light tower and attached shed and analyzed for lead and mercury content (refer to Photos 18 to 21, Appendix B6). Two (2) paint samples (BAC-PS-22 and BAC-PS-23) were also analyzed for PCB content. Sample descriptions and analytical results are summarized in Tables C6-2 to C6-4, Appendix C6. Sample locations and analytical results are graphically illustrated in Figure 6.1, Appendix A6.

Since, based on the results of the March 2013 HBMS, the concentrations of lead detected in two (2) paint samples (BAC-PS-21 and BAC-PS-23), plus one (1) field duplicate (BAC-PS-DUP-3; duplicate BAC-PS-23), exceeded the former Federal HPA criterion of 5,000 mg/kg, paint samples BAC-PS-21 and BAC-PS-DUP-3 were also tested for lead leachate using the TCLP to determine whether or not the paint would be considered hazardous waste upon removal from the Site. During the current demolition HBMA, one (1) supplemental paint sample (BAC-PS-21A), including the substrate, was collected from the same painted surface of the attached shed exterior that originally exceeded the former Federal HPA criterion of 5,000 mg/kg. This supplemental paint sample was also tested for lead leachate using the TCLP to determine whether or not the paint would be considered hazardous waste upon removal from the Site. The laboratory results for lead leachate in paint are presented in Table C6-5, Appendix C6.

The concentration of mercury detected in one (1) paint sample (BAC-PS-23) exceeded the CCME CSQG of 24 mg/kg for mercury in soil at a commercial site. This paint sample was also tested for mercury leachate using the TCLP to determine whether or not the paint would be considered hazardous waste upon removal from the Site. The laboratory results for mercury leachate in paint are presented in Table C6-6, Appendix C6.

#### **6.2.2.1 Lead in Paint**

The concentrations of lead in the paint samples ranged from 2,600 mg/kg to 50,000 mg/kg (refer to Table C6-2, Appendix C6). Two (2) of the four (4) paint samples (BAC-PS-22 and BAC-PS-24) contained lead at concentrations above the Federal HPA criterion of 90 mg/kg but below the former Federal HPA criterion of 5,000 mg/kg (refer to Photos 19 and 21, Appendix B6). Two (2) paint samples (BAC-PS-21 and BAC-PS-23), plus one (1) field duplicate (BAC-PS-DUP-3; duplicate BAC-PS-23), contained lead at concentrations above the former Federal HPA criterion of 5,000 mg/kg (refer to Photos 18 and 20, Appendix B6).

#### **6.2.2.2 Leachable Lead in Paint**

The concentrations of leachable lead in paint samples BAC-PS-21 (28 mg/L) and BAC-PS-DUP-3 (83 mg/L) and supplemental paint and wood substrate sample BAC-PS-21A (33 mg/L) were above the Schedule II leachate criterion for lead (5.00 mg/L) provided in the provincial guidance document for leachable toxic waste (GD-PPD-26.1) (refer to Table C6-5, Appendix C2). The paint samples (white paint) and supplemental paint and wood substrate sample were collected from metal on the exterior of the light tower and from siding on the exterior of the attached shed. The paint (red and white paint) on the exterior of the light tower and attached shed (covering an area of approximately 80 m<sup>2</sup>) was generally in poor condition and flaking. Since the concentrations of leachable lead in the paint samples and the paint and wood substrate sample are at levels considered to be hazardous, these materials (painted metal and painted wooden siding), if removed from the Site, must be disposed of at a hazardous waste treatment facility and/or a metal recycling facility.

#### **6.2.2.3 Mercury in Paint**

The concentrations of mercury in the paint samples ranged from non-detect (2.7 mg/kg) to 50 mg/kg (refer to Table C6-3, Appendix C6). One (1) paint sample (BAC-PS-21) contained mercury at a concentration above the Federal HPA criterion of 10 mg/kg and one (1) paint sample (BAC-PS-23) contained mercury at a concentration above the CCME CSQG of 24 mg/kg for mercury in soil at a commercial site (refer to Photos 18 and 20, Appendix B6). The other two (2) paint samples and field duplicate analyzed contained mercury at concentrations below the applicable Federal HPA criterion (i.e. 10 mg/kg).

#### **6.2.2.4 Leachable Mercury in Paint**

The concentration of leachable mercury in paint sample BAC-PS-23 (0.00025 mg/L) was below the Schedule II leachate criterion for mercury (0.10 mg/L) provided in the provincial guidance document for leachable toxic waste (GD-PPD-26.1) (refer to Table C6-6, Appendix C6). The paint sample (white paint) was collected from metal on the exterior of the light tower. The paint on the exterior of the light tower was generally in poor condition and flaking. The concentration of leachable mercury in this paint is not at a level considered to be hazardous; however, this paint was leachable for lead. Therefore, if removed from the Site, these materials (painted metal and painted wooden siding) must be disposed of at a hazardous waste treatment facility and/or a metal recycling facility.

#### **6.2.2.5 PCBs in Paint**

All of the paint samples analyzed for PCBs were non-detect (<5.0 mg/kg) and therefore did not exceed the CCME CSQG of 33 mg/kg for PCBs in soil at a commercial site or the criterion of 50 mg/kg for PCB solid provided in the provincial guidance document for leachable toxic waste (GD-PPD-26.1) (refer to Table C6-4, Appendix C6).

#### **6.2.3 Urea Formaldehyde Foam Insulation (UFFI)**

Visual indicators suggesting the potential presence of UFFI were not observed in the light tower and attached shed. The walls and ceiling of the shed are unfinished and there was no insulation observed in the light tower and attached shed during the Site visits.

#### **6.2.4 Suspected Visible Mould Growth (SVG)**

AMEC inspected the interior areas of the light tower and attached shed for visual or olfactory evidence of suspected mould. No areas of SVG and/or water damage were observed on the interior surfaces of the light tower and attached shed at the time of the Site visits.

#### **6.2.5 Mercury-Containing Thermostats**

There were no thermostats observed in the light tower and attached shed during the March 2013 HBMS and the current demolition HMBA Site visits.

#### **6.2.6 PCB-Containing Light Ballasts**

There were no fluorescent light fixtures observed in the light tower and attached shed during the Site inspections. Therefore, no fluorescent light ballasts were inspected for the presence or absence of PCB-containing dielectric fluid.

#### **6.2.7 Potential Sources of ODSs and Halocarbons**

One (1) fire extinguisher was identified in the light tower; however, the label on this unit did not indicate the presence of halon or other ODS ingredients (refer to Photo 22, Appendix B6). The fire extinguisher appeared to be in poor condition.

#### **6.2.8 Petroleum Storage Tanks**

No petroleum ASTs were identified inside or in close proximity to the light tower and attached shed during the March 2013 HBMS and the current demolition HMBA Site visits.

#### **6.2.9 Other Potentially Hazardous Building Materials or Substances**

Other potentially hazardous building materials or substances identified during the March 2013 HBMS and the current demolition HMBA are presented in the following sections.

#### **6.2.9.1 Mercury**

Mercury may be present in the potential HID light bulbs in the light tower. HID light bulbs often contain limited quantities of mercury in a powder or vapour form.

#### **6.2.9.2 Lead**

Lead is typically associated with plumbing solder and older pipe materials, as well as products such as radiation protective shielding and lead-acid batteries.

No potential sources of lead were identified in the light tower and attached shed during the March 2013 HBMS and the current demolition HMBA Site visits.

#### **6.2.9.3 Silica**

Silica is expected to be present in the concrete used to construct the foundations for the light tower and attached shed. Precaution should be taken to prevent/reduce exposure to silica dust during any disturbance/demolition of silica-containing products.

#### **6.2.9.4 Ash**

Solid wastes such as ash from chimneys or furnaces were not observed within the light tower and attached shed during the March 2013 HBMS or the current demolition HMBA Site visits.

### **6.3 CONCLUSIONS AND RECOMMENDATIONS**

Based on observations made and information gathered during the March 2013 HBMS and the current demolition HMBA, the following conclusions and recommendations are made with respect to the potential and actual presence of hazardous building materials at the light tower and attached shed:

#### **Asbestos-Containing Materials (ACMs)**

- Results of the asbestos sampling and analytical program revealed that none of the building materials sampled during the assessment contain asbestos.
- Other potential ACMs were observed and were not sampled due to the nature of the materials. These materials included, but are not limited to, electrical components and insulators such as wiring and gaskets inside electrical panels and/or electronic equipment for operation of the light in the light tower.
- Other possible hidden and inaccessible ACMs have the potential to be present at the Site but were not identified during the Site visits. These possible ACMs could include caulking, sealant and/or gaskets between metal connections in the light tower, fire rated structures or building materials, and underground infrastructure and piping.
- If other potential ACMs that could not be sampled as part of these assessments due to access issues are encountered in the future, these materials should be treated as ACMs or samples should be collected and tested to verify asbestos content. This should be done as

soon as these materials are encountered and before these materials are disturbed. This includes materials that are currently concealed by walls and ceiling systems.

### **Lead, Mercury and PCBs in Paint**

- Results of the paint sampling and analytical program revealed lead and mercury-based paint finishes on the light tower and attached shed (i.e., the concentrations of lead and mercury in some paint finishes were above the applicable Federal HPA criteria of 90 mg/kg for lead and 10 mg/kg for mercury).
  - The concentrations of lead in the paint samples ranged from 2,600 mg/kg to 50,000 mg/kg and the concentrations of mercury in the paint samples ranged from 2.7 mg/kg to 50 mg/kg.
  - Two (2) paint samples, plus one (1) duplicate paint sample, contained lead at concentrations above the former Federal HPA criterion of 5,000 mg/kg; therefore, one (1) supplemental paint sample, including the wooden substrate, was collected from the same painted surface of the attached shed that exceeded the former Federal HPA criterion. The supplemental paint sample was tested for lead leachate using the TCLP to determine whether or not the paint would be considered hazardous waste upon removal from the Site. Due to the nature of the materials, a supplemental paint sample, including the metal substrate, was unable to be collected from the same painted surface of the light tower that exceeded the former Federal HPA criterion.
  - One (1) paint sample contained mercury at a concentration above the CCME CSQG of 24 mg/kg for mercury in soil at a commercial site. This paint sample was also tested for mercury leachate using the TCLP to determine whether or not the paint would be considered hazardous waste upon removal from the Site.
- Paint finishes with a lead concentration of less than 5,000 mg/kg or a mercury concentration of less than 24 mg/kg are not likely to be leachable and therefore may be disposed of at an approved landfill facility, pending landfill and regulatory approval.
  - Based on the results from the paint samples analyzed during the March 2013 HBMS and the current demolition HMBA, two (2) of the four (4) paint finishes that were sampled for lead and mercury in paint are not considered hazardous waste and can be disposed of at an approved landfill facility, pending regulatory and landfill operator approval.
  - The concentrations of leachable lead in two (2) paint samples and one (1) supplemental paint and wood substrate sample collected from the exterior of the light tower and attached shed were above the Schedule II leachate criterion for lead (5.00 mg/L) provided in the provincial guidance document for leachable toxic waste (GD-PPD-26.1). Since the concentrations of leachable lead in these paint samples and the paint and wood substrate sample are at levels considered to be hazardous, these materials (painted metal and painted wooden siding), if removed from the Site, must be disposed of at a hazardous waste treatment facility. Alternatively, the painted metal panels, if removed from the light tower during future demolition activities, may be sent to a metal recycling facility.

- The white paint exceeding the lead leachate criterion is deteriorated (i.e. peeling and flaking) therefore in order to help prevent impacts to the environment, priority should be given to the removal of this deteriorated paint.
- If potential lead or mercury containing paint finishes that were not sampled during the March 2013 HBMS and the current demolition HMBA are encountered in the future, samples should be obtained and tested to verify lead and mercury content. This should be done as soon as the paint is encountered and before it is disturbed. This includes materials that are currently concealed.
- All of the paint samples analyzed for PCBs were non-detect (<5.0 mg/kg) and therefore did not exceed the CCME CSQG of 33 mg/kg for PCBs in soil at a commercial site or the criterion of 50 mg/kg for PCB solid provided in the provincial guidance document for leachable toxic waste (GD-PPD-26.1).
- There are potential adverse human health impacts associated with disturbing (e.g., scraping) lead and mercury-based paint finishes. As a precautionary measure, AMEC recommends handling lead and mercury-based paint finishes during demolition, as follows:
  - In areas of minor peeling or flaking the paint should be removed using wet scraping techniques.
  - In areas of extensive peeling and flaking the paint should be removed and more extensive particulate control measures may be required.
  - In areas where lead or mercury-based paint finishes are present and in poor condition, an experienced contractor should be utilized for decommissioning/demolition activities.
  - Steps should be taken to ensure that workers and anyone present in and around areas being dismantled or demolished are protected. The contractor should also ensure that dust generation and migration is minimized.

#### **Mercury-Containing Materials/Equipment**

- Suspected mercury-containing potential HID light bulbs were observed in the light tower.
- The disturbance, control or disposal of mercury-containing material/equipment (e.g., light bulbs) should be carried out in accordance with applicable criteria/regulations (refer to Section 1.4). The presence/absence of mercury in these materials should be confirmed through a contractor or consultant prior to disturbance or disposal of these materials. Typically these materials are sent to a recycling or hazardous waste disposal facility and not a landfill.
- Mercury-containing HID light bulbs should be removed intact and returned to the manufacturer for recycling, or disposed of at an approved hazardous waste disposal facility.

#### **Silica Dust**

- Silica is expected to be present in concrete used to construct the foundations of the light tower and attached shed. Precautions should be taken to prevent/reduce exposure to silica dust during any disturbance/demolition of silica-containing products, such as wetting the surface of the materials to prevent dust emissions, donning respiratory protection, and cleaning tools and clothing prior to exiting the work area.

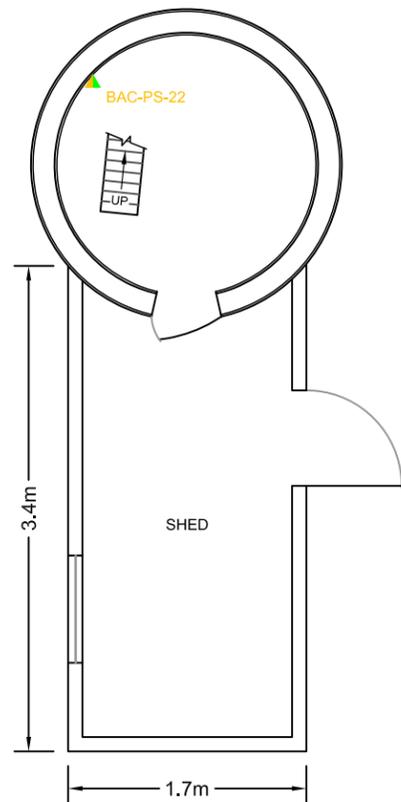
Hazardous materials identified at the light tower (and attached shed) during the March 2013 HBMS and the current demolition HMBA are summarized in Table 6-2.

**Table 6-2: Hazardous Material Description**

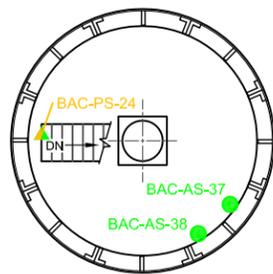
Hazardous Material	Regulatory Guidelines	Location	Quantity (Approx.)	Disposal
Leachable Lead-Based White Paint on Wooden Siding and Metal Panels	Federal Hazardous Products Act (R.S.1985, c. H-3); NL Department of Environment 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1); Federal Transportation of Dangerous Goods Act (1992, c. 34)	Site Building Exterior	80 m <sup>2</sup>	These materials (painted wooden siding and painted metal panels) are considered hazardous wastes and must be disposed according to NL policy and the Solid Waste Management Authority by an approved hazardous waste disposal company and transported under the federal Transportation of Dangerous Goods (TDG) Act. Alternatively, the painted metal panels may be sent to a metal recycling facility, provided the facility is informed about the concentration of lead in the paint.
Lead and Mercury-Based Paint		All Other Paint Finishes (Sampled for Lead and Mercury in Paint)	-	All painted materials that were sampled and analyzed for lead and mercury, with the exception of the painted wooden siding and painted metal panels on the Site building exterior, may be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Mercury-Containing HID Light Bulbs	Federal Hazardous Products Act (R.S.1985, c. H-3)	Site Building Interior	One (1) HID light fixture. It is assumed that there are two (2) light bulbs for each fixture.	These materials can be disposed of at a recycling facility.
Silica Dust	American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), 2010	Concrete Building Materials	-	All concrete can be disposed of at a Construction & Demolition Site or at a Regional Solid Waste Disposal Facility.

**APPENDIX A6**

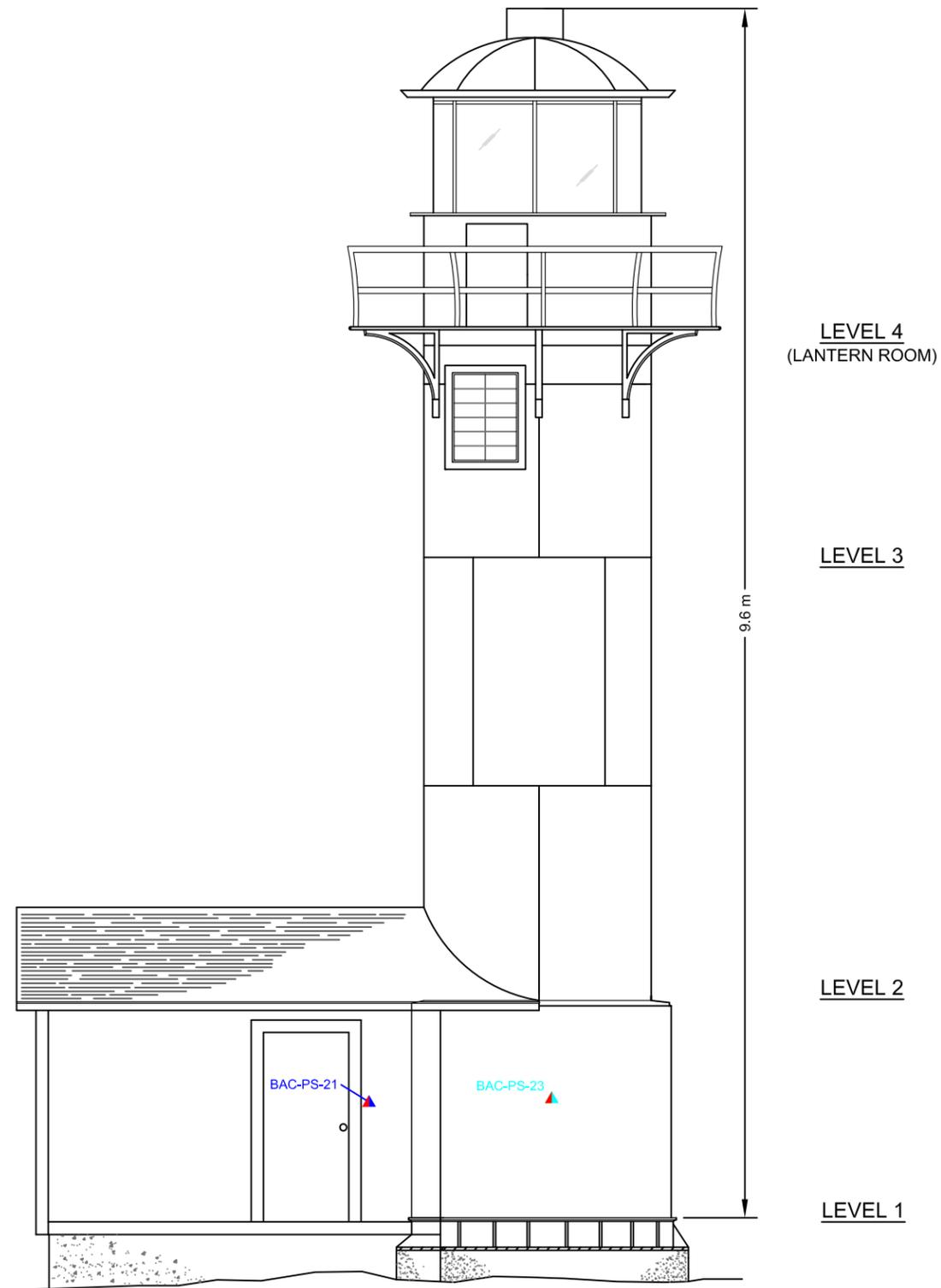
**FIGURES**



LEVEL 1



LEVEL 4  
(LANTERN ROOM)



**LEGEND:**

- ▲ PAINT SAMPLE LOCATION - RESULTS EXCEED 90 mg/kg AND LESS THAN 5000 mg/kg FOR LEAD AND NO CRITERIA EXCEEDANCES FOR MERCURY
- ▲ PAINT SAMPLE LOCATION - RESULTS EXCEED 5000 mg/kg LEAD AND EXCEED 10 mg/kg AND LESS THAN OR EQUAL TO 24 mg/kg FOR MERCURY
- ▲ PAINT SAMPLE LOCATION - RESULTS EXCEED 5000 mg/kg FOR LEAD AND EXCEED 24 mg/kg FOR MERCURY
- ASBESTOS SAMPLE LOCATION - ASBESTOS NOT DETECTED OR RESULTS < 1% FOR ASBESTOS

**NOTE:**

1. ALL DIMENSIONS ARE IN METRES.
2. DO NOT SCALE FROM FIGURE.
3. THIS FIGURE IS INTENDED TO SHOW RELATIVE LOCATIONS AND CONFIGURATION OF THE STUDY AREA IN SUPPORT OF THIS REPORT.
4. ALL LOCATIONS, DIMENSIONS, AND ORIENTATIONS ARE APPROXIMATE.
5. THIS FIGURE SHOULD NOT BE USED FOR PURPOSES OTHER THAN THOSE OUTLINED ABOVE.
6. THIS FIGURE CONTAINS INTELLECTUAL PROPERTY OF PUBLIC WORKS AND GOVERNMENT SERVICES CANADA AND MAY NOT BE REPRODUCED OR COPIED WITHOUT THEIR WRITTEN CONSENT.
7. THIS FIGURE WAS PRODUCED FROM FIGURES SUPPLIED BY PUBLIC WORKS AND GOVERNMENT SERVICES CANADA.



Public Works and  
Government Services  
Canada

Travaux publics et  
Services gouvernementaux  
Canada

**AMEC Environment & Infrastructure**

133 Crosbie Road  
St. John's, NL  
A1B 4A5  
709-722-7023



DWN BY:

H. Ryan

CHK'D BY:

L. Wiseman

SCALE:

As Shown

PROJECT

DEMOLITION HAZARDOUS BUILDING MATERIALS  
ASSESSMENT AND INVENTORY,  
BACALHAO ISLAND LIGHTSTATION  
BACALHAO ISLAND, NL

TITLE

LIGHT TOWER SAMPLE LOCATION PLAN

DATE

February 2014

PROJECT No.

TF13076513

REV. No.

0

FIGURE No.

6.1

**APPENDIX B6**  
**PHOTOGRAPHIC RECORD**



Photo 1: View of the light tower and attached shed.



Photo 2: View of the east side of the attached shed.



Photo 3: View of exterior of the light tower.



Photo 4: View of concrete foundation of the light tower.



Photo 5: View of interior of the attached shed.



Photo 6: View of a data logger and a bottle of Neutralizer inside the attached shed.



Photo 7: View of electrical panels inside the attached shed.



Photo 8: View of electrical panel inside the attached shed.



Photo 9: View of metal door to light tower inside the attached shed.

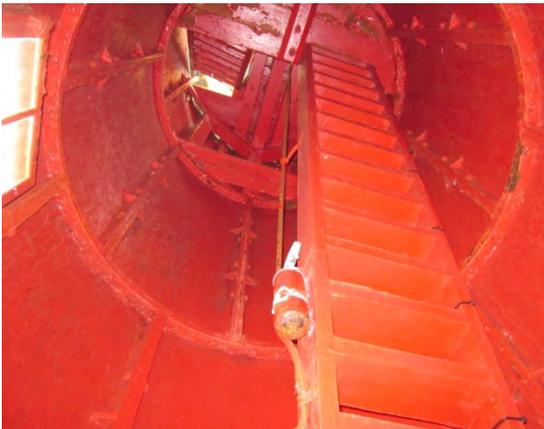


Photo 10: View of interior of the light tower.



Photo 11: View of plaque inside the light tower.



Photo 12: View of ceiling at top of the light tower.



Photo 13: View of broken window pane at top of the light tower.



Photo 14: View of broken window pane at top of the light tower.



Photo 15: View of broken window pane at top of the light tower.



Photo 16: View of location of caulking sample BAC-AS-37.



Photo 17: View of location of unknown material sample BAC-AS-38.

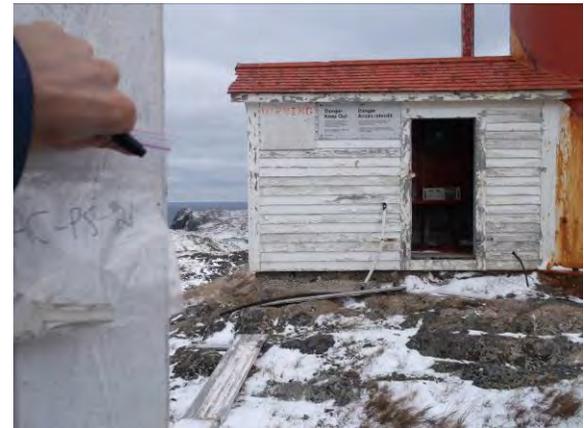


Photo 18: View of paint sample BAC-PS-21.



Photo 19: View of paint sample BAC-PS-22.



Photo 20: View of paint sample BAC-PS-23.



Photo 21: View of paint sample BAC-PS-24.



Photo 22: View of fire extinguisher inside the light tower.



Photo 23: View of lamp at top of the light tower.



Photo 24: View of label on lamp inside the light tower.

**APPENDIX C6**  
**SAMPLE AND ANALYTICAL SUMMARY TABLES**

**Table C6-1: Asbestos Sample Descriptions and Analytical Results**

Sample ID	Material (Layer) Analyzed	Detailed Material Description	Room	Analytical Result
BAC-AS-37	Caulking	White caulking on interior of window at top of light tower	Light Tower	ND
BAC-AS-38	Material between panels	Orange layer between metal panels at top of light tower	Light Tower	ND

Notes:

ND: non-detect

ND = <1% asbestos

Shaded results greater than 1% asbestos by dry weight are considered to be asbestos-containing materials (ACMs) as outlined in the Newfoundland and Labrador Asbestos Abatement Regulations (Reg. 111/98)



**Table C6-2: Paint Sample Descriptions and Lead Analytical Results**

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/kg)	Total Lead (mg/kg)
BAC-PS-21	White	Wood	Attached Shed Exterior	5.0	<b>7,500</b>
BAC-PS-22	Red	Metal	Light Tower Level 1	5.0	<b>3,300</b>
BAC-PS-23	White	Metal	Light Tower Exterior	5.0	<b>20,000</b>
BAC-PS-24	Grey on green on red	Wood	Light Tower Level 4	5.0	<b>2,600</b>
BAC-PS-DUP-3	White	Metal	Light Tower Exterior	5.0	<b>50,000</b>

Notes:

RDL: Reportable detection limit

<X: Non Detect

HPA: Hazardous Products Act

BAC-PS-DUP-3 is a duplicate of BAC-PS-23

**Bold and shaded results indicate that lead concentration is above the relevant Federal HPA criterion of 90 mg/kg**

**Shaded results indicate that lead concentration is above the former Federal HPA criterion of 5000 mg/kg**



**Table C6-3: Paint Sample Descriptions and Mercury Analytical Results**

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/kg)	Total Mercury (mg/kg)
BAC-PS-21	White	Wood	Attached Shed Exterior	1.0	<b><u>23</u></b>
BAC-PS-22	Red	Metal	Light Tower Level 1	1.0	9.2
BAC-PS-23	White	Metal	Light Tower Exterior	1.0	<b>50</b>
BAC-PS-24	Grey on green on red	Wood	Light Tower Level 4	1.0	2.7
BAC-PS-DUP-3	White	Metal	Light Tower Exterior	1.0	9.7

Notes:

RDL: Reportable detection limit

<X: Non Detect

HPA: Hazardous Products Act

BAC-PS-DUP-3 is a duplicate of BAC-PS-23

***Bolded, italicized and underlined results indicate that mercury concentration is above the Federal HPA criterion of 10 mg/kg***

***Bolded, and shaded results indicate that mercury concentration is above the Canadian Council of Ministers of the Environment Canadian Soil Quality Guidelines for mercury in soil at a commercial site (24 mg/kg)***



**Table C6-4: Paint Sample Descriptions and PCB Analytical Results**

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/kg)	Total PCB (mg/kg)
BAC-PS-22	Red	Metal	Light Tower Level 1	5.0	<5.0
BAC-PS-23	White	Metal	Light Tower Exterior	5.0	<5.0

Notes:

RDL: Reportable detection limit

<X: Non Detect

**Bold and shaded results indicate that PCB concentration is above the Canadian Council of Ministers of the Environment Canadian Soil Quality Guidelines for PCBs in soil at a commercial site (33 mg/kg)**



**Table C6-5: Paint Sample Descriptions and Lead Leachate Analytical Results**

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/L)	Lead Leachate (mg/L)
BAC-PS-21	White	Wood	Attached Shed Exterior	0.005	28
BAC-PS-DUP-3	White	Metal	Light Tower Exterior	0.005	83
BAC-PS-21A	White	Wood	Attached Shed Exterior	5.0	33

Notes:

RDL: Reportable detection limit

BAC-PS-DUP-3 is a duplicate of BAC-PS-23

Shaded results indicate that lead leachate concentration is above the provincial guidance document for leachable toxic waste criterion for lead (5.00 mg/L)



**Table C6-6: Paint Sample Descriptions and Mercury Leachate Analytical Results**

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/L)	Mercury Leachate (mg/L)
BAC-PS-23	White	Metal	Light Tower Exterior	0.0001	0.00025

Notes:

RDL: Reportable detection limit

Shaded results indicate that mercury leachate concentration is above the provincial guidance document for leachable toxic waste criterion for mercury (0.10 mg/L)

