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## PRE-DEMOLITION HAZARDOUS BUILDING MATERIALS ASSESSMENT

# Mine Infrastructure and Camp Buildings, Sä Dena Hes Mine, Yukon Territory

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REPORT



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## **Executive Summary**

Golder Associates Ltd. (Golder) was retained by Keyeh Nejehe Golder, who was retained by Teck Metals Ltd. (Teck) to conduct a pre-demolition hazardous building materials (HBM) assessment of the Sä Dena Hes Mine buildings at the Sä Dena Hes Mine Site approximately 70 km by road north of Watson Lake, Yukon Territory. The assessment was completed in two phases, on July 31, and August 1, and on September 17, to September 21, 2012. The assessment involved Golder's technical staff, assessors from Access Consulting Group, and field assistants from Liard First Nations. At the request of Teck, the results of this assessment are presented in two reports. This report presents the results of the Mine Infrastructure and Camp Buildings. A second report titled "Pre-Demolition Hazardous Building Materials Assessment, Concentrator Complex and Associated Structures, Sä Dena Hes Mine, Yukon Territory", dated December 7, 2012 should be read in conjunction with this document.

The purpose of the assessment was to determine the presence and location of HBM in buildings at the Site; including asbestos-containing materials (ACM) and/or equipment, or building materials containing lead, mercury, ozone-depleting substances (ODS), polychlorinated biphenyls (PCB), and radioactive substances. Golder was also requested to determine the presence and location of chemicals within the buildings that might require special handling during demolition. Potential contaminants and other environmental issues present outside of the footprint of the buildings investigated are the subject of additional Golder reports. The assessment was conducted in accordance with the requirements of Part 10.56 of the Yukon Workers' Compensation Health and Safety Board Occupational Health Regulations which require that before work begins on the demolition or salvage of machinery, equipment, buildings, or structure, the site shall be inspected in order to identify hazardous materials that may be handled, disturbed, or removed.

It is concluded that hazardous materials are present in buildings at the site. Quantities of ACM were observed within the Subject Buildings, and additional suspect ACM may be present throughout the buildings as noted in this report. Paints and other surface coating materials in concentrations above that required by the regulations to be considered a lead-containing material are present within the Subject Buildings. Other hazardous building materials including mercury-containing equipment, PCB, radioactive, and crystalline silica were also observed in the Subject Buildings. Additional investigation was completed for the presence of stored chemicals. Other observations made regarding materials that might represent a risk of worker exposure to hazardous materials are also included in the text.

This report also presents recommendations that will enable Teck to help make sure that the exposure risk to workers is mitigated to acceptable levels during hazardous materials removal and demolition of the buildings. The risk can be mitigated to acceptable levels through strict adherence to the requirements of the appropriate regulations and guidelines regarding the safe handling, storage, and disposal of these materials. Reference is made to the appropriate regulations and guidelines in the body of the text. Specific recommendations regarding the suggested remediation measures for specific materials are made as appropriate.



## Table of Contents

<b>1.0 INTRODUCTION.....</b>	<b>1</b>
<b>2.0 PURPOSE.....</b>	<b>1</b>
<b>3.0 SCOPE OF WORK .....</b>	<b>2</b>
<b>4.0 REGULATORY FRAMEWORK .....</b>	<b>2</b>
4.1 Asbestos-Containing Materials .....	2
4.2 Lead-Containing Paint .....	3
4.3 Other Hazardous Building Materials .....	3
4.3.1 Mercury .....	3
4.3.2 Ozone-Depleting Substances (ODS) .....	3
4.3.3 Polychlorinated Biphenyls (PCB) .....	3
4.3.4 Radioactive Materials.....	3
4.3.5 Crystalline Silica.....	4
4.4 Chemicals, and Other Hazardous Issues .....	4
<b>5.0 METHODS AND ANALYSIS .....</b>	<b>4</b>
5.1 Asbestos-Containing Materials (ACM) Investigation.....	4
5.1.1 Method .....	4
5.1.2 Sampling of Asbestos-Containing Materials.....	5
5.2 Lead-Containing Paints and Other Surface Coating Materials .....	6
5.2.1 Method .....	6
5.2.2 Sampling of Lead-Containing Paints .....	6
5.3 Other Hazardous Building Materials .....	7
5.3.1 Method .....	7
5.4 Chemicals, and Other Hazardous Issues .....	7
5.4.1 Method .....	7
<b>6.0 SUBJECT BUILDINGS DESCRIPTION .....</b>	<b>7</b>
6.1 Camp Buildings.....	8
6.2 Powerhouse.....	8
6.3 Warehouse, Dry, and Lab.....	9



# PRE-DEMOLITION HAZARDOUS BUILDING MATERIALS ASSESSMENT

6.4	Office Complex .....	9
6.5	Shop and Metal Depot .....	10
6.6	Warehouse .....	10
6.7	Cold Storage Warehouse .....	11
6.8	Outbuildings.....	11
<b>7.0</b>	<b>ASSESSMENT RESULTS AND DISCUSSION.....</b>	<b>12</b>
7.1	Asbestos-Containing Materials .....	12
7.1.1	Camp Buildings.....	12
7.1.2	Powerhouse .....	13
7.1.3	Warehouse, Dry, and Lab .....	14
7.1.4	Office Complex .....	14
7.1.5	Shop and Metal Depot .....	14
7.1.6	Warehouse.....	15
7.1.7	Cold Storage Warehouse.....	15
7.1.8	Outbuildings.....	15
7.2	Lead-Containing Paints and Other Surface Coating Materials .....	16
7.2.1	Camp Buildings.....	16
7.2.2	Powerhouse .....	17
7.2.3	Warehouse, Dry, and Lab .....	17
7.2.4	Office Complex .....	18
7.2.5	Shop and Metal Depot .....	19
7.2.6	Warehouse.....	19
7.2.7	Cold Storage Warehouse.....	19
7.2.8	Outbuildings.....	20
7.3	Other Hazardous Building Materials .....	21
7.3.1	Mercury .....	21
7.3.2	Ozone-Depleting Substance .....	22
7.3.3	Polychlorinated Biphenyls.....	22
7.3.4	Radioactive Materials.....	22
7.3.5	Crystalline Silica.....	23
7.4	Chemicals.....	23



# PRE-DEMOLITION HAZARDOUS BUILDING MATERIALS ASSESSMENT

7.5	Microbial and Biological Contamination .....	23
<b>8.0</b>	<b>CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>23</b>
8.1	Asbestos-Containing Materials .....	23
8.2	Lead-Containing Paint .....	25
8.3	Other Hazardous Building Materials .....	26
8.3.1	Mercury .....	26
8.3.2	Ozone-Depleting Substance .....	26
8.3.3	Polychlorinated Biphenyls .....	26
8.3.4	Radioactive Materials.....	27
8.3.5	Crystalline Silica.....	27
8.4	Chemicals.....	27
8.5	Microbial and Biological Contamination .....	28
<b>9.0</b>	<b>LIMITATIONS .....</b>	<b>28</b>
<b>10.0</b>	<b>CLOSURE.....</b>	<b>30</b>

## TABLES

Table 1:	Summary of Laboratory Analysis Results for Suspect ACM in the Powerhouse .....	13
Table 2:	Summary of Laboratory Analysis Results for Suspect ACM in the Outbuildings .....	15
Table 3:	Lead Paint Results – Camp Buildings .....	16
Table 4:	Lead Paint Results – Powerhouse .....	17
Table 5:	Lead Paint Results – Warehouse, Dry, and Lab .....	18
Table 6:	Lead Paint Results – Warehouse, Dry, and Lab .....	18
Table 7:	Lead Paint Results – Shop and Metal Depot.....	19
Table 8:	Lead Paint Results – Cold Storage Warehouse .....	20
Table 9:	Lead Paint Results – Cold Storage Warehouse .....	20



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## PRE-DEMOLITION HAZARDOUS BUILDING MATERIALS ASSESSMENT

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### **APPENDICES**

#### **APPENDIX A**

Site Plan and Floor Plans

#### **APPENDIX B**

Outbuilding Photographs

#### **APPENDIX C**

Asbestos Inventory Tables

#### **APPENDIX D**

Selected Photographs

#### **APPENDIX E**

Asbestos Laboratory Results

#### **APPENDIX F**

Lead Laboratory Results

#### **APPENDIX G**

PCB Laboratory Results

#### **APPENDIX H**

Chemical Inventory



## 1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by Keyeh Nejehe Golder, who was retained by Teck Metals Ltd. (Teck) to conduct a pre-demolition hazardous building materials (HBM) assessment of the Sä Dena Hes Mine buildings, hereafter referred to as the “Subject Buildings” located at the Sä Dena Hes Mine Site approximately 70 km by road north of Watson Lake, Yukon Territory (the Site).

The overall pre demolition HBM assessment was completed in two phases. The preliminary assessment phase was completed on July 31, and August 1, 2012 by Golder’s technical staff. The results of this assessment were presented in a report titled “Hazardous Building Materials Preliminary Assessment Report and Work Plan, Sä Dena Hes Mine, Yukon Territory”, dated September 12, 2012. The second assessment phase was completed on September 17, 2012 to September 21, 2012 by one assessor from Golder’s technical staff, two assessors from Access Consulting Group (Access), and two field assistants from Liard First Nations (LFN). At the time of the assessments, the Subject Buildings were unoccupied.

At the request of Teck, the results of the overall pre demolition HBM assessment are presented in two reports. This report presents the portion of the assessment results for the Camp buildings, Powerhouse, Warehouse Dry and Lab, Shop and Metal Depot, Office Complex, Warehouse, Cold Storage Warehouse, and the numerous outbuildings present at the Site. The second report titled “Pre-Demolition Hazardous Building Materials Assessment, Concentrator Complex and Associated Structures, Sä Dena Hes Mine, Yukon Territory”, dated December 7, 2012, should be read in conjunction with this document. The results of the preliminary assessment have been incorporated in these two reports. A site plan showing the approximate locations of where the buildings are present at the Site is presented in Appendix A.

## 2.0 PURPOSE

The purpose of the assessment was to determine the presence and location of HBM in the Subject Buildings; including asbestos-containing materials (ACM) and/or equipment, or building materials containing lead, mercury, ozone-depleting substances (ODS), polychlorinated biphenyls (PCB), and radioactive substances. Golder was also requested, in accordance with the requirements of the Yukon Occupational Health and Safety Regulations (OHSR), the Yukon Special Waste Regulations (YT SWR), the Yukon Contaminated Sites Regulation (YT CSR), and the Yukon Government, Department of Energy, Mines, and Resources “Yukon Mine Site and Reclamation Closure Policy”, to determine the presence and location of chemicals, and other materials within the Subject Buildings that might require special handling during demolition of the Subject Buildings. Potential contaminants and other environmental issues present outside of the footprint of the buildings investigated are the subject of additional separate Golder reports.

The assessment was conducted in accordance with the requirements of Part 10.56 of the Yukon Workers’ Compensation Health and Safety Board Occupational Health and Safety Regulations (YT OHSR) which requires that before work begins on the demolition or salvage of machinery, equipment, buildings, or structure, the site shall be inspected in order to identify hazardous materials that may be handled, disturbed, or removed.



### 3.0 SCOPE OF WORK

The required scope of work for the preliminary HBM assessment was as follows:

- Prepare a site specific health and safety plan for the field work for review and approval by Teck;
- Conduct a representative visual review of the infrastructure buildings in order to assess the construction style and homogeneity of building materials present;
- Collect a select number of samples of accessible building materials in order to determine whether or not, in general, asbestos-containing materials (ACM) were used in the construction of the buildings; and
- Collect a select number of samples of process residues present within key mine buildings to determine whether or not lead and other metals that might present a hazard to workers, or necessitate special handling and disposal measures, are present.

In addition to the above stated scope of work, a limited number of samples of suspect lead-containing paint (LCP) were collected from the Subject Buildings.

The required scope of work of Phase 2 of the HBM assessment was as follows:

- Conduct a limited or detailed additional investigation (as required and as identified during the preliminary assessment) of materials present within the Subject Buildings; and
- Prepare a final written report which details the locations of identified HBM and other materials assessed as part of this investigation, and provides recommendations regarding their removal and safe handling prior to, or during, demolition.

### 4.0 REGULATORY FRAMEWORK

The Yukon Occupational Health Regulations (OHR), under the Yukon Occupational Health and Safety Act (OHSA) prescribe general requirements for the management of hazardous substances in the workplace.

The Yukon Special Waste Regulations (YT SWR) and the Yukon Solid Waste Regulations, together with the Federal Transportation of Dangerous Goods (TDG) Act and Regulations, provides a system for proper handling, storage, transportation, treatment, recycling, and disposal of hazardous wastes.

The Yukon Government, Department of Energy, Mines, and Resources “Yukon Mine Site and Reclamation Closure Policy, Financial and Technical Guidelines” provide guidelines for decommissioning mine infrastructure.

Part 10.56 of the Yukon OHR requires that before work begins on the demolition or salvage of machinery, equipment, buildings, or structure, the site shall be inspected in order to identify hazardous materials that may be handled, disturbed, or removed.

#### 4.1 Asbestos-Containing Materials

Asbestos is defined in the Yukon OHR in Section 33 as chrysotile, crocidolite, amosite, tremolite, anthophyllite, and actinolite when in their fibrous form. Therefore, an ACM is any material containing chrysotile, crocidolite, amosite, tremolite, anthophyllite, or actinolite.

Part 33 to Part 39 of The Yukon OHR describe the requirements for asbestos removal and control, including decontamination, required personal protective equipment, and asbestos exposure limits.



## **4.2 Lead-Containing Paint**

The Canadian Ministry of Health, Health Hazardous Products Act defines lead-containing surface coating materials as a paint or other similar material that dries to a solid film that contains over 90 mg/kg (0.009%) dry weight of lead.

The transportation and disposal of LCP and other surface coating materials are regulated under the TDG Act and by the YT SWR.

## **4.3 Other Hazardous Building Materials**

Other substance specific regulatory requirements are presented in the Yukon OHR, the Yukon SWR, and in the Federal Regulations.

### **4.3.1 Mercury**

When taken out of service, mercury-containing equipment should be disposed of in accordance with the YT SWR, and transported in accordance with the requirements of the Federal TDG Act and Regulation. The requirements for handling mercury in the workplace are dealt with in Section 31 of the Yukon OHR.

### **4.3.2 Ozone-Depleting Substances (ODS)**

The Federal Halocarbon Regulations SOR/2003-289 provides a framework for the safe management, storage and disposal of ODS (halocarbons). According to the Federal Halocarbon Regulations, a substance is considered to be a halocarbon if it is listed in Schedule I of the Regulations.

### **4.3.3 Polychlorinated Biphenyls (PCB)**

The federal PCB Regulations (SOR/2008-273) provide standards for the handling, storage and disposal of PCBs and equipment containing PCBs under the Canadian Environmental Protection Act, 1999. The Regulation imposes deadlines for the elimination of all PCBs and PCB-containing material currently in storage, and requires the use of all other PCBs to be phased out. Subparagraph 16.(2) allows for light ballasts containing 50 mg/Kg (ppm) PCB, or more, to remain in service until December 31, 2025 if the equipment is in use on the day on which the regulations came into force. Equipment with a PCB concentration of between 2 mg/kg (ppm) and 50 mg/kg (ppm) may remain in service until the day that the liquid is drained from the equipment.

According to the Environment Canada's Reports EPS 2/CC/2 (revised) August 1991, Identification of Lamp Ballasts Containing PCBs and Handbook on PCBs in Electrical Equipment, (Third Edition), PCBs are generally associated with electrical equipment, such as transformers and fluorescent light ballasts, manufactured before 1979.

### **4.3.4 Radioactive Materials**

The Federal Nuclear Substances and Radiation Devices Regulation (SOR/2000-207) prescribes requirements for the safe handling, storage, and disposal of equipment containing radioactive materials under the Nuclear Safety and Control Act. Part 6 of this Regulation provides exemptions for smoke detectors meeting defined criteria.



### 4.3.5 Crystalline Silica

Exposure to crystalline silica is regulated under Section 42 of the YT OHR which requires that a worker who is exposed to dust containing 1% or more by weight free silica at or above 50% of the exposure limits presented in Table 10 of the Regulation be medically examined. Silica may be released from concrete during processes such as drilling, sawing, and chipping.

## 4.4 Chemicals, and Other Hazardous Issues

The Yukon SWR prohibits the unauthorized release of special wastes into the environment. The Yukon SWR considers industrial chemicals as special wastes. The Yukon SWR provides standards for special waste disposal options.

## 5.0 METHODS AND ANALYSIS

The following sections describe Golder's approach to the requested assessment and provide detail regarding the methods of investigation, and, where appropriate, sampling and laboratory analysis of certain materials.

### 5.1 Asbestos-Containing Materials (ACM) Investigation

#### 5.1.1 Method

During the HBM assessment, Golder reviewed accessible structural and mechanical systems, and architectural finishes. Typical materials sampled during an assessment of this type to determine asbestos concentration include (but are not limited to):

- Ceiling finishes: drywall and ceiling tiles;
- Wall finishes: drywall;
- Floor finishes: floor tile and sheet flooring; and
- Additional materials: cove base, mechanical system insulation, window putty, and caulking.

Based on Golder's professional experience, the following materials (if present) were assumed not to contain asbestos during this assessment, and were classified as non-asbestos-containing materials (NACM):

- Brick, concrete, and wood;
- Cinder blocks (not including potential asbestos-containing vermiculite fill insulation);
- Fibreglass materials;
- Plastics, rubber materials, and metals; and
- Ceramics, glass, and silicon.



### ***Gaskets***

Golder has not assessed gaskets in mechanical systems (for example, in pipe flanges), or in fixed equipment or lighting due to the difficulty in accessing this material. Consequently, all gaskets are assumed to contain asbestos. Gaskets may be present in mechanical systems, such as furnaces, motors, pumps, and piping, as well as in pot lights or intrinsically safe lighting throughout the Subject Buildings and are not identified in each location, but are assumed to be present wherever such systems or equipment exist.

### ***Fixed Equipment***

Golder conducted a detailed assessment of the accessible fixed equipment, tanks, and vessels within the Subject Building to determine (to the extent practicable) whether additional hazardous materials are present on or in this equipment. In-place equipment was visually assessed for the presence of the suspect HBM above but was not disassembled in order to determine the presence or absence of such materials.

### ***Flooring Materials***

Although several locations within the Subject Building were examined for the presence of flooring concealed below other floor materials, Golder did not examine all areas for such materials as this would require the complete removal of all visible flooring. Therefore it is possible that suspect ACM (for example floor levelling compounds or other vinyl flooring) may be uncovered during a complete removal of flooring.

### ***Electrical Equipment***

Electrical equipment was present in the Subject Buildings. The electrical equipment in the Powerhouse, the Warehouse, Lab, and Dry, Office Complex, Distribution Pump House, the Security Building, and the Lake Pump House was found to be energized at the time of the assessment. Energized electrical equipment was not inspected. The electrical equipment in all other buildings was inspected for the presence of suspect ACM such as wire insulation, arc shuts, and other electrical insulating materials. No suspect ACM was observed in the equipment inspected.

### ***Mechanical Systems***

A number of pipes and mechanical systems were present throughout the Subject Buildings. These were observed to be uninsulated. Consequently, no suspect ACM was observed on pipes and mechanical systems within the Subject Buildings.

## **5.1.2 Sampling of Asbestos-Containing Materials**

For suspect ACM the assessment was intrusive in nature. A small volume of material was sampled either from a damaged section of suspect material, or cut out of intact material. In some locations, sampling required access into wall cavities and other enclosed areas. Consequently, in some locations, existing building materials and finishes were damaged in order to access concealed materials.



Sampling for ACM requires the removal of a small quantity of each material to be tested. Typical sample size is approximately 2 centimetre (cm) x 2 cm; and penetration is made to the base of the material being sampled. If multiple layers of materials are present, each layer is separated into an individual sample by the laboratory. The number of samples required to assess asbestos content was determined by Golder on a material-by-material basis, based on the professional judgment of qualified Golder personnel. For example, non-homogeneous materials known to have high variability in asbestos concentration require more samples to reduce the probability of obtaining a false negative sample. A half face piece respirator equipped with P100 cartridges was worn during the sampling of all suspect ACM.

Samples of suspect ACM were submitted to ATC Associates Inc. (ATC) in Cincinnati, OH, for analysis of asbestos content using Polarized Light Microscopy and dispersion staining (Method: EPA/600/R-93/116). ATC has received its certificate of accreditation from the National Voluntary Laboratory Accreditation Program (NVLAP) a US National Institute of Standards and Technology (NIST) program. ATC's Laboratory Code under this program is Z00471-0.

## 5.2 Lead-Containing Paints and Other Surface Coating Materials

### 5.2.1 Method

Samples of different colours of paint or primers present on walls, ceilings, or other major components (including structural components where accessible) were sampled to the full depth of the finish. If a colour of paint is determined to contain lead, all paints of similar colour, or present on similar substrates, within the Subject Buildings are also assumed to contain lead.

### 5.2.2 Sampling of Lead-Containing Paints

For suspect LCP the assessment was intrusive in nature. A small volume of material was sampled either from a damaged section of suspect material or cut out of intact material. For suspect materials present on architectural finishes, sampling focused upon loose and flaking areas of the finish that might require removal during building demolition. Representative sampling was also completed on structural elements of the Subject Buildings that might require torch cutting or other aggressive methods of hand demolition.

The sampling of LCP requires removal of the paint to the substrate, and includes all paint layers present. Typical sample size is approximately 1 inch x 1 inch; and penetration is made to the base of the material being sampled. The procedures used during sample collection were in accordance with the YT OHR and associated guidelines. A half face piece respirator equipped with P100 cartridges was worn during the sampling of all suspect LCP.

Samples of suspected LCP were submitted to Maxxam Analytics Inc., in Burnaby, BC, for analysis of lead content. Whenever necessary, and possible, paint was separated from any backing material such as paper, concrete or wood prior to analysis. Suspect LCP samples were analyzed for lead content using inductive coupled plasma (ICP) analysis. Maxxam Analytics Inc. has received its Certificate of Laboratory Proficiency from the Canadian Association for Laboratory Accreditation Inc., (CALA).



## **5.3 Other Hazardous Building Materials**

### **5.3.1 Method**

During this assessment, the Subject Buildings were visually assessed for the presence of:

- Mercury in thermostat control systems and switches;
- Ozone Depleting Substances;
- Radioactive sensors (e.g., smoke and heat detectors); and
- PCBs in ballasts (Camp buildings only). A representative number of lamp ballasts (approximately 5%) were examined within the Camp buildings to determine age and probability of containing PCB. Selected Solid Building materials in the Camp buildings were assessed for the presence of PCB. Sampling and laboratory analysis of these materials was completed where appropriate.

Due to the construction age of the Subject Buildings with the exception of the Camp buildings (1991) no assessment of these buildings was conducted for the presence of polychlorinated biphenyls (PCB).

The presence of concrete containing crystalline silica was also noted where observed.

## **5.4 Chemicals, and Other Hazardous Issues**

### **5.4.1 Method**

Golder conducted an assessment of stored chemical in the Warehouse Dry and Lab, the Shop, and the Water Distribution Pump House because of the quantity of chemicals within these buildings. Chemicals were identified by labels present on containers. No sampling or analysis was completed on unlabelled chemicals. Identification and characterization of unlabelled chemicals will be the responsibility of any contractor required to remove and dispose of the items.

## **6.0 SUBJECT BUILDINGS DESCRIPTION**

The Subject Buildings discussed in this report comprise the Camp buildings, Powerhouse, Warehouse Dry and Lab, Shop and Metal Depot, Office Complex, Warehouse, Cold Storage Warehouse, and the outbuildings.



## 6.1 Camp Buildings



The Camp Buildings consist of five bunk trailers (named Bunk Trailer 1, 2, 3, 4, and 5 and identified on the site plan in Appendix A), a water and storage trailer, and a kitchen trailer. Each bunk trailer comprises two sets of multiple trailers connected by a wooden corridor. The water and storage trailer consists of two rooms, one with a water tank. The Kitchen Trailer was inaccessible during the assessments due safety concerns relating to a collapsed section of the roof. The Kitchen Trailer was assessed from the exterior only. This building comprises multiple individual trailers. Interior architectural finishes within the Camp Buildings include ceiling tiles, modular wall boards, floor tiles, and sheet flooring. The exteriors have metal cladding with metal roofs. All bunk rooms within the bunk trailers have room numbers on the doors.

## 6.2 Powerhouse



The Powerhouse has a total floor area of approximately 4,400 square feet and a height of approximately 25 feet. The structure is steel framed with fibreglass insulated metal cladding on a concrete foundation and a metal roof. The building contains one large open area with one Electrical Room.

Interior architectural finishes within the Powerhouse include fibreglass, metal cladding, drywall walls, and concrete floor.



### **6.3 Warehouse, Dry, and Lab**



The Warehouse, Dry, and Lab building has a floor area of approximately 5,000 square feet and a height of approximately 12 feet. The structure is wooden framed with fibreglass insulated metal cladding on a wood foundation. The Warehouse, Dry, and Lab has a shingled roof which is built upon another shingled roof. An attic space is present between the roofs. The building comprises a small storage area, a large storage area, an office area, an electrical room, a mine dry area, and a laboratory. Interior architectural finishes include ceiling tiles, modular wall and ceiling boards, drywall walls and ceilings, floor tiles, wood floors, and sheet flooring. A floor plan detailing the layout of the Warehouse, Dry, and Lab is present in Appendix A.

### **6.4 Office Complex**



The Office Complex building has a total floor area of approximately 2,000 square feet and a height of approximately 12 feet. The structure is wooden framed with fibreglass insulated metal cladding on a wood foundation and a shingled roof. The Office Complex building comprises multiple trailers joined together using wooden corridors. Interior architectural finishes include ceiling tiles, modular wall and ceiling boards, drywall walls and ceilings, floor tiles, sheet flooring, and carpeting. A floor plan detailing the layout of the Office Complex is present in Appendix A.



## 6.5 Shop and Metal Depot



The Shop and Metal Depot consists of two buildings. The Shop has a total floor area of approximately 1,080 square feet and a height of 25 feet. The Shop is metal framed with fiberglass insulated metal cladding on a concrete foundation and a metal roof. The Shop has one main area, a loft area, and small offices. Two containers are attached on the west side that are used for storage rooms. The Metal Depot is a small wooden structure with metal cladding sides and roof and a dirt floor. Interior architectural finishes of the Shop include fiberglass ceilings, metal walls, and a concrete floor.

## 6.6 Warehouse



The Warehouse has a total floor area of approximately 1,090 square feet and a height of approximately 20 feet. The Warehouse is a wood framed building with metal cladding, a metal roof. The Warehouse has one main area and a small wooden storage shed attached to the back of the building. Interior architectural finishes include wood ceilings, wood roof, and a dirt floor.



## 6.7 Cold Storage Warehouse



The Cold Storage Warehouse has a total floor area of approximately 2,000 square feet and a height of approximately 25 feet. The Cold Storage Warehouse is a metal framed building with metal cladding and a metal roof. The interior has exposed metal structural beams and a dirt floor.

## 6.8 Outbuildings

There are ten small outbuildings on the site. The outbuildings include:

- Carpentry Garage (Wooden structure with wood footings and wood shingled roof) (Photograph 1 in Appendix B);
- Garage (Wooden structure with metal cladding and wood shingled roof) (Photograph 2 in Appendix B);
- Security (Wooden structure with wood footings and wood shingled roof) (Photograph 3 in Appendix B);
- Gribler Ridge (seven wooden structures with wood shingled roofs; five cabins (two collapsed), a storage shed, and an outhouse) (Photograph 4 in Appendix B);
- Burnick Portal (metal clad building with metal roof) (Photograph 5 in Appendix B);
- Lake Pump Houses (wooden buildings with metal roof) (Photograph 6 in Appendix B);
- Radiator Banks (metal equipment) (Photograph 7 in Appendix B);
- Ambulance Garage (wooden structure with metal cladding and wood shingled roof) (Photograph 8 in Appendix B);
- Water Distribution Pump House and Water Tank (wooden structure on concrete foundation with metal roof and a large water tank) (Photograph 9 in Appendix B); and
- Diesel and Gas Tanks (Two large tanks with black liner beneath) (Photograph 10 in Appendix B).



## **7.0 ASSESSMENT RESULTS AND DISCUSSION**

The following sections present the results of sampling and assessment undertaken in the Subject Buildings. An overall Site Plan and Floor Plans for the Subject Buildings are presented in Appendix A. Inventory tables for ACM for the Camp buildings, the Office complex, and the Warehouse, Dry, and Lab are presented in Appendix C. Information regarding these and all of the remaining buildings (for which floor plans and/or inventory tables are not provided) is included in the text below. Selected photographs are included as Appendix D.

The results of the preliminary assessment are included in the results presented below.

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

The following general comments are applicable to all buildings discussed in this report:

- Gaskets present on all equipment are suspected to contain asbestos;
- Additional flooring materials such as suspect asbestos-containing levelling compounds and vinyl flooring may be present concealed below existing vinyl flooring in some buildings; and
- No suspect mechanical system insulation was observed in the Subject Buildings.

Additional discussion of the above referenced items is presented in Section 5.1 of this report. Laboratory sample results for all samples analysed to determine asbestos content are provided in Appendix E.

Electrical equipment was not assessed in the Powerhouse, the Warehouse, Dry, and Lab, the Office Complex, the Distribution Pump House, and the Security building as this equipment was observed to be energized at the time of the assessment. The electrical equipment in all other buildings was inspected for the presence of suspect ACM.

#### **7.1.1 Camp Buildings**

During Golder's assessment, a total of thirty-seven (37) samples of suspect ACM were collected from the Camp Buildings. Seven (7) of these samples were found to contain asbestos through laboratory analysis. The following is a summary of the ACM found within the Camp Buildings:

- Brown mosaic sheet flooring with asbestos-containing paper backing (Samples A32, A210, and A215) in the Bunk Trailers 1, 3, 4, and 5, and the Kitchen Trailer;
- Flower and square pattern sheet flooring with asbestos-containing paper backing (Samples A207, and A230) in Bunk Trailers 1, 2, 3, 4, and 5;
- Beige speckled sheet flooring with asbestos-containing paper backing (Sample A39) present in Bunk Trailer 2 and the Kitchen Trailer; and
- Dark charcoal grey mastic patches present on the roof of Bunk Trailer 4 (Sample A223).



Due to safety concerns with rooftop access the mastic identified in the roof of Bunk Trailer 4 has not been quantified. All of the above referenced materials contain chrysotile asbestos.

Asbestos inventory tables detailing finishes on a room-by-room basis for the Camp Buildings are presented in Appendix C.

## ***Kitchen Trailer***

The following materials were observed to be present inside the Kitchen Trailer during a visual inspection (through windows):

- Brown mosaic sheet flooring with asbestos-containing paper backing;
- Beige speckled sheet flooring with asbestos-containing paper backing;
- Non asbestos-containing beige square sheet flooring;
- Non asbestos-containing modular wall boards; and
- Non asbestos-containing laid in ceiling tiles.

The observed materials have been visually matched to materials observed and sampled in the other Camp Buildings.

## **7.1.2 Powerhouse**

A total of four (4) samples of suspect ACM were collected from the Powerhouse. Table 1 (below) details the locations of these samples, the material type, and the results of the laboratory analysis. Sample locations are physically marked within the building.

**Table 1: Summary of Laboratory Analysis Results for Suspect ACM in the Powerhouse**

Sample Number	Room	Location	Material Type	Asbestos Content	Approximate Quantity of ACM
A15	Control Room	Wall	Drywall joint compound	ND	Not applicable
A16	Control Room	Wall	Drywall joint compound	ND	Not applicable
A201	Main Area	South wall where pipe enters	Grey caulking	ND	Not applicable
A202	Exterior	South wall window	White window putty	ND	Not applicable

Notes: ND = Asbestos Not Detected.

Based upon the results of the laboratory analysis, the four (4) samples collected do not contain asbestos. Golder observed a grey mastic on ducting in the Powerhouse. This could not be accessed during the assessment due to the height of the building. Consequently, the grey mastic on ducting in the powerhouse should be considered a suspect ACM.

Electrical equipment within the Powerhouse was energized at the time of the assessment. Visual inspection of some of the equipment revealed the presence of electrical breaker pads that are suspected to contain asbestos. It is likely that additional materials suspected to contain asbestos would be observed if all of the electrical equipment present could be inspected.



### 7.1.3 Warehouse, Dry, and Lab

During Golder's assessment, a total of twenty-one (21) samples of suspect ACM were collected from the Warehouse, Dry, and Lab Building. Based upon the results of laboratory analysis, two (2) of these samples were found to contain asbestos. The following is a summary of the ACM found within the Warehouse, Dry, and Lab Building:

- Grey window putty present in the Small Storage, Office 3, and Hallway 1 (Sample A104); and
- Black fire stop around electrical conduit in Lab 2 (Sample A114). This material may be present at other locations in the building not observed at the time of this assessment. Consequently, any similar material uncovered during demolition should be considered to be asbestos-containing.

All of the above referenced materials contain chrysotile asbestos.

Asbestos inventory tables detailing finishes on a room-by-room basis for the Warehouse, Dry, and Lab Building are presented in Appendix C.

### 7.1.4 Office Complex

During Golder's assessment, a total of twenty-five (25) samples of suspect ACM were collected from the Office Complex. Based upon the results of laboratory analysis, four (4) of these samples were found to contain asbestos. The following is a summary of the ACM found within the Office Complex:

- Flower pattern sheet flooring with asbestos-containing paper backing present in Rooms 13, 14, 15, 20, and 21 (Sample A24);
- Cement board lining furnace closets present in Hallway 4, Hallway 7, and Room 22 (Sample A27);
- Black window putty present in Hallway 2 (Sample A121); and
- Black fire stop around electrical conduit in Room 19 (Sample A122). This material may be present at other locations in the building not observed at the time of this assessment. Consequently, any similar material uncovered during demolition should be considered to be asbestos-containing.

All of the above referenced materials contain chrysotile asbestos.

An Asbestos inventory table detailing finishes on a room-by-room basis for the Office Complex is are presented in Appendix C.

### 7.1.5 Shop and Metal Depot

One (1) sample of suspect ACM was collected from the Shop Building (Sample A204). The material sampled was red mastic used around insulation hangers at the Shop ceiling. Based upon the results of laboratory analysis, the sample collected was not found to contain asbestos.

No suspect ACM were observed in the Metal Depot adjacent to the Shop.



**7.1.6 Warehouse**

No materials suspected to contain asbestos were observed in this building.

**7.1.7 Cold Storage Warehouse**

One (1) sample of suspect ACM was collected from the Cold Storage Warehouse (Sample A203). A sample of white window putty from the bay door was collected. This sample was not found to contain asbestos.

**7.1.8 Outbuildings**

A total of eleven (11) samples of suspect ACM were collected from the Outbuildings. Table 2 (below) details the locations of these samples, the material type, and the results of the laboratory analysis. Sample locations are physically marked within the buildings.

**Table 2: Summary of Laboratory Analysis Results for Suspect ACM in the Outbuildings**

Sample Number	Building	Location	Material Type	Asbestos Content	Approximate Quantity of ACM
A28	Water Distribution Pump House	Wall	Drywall joint compound	ND	Not applicable
A29	Diesel and Gas Tanks	Pond	Black pond liner	ND	Not applicable
A101	Water Distribution Pump House	Wall	Drywall joint compound	ND	Not applicable
A102	Water Distribution Pump House	Wall	Drywall joint compound	ND	Not applicable
A103	Water Distribution Pump House	Wall	Drywall joint compound	ND	Not applicable
A244	Security Building	Roof	Grey shingles	ND	Not applicable
A245	Garage	Roof	Grey shingles	ND	Not applicable
A246	Carpentry Garage	Roof	Brown shingles	ND	Not applicable
A247	Gribler Ridge	North cabin roof	Grey shingles	ND	Not applicable
A248	Gribler Ridge	Southeast cabin roof	Green shingles	ND	Not applicable
A249	Gribler Ridge	North cabin window	Red putty	ND	Not applicable

Notes: ND = Asbestos Not Detected.

Based upon the results of the laboratory analysis, the samples collected are non-asbestos-containing.



No suspect ACM was observed in the following buildings:

- Ambulance Garage;
- Burnick Portal;
- Lake Pump Houses; and the
- Radiator Banks.

## 7.2 Lead-Containing Paints and Other Surface Coating Materials

The following sections present the results of the laboratory analysis of samples of suspect LCP collected during both phases of the assessment.

Copies of the laboratory sample analysis reports for the samples analysed are provided in Appendix F. A copy of the results of analysis for samples of suspect LCP collected during the preliminary assessment is included. Only samples specifically referenced in the sections below are relevant to this report.

### 7.2.1 Camp Buildings

A total of three (3) representative paint samples were collected from paint finishes in the Camp Buildings and submitted for analysis of lead concentration. A summary of the results is presented in Table 3, below. Sample locations are physically marked within the building.

**Table 3: Lead Paint Results – Camp Buildings**

Sample ID	Building	Location Description	Colour	Lead Concentration (ppm / mg/kg)	Lead-Containing Paint <sup>1</sup>	Observed Quantity of Loose and Flaking LCP
L203	Bunk Trailer 3	Corridor Wall	White	62.1	No	Loose and flaking paint was not observed.
L204	Bunk Trailer 4	Room 3 Wall Trim	Black	16.6	No	Loose and flaking paint was not observed.
L205	Bunk Trailer 1	Corridor Floor	Grey	1210	Yes	Loose and flaking paint was not observed.

Notes:

1) As defined under the Canadian Ministry of Health Hazardous Products Act (>90 mg/kg)

All of the samples collected within the Camp Buildings contain measurable quantities of lead. However, only one sample contains lead at a concentration required to be considered LCP as defined in the Hazardous Products Act (>90 mg/kg). The grey paint present on the Corridor Floor in Bunk Trailer 1 contains 1210 mg/kg of lead, or 0.121% by weight. Sample results are applicable to all paints of similar colour in all Camp buildings.

The paint within the Camp Buildings was observed to be in generally good condition. No areas of loose and flaking paint were observed. However, all paints may become loose and flaking paint over time due to exposure to environmental conditions.



**7.2.2 Powerhouse**

A total of three (3) representative paint samples were collected from paint finishes in the Powerhouse and submitted for analysis of lead concentration. A summary of the results is presented in Table 4, below. Sample locations are physically marked within the building.

**Table 4: Lead Paint Results – Powerhouse**

Sample ID	Room	Location Description	Colour	Lead Concentration (ppm / mg/kg)	Lead-Containing Paint <sup>1</sup>	Observed Quantity of Loose and Flaking LCP <sup>2</sup>
L5	Main Room	Floor	Grey	1,270	Yes	100 square feet
L6	Main Room	Glycol Pipeline	White	1,380	Yes	20 square feet
L201	Main Room	Structural Beam	Red	55.4	No	40 square feet

Notes:

- 1) As defined under the Canadian Ministry of Health Hazardous Products Act (>90 mg/kg)
- 2) The quantities listed are estimates only and represent visible areas of loose and flaking paint observed at the time of the assessment. These are presented for guidance only. Any contractor required to remove LCP from this building is responsible for independent verification of exact quantities.

All of the samples collected within the Powerhouse contain measurable quantities of lead. However, only two samples contain lead at a concentration required to be considered LCP as defined in the Hazardous Products Act (>90 mg/kg). The highest concentration of lead was found in the white paint on the Glycol Pipelines present in the building. Sample L6 contains 1,380 mg/kg lead, or 0.138% by weight. The lowest concentration of lead (in LCP) was found in the grey floor paint (Sample L5) which contains 1,270 mg/kg lead, or 0.127% by weight. Sample results are applicable to all paints of similar colour in the Powerhouse.

The Exterior of the building is painted with the same pale yellow/beige paint as was observed on the exterior of the Concentrator Complex (Mill). Sample L213 (Exterior Mill Building) contains 315 mg/kg lead, or 0.003% by weight. The paint on the exterior of the Powerhouse was observed to be in good condition.

The paint within the Powerhouse was observed to be in moderate condition with loose and flaking paint present in some locations. Additional quantities of paint may become loose and flaking paint over time due to exposure to ambient environmental conditions.

**7.2.3 Warehouse, Dry, and Lab**

A total of three (3) representative paint samples were collected from paint finishes in the Warehouse, Dry, and Lab Building and submitted for analysis of lead concentration. A summary of the results is presented in Table 5, below. The sample locations for all materials are shown on the drawings in Appendix A, and sample locations are physically marked within the building.



## PRE-DEMOLITION HAZARDOUS BUILDING MATERIALS ASSESSMENT

**Table 5: Lead Paint Results – Warehouse, Dry, and Lab**

Sample ID	Room	Location Description	Colour	Lead Concentration (ppm / mg/kg)	Lead-Containing Paint <sup>1</sup>	Observed Quantity of Loose and Flaking LCP <sup>2</sup>
L1	Small Storage	Ceiling	White	145	Yes	60 square feet
L104	Office #1	Ceiling	White	61.4	No	20 square feet
L105	Room 12	Floor	Grey	3,190	Yes	5 square feet

Notes:

- 1) As defined under the Canadian Ministry of Health Hazardous Products Act (>90 mg/kg)
- 2) The quantities listed are estimates only and represent visible areas of loose and flaking paint observed at the time of the assessment. These are presented for guidance only. Any contractor required to remove LCP from this building is responsible for independent verification of exact quantities.

All of the samples collected within the Warehouse, Dry, and Lab Building contain measurable quantities of lead. However, only two samples contain lead at a concentration required to be considered LCP as defined in the Hazardous Products Act (>90 mg/kg). The highest concentration of lead was found the grey floor paint in Room 12, Sample L105 contains 3,190 mg/kg lead, or 0.319% by weight. The lowest concentration of lead (in LCP) was found on the Ceiling in the Small Storage; Sample L1 contains 145 mg/kg lead, or 0.0145% by weight. Sample results are applicable to all paints of similar colour in the Warehouse, Dry, and Lab Building.

The Exterior of the building is painted with the same pale yellow/beige paint as was observed on the exterior of the Concentrator Complex (Mill). Sample L213 (Exterior Mill Building) contains 315 mg/kg lead, or 0.003% by weight. The paint on the exterior of the Warehouse, Dry, and Lab was observed to be in good condition.

The paint within the Warehouse, Dry, and Lab Building was observed to be in moderate condition with loose and flaking paint present in some locations. Additional quantities of paint may become loose and flaking paint over time due to exposure to ambient environmental conditions.

### 7.2.4 Office Complex

One (1) representative paint sample was collected from paint finishes in the Office Complex and submitted for analysis of lead concentration. A summary of the result is presented in Table 6, below. The sample location is shown on the drawings in Appendix A, and the sample location is physically marked within the building.

**Table 6: Lead Paint Results – Warehouse, Dry, and Lab**

Sample ID	Room	Location Description	Colour	Lead Concentration (ppm / mg/kg)	Lead-Containing Paint <sup>1</sup>	Observed Quantity of Loose and Flaking LCP <sup>2</sup>
L219	Room 8	Ceiling	White	13.0	No	5 square feet

Notes:

- 1) As defined under the Canadian Ministry of Health Hazardous Products Act (>90 mg/kg)
- 2) The quantities listed are estimates only and represent visible areas of loose and flaking paint observed at the time of the assessment. These are presented for guidance only. Any contractor required to remove LCP from this building is responsible for independent verification of exact quantities.

The paint samples collected from the ceiling in the Office Complex was found to contain less than 90 mg/kg lead, and is not considered to be a LCP.



The Exterior of the building is painted with the same pale yellow/beige paint as was observed on the exterior of the Concentrator Complex (Mill). Sample L213 (Exterior Mill Building) contains 315 mg/kg lead, or 0.003% by weight. The paint on the exterior of the Office Complex was observed to be in good condition.

The paint within the Office Complex was observed to be in generally good condition with only minor loose and flaking paint. However, all paints may become loose and flaking paint over time due to exposure to ambient environmental conditions.

### 7.2.5 Shop and Metal Depot

One (1) representative paint sample was collected from paint finishes in the Shop and submitted for analysis of lead concentration. A summary of the result is presented in Table 7 below. The sample location is physically marked within the building.

**Table 7: Lead Paint Results – Shop and Metal Depot**

Sample ID	Room	Location Description	Colour	Lead Concentration (ppm / mg/kg)	Lead-Containing Paint <sup>1</sup>	Observed Quantity of Loose and Flaking LCP <sup>2</sup>
L202	Mezzanine	Floor	White	770	Yes	2 square feet

Notes:

- 1) As defined under the Canadian Ministry of Health Hazardous Products Act (>90 mg/kg)
- 2) The quantities listed are estimates only and represent visible areas of loose and flaking paint observed at the time of the assessment. These are presented for guidance only. Any contractor required to remove LCP from this building is responsible for independent verification of exact quantities.

The paint samples collected from the floor in the Shop Mezzanine was found to contain 770 mg/kg lead, or 0.077% by weight.

The paint within the Shop was observed to be in generally good condition with only minor loose and flaking paint. However, all paints may become loose and flaking paint over time due to exposure to ambient environmental conditions. No suspect LCP was observed in the Metal Depot.

### 7.2.6 Warehouse

Only the Exterior of the Warehouse is painted with the same finish the Concentrator Complex (Mill). Sample L213 (Exterior Mill Building) contains 315 mg/kg lead, or 0.003% by weight. Loose and flaking paint was not observed.

### 7.2.7 Cold Storage Warehouse

One (1) representative paint sample was collected from paint finishes in the Cold Storage Warehouse and submitted for analysis of lead concentration. A summary of the result is presented in Table 8 below. The sample location is physically marked within the building.



## PRE-DEMOLITION HAZARDOUS BUILDING MATERIALS ASSESSMENT

**Table 8: Lead Paint Results – Cold Storage Warehouse**

Sample ID	Room	Location Description	Colour	Lead Concentration (ppm / mg/kg)	Lead-Containing Paint <sup>1</sup>	Observed Quantity of Loose and Flaking LCP <sup>2</sup>
L8	Exterior	North Side	Orange	3,280	Yes	200 square feet

Notes:

- 1) As defined under the Canadian Ministry of Health Hazardous Products Act (>90 mg/kg)
- 2) The quantities listed are estimates only and represent visible areas of loose and flaking paint observed at the time of the assessment. These are presented for guidance only. Any contractor required to remove LCP from this building is responsible for independent verification of exact quantities.

The paint sample collected from the Exterior of the Cold Storage Warehouse was found to contain 3,280 mg/kg lead, or 0.328% by weight. In general the exterior of the Cold Storage Warehouse was observed to be in poor condition with large quantities of loose and flaking paint.

The overall condition of the paint within the Cold Storage was observed to be moderate to poor with loose and flaking paint present in many locations. Additional quantities of loose and flaking paint may appear with time due to exposure to ambient environmental conditions.

### 7.2.8 Outbuildings

A total of nine (9) representative paint samples were collected from paint finishes in the Outbuildings and submitted for analysis of lead concentration. A summary of the results is presented in Table 3 below. Sample locations are physically marked within the building in question.

**Table 9: Lead Paint Results – Cold Storage Warehouse**

Sample ID	Building	Location Description	Colour	Lead Concentration (ppm / mg/kg)	Lead-Containing Paint <sup>1</sup>	Observed Quantity of Loose and Flaking LCP <sup>2</sup>
L9	Water Distribution Pump House Water Tank	Tank Wall	White	17.3	No	2 square feet
L101	Water Distribution Pump House	Exterior West Wall	Brown Pain	83.3	No	0.5 square foot
L102	Diesel Tank	Tank Wall	Cream Paint	70.2	No	4 square feet
L103	Tank near Ball Mill Storage	Tank Wall	Red Paint	2,120	Yes	100 square feet
L214	Security Building	Door Frame	White Paint	367	Yes	0.5 square foot
L215	Carpentry Garage	Interior Wall	White Paint	649	Yes	5 square feet
L216	Yellow Container near Crusher Building	Container Wall	Yellow Paint	9,250	Yes	50 square feet
L217	Radiator Banks	Exterior	Blue Paint	141	Yes	2 square feet
L218	Lake Pump House	Exterior	Red Paint	1,140	Yes	1 square foot

Notes:

- 1) As defined under the Canadian Ministry of Health Hazardous Products Act (>90 mg/kg)
- 2) The quantities listed are estimates only and represent visible areas of loose and flaking paint observed at the time of the assessment. These are presented for guidance only. Any contractor required to remove LCP from this building is responsible for independent verification of exact quantities.



All of the paint samples collected within the outbuildings contain measurable quantities of lead. However, only Six (6) of the nine (9) samples contain lead at a concentration required to be considered LCP as defined in the Hazardous Products Act (>90 mg/kg). The highest concentration of lead was found on the yellow paint on the Container near the Crusher Building (Sample L216) which contains 9,250 mg/kg lead, or 0.925% by weight. The lowest concentration of lead was found in the blue paint on the Radiator Banks. Sample L217 contains 141 mg/kg lead, or 0.0141% by weight.

The Exterior of the Security building and the Garage are painted with the same finish as the Concentrator Complex (Mill). Sample L213 (Exterior Mill Building) contains 315 mg/kg lead, or 0.003% by weight. The paint on the exterior of the Security building and the Garage was observed to be in good condition.

Overall the paints within the Outbuildings were observed to be in moderate condition with loose and flaking paint present in some locations. Quantities of loose and flaking paint present within the building may be expected to increase with time due to exposure to ambient environmental conditions.

No painted finishes were observed in the following buildings:

- Garage;
- Gribler Ridge;
- Burnick Portal;
- Lake Pump Houses; and the
- Ambulance Garage.

### 7.3 Other Hazardous Building Materials

The following sections describe other HBM observed within the Subject Buildings.

#### 7.3.1 Mercury

Fluorescent light tubes containing mercury, high intensity discharge (HID) mercury lamps, neon exit signs containing mercury light tubes, and a mercury thermometer were observed throughout the Subject Buildings:

- The Camp Buildings contain twelve fluorescent light tubes, eleven HID mercury lamps, and twelve neon exit signs. Mercury thermometers were not observed within the Camp Buildings;
- The Powerhouse contains twelve fluorescent light tubes, one HID mercury lamps, and two neon exit signs. Mercury thermometers were not observed within the Powerhouse;
- The Warehouse, Dry, and Lab contains 210 fluorescent light tubes, one HID mercury lamps, and five mercury-containing thermostats; neon exit signs were not observed within the Warehouse, Dry, and Lab;
- The Office Complex contains 134 fluorescent light tubes, and four mercury-containing thermostats; HID mercury lamps and neon exit signs were not observed within the Office Complex;
- The Shop and Metal depot contains eight fluorescent light tubes. HID mercury lamps, neon exit signs, and mercury thermometers were not observed within the Shop and Metal Depot;



- The Warehouse contains one HID mercury lamp; fluorescent light tubes, neon exit signs, and mercury thermometers were not observed within the Warehouse; and
- The Outbuildings contains fluorescent light tubes and HID mercury lamps. Specifically the Carpentry Garage contains six fluorescent light tubes, the Security Building contains six fluorescent light tubes, Burnick Portal contains 64 fluorescent light tubes, and the Water Distribution Pump House contains eight HID mercury lamps.

No suspect mercury-containing equipment was observed in the following buildings:

- The Warehouse;
- The Garage;
- Lake Pump Houses;
- Radiator Banks;
- Ambulance Garage; and
- Diesel and Gas Tanks.

### 7.3.2 Ozone-Depleting Substance

Equipment suspected to contain ODS was not observed within the Subject Buildings

### 7.3.3 Polychlorinated Biphenyls

Six light ballasts were observed in the Camp Buildings. The labels of two of these ballasts were examined. 'Non-PCB' was observed on the label of the ballast in the Water and Storage Trailer. The other ballast was examined in the Bunk Trailer 5. Golder compared the code on the front of this light ballast with the identification guidelines provided in Environment Canada's Reports EPS 2/CC/2 (revised) August 1991, "Identification of Lamp Ballasts Containing PCBs" and "Handbook on PCBs in Electrical Equipment," (Third Edition). The guideline does not identify the code observed on the Standard Gold Label. Consequently this light ballast should be considered as suspect PCB-containing.

Golder collected one sample of suspect-PCB containing solid from the Camp Buildings due to the age of the buildings. The sample was collected from the black paint on the door trim in Bunk Trailer 3. These samples did not contain measurable amounts of PCB. A copy of the laboratory report for this sample is presented in Appendix G.

### 7.3.4 Radioactive Materials

Two hundred smoke detectors containing radioactive materials were observed within the Camp Buildings. Specifically, 42 smoke detectors were observed in Bunk Trailer #1, 31 in Bunk Trailer #2, 43 in Bunk Trailer #3, 43 in Bunk Trailer #4, and 41 in Bunk Trailer #5. Two smoke detectors containing radioactive materials were observed in the Office Complex. It is also likely the smoke detectors are present throughout the Kitchen Trailer.

Smoke detectors containing radioactive materials were not observed in the any of the other Subject Buildings.



### 7.3.5 Crystalline Silica

All concrete (primarily slabs) in sections of the Subject Buildings should be viewed as a potential source of worker exposure to crystalline silica during demolition.

## 7.4 Chemicals

Large numbers of different chemicals were observed in the Laboratory (Lab 1, 2, 3, and 4) of the Warehouse, Dry, and Lab. Chemicals were additionally observed in the Shop, and the Water Distribution Pump house. An inventory of chemicals observed in these buildings is presented in Appendix H. A number of smaller items required for vehicle and other maintenance activities by the site caretaker are also present that are expected to be removed by the caretaker prior to demolition.

The Pipelines in the Powerhouse are known to contain Glycol. Drums of Glycol are also present throughout the Powerhouse. These materials were not quantified during the assessment.

The Diesel and Gasoline tanks may contain quantities of diesel and gasoline. Golder was unable to access the tanks to determine if chemicals were present.

## 7.5 Microbial and Biological Contamination

Small amounts of microbial (mould) contamination were observed throughout the Subject Buildings that might present a hazard to workers at the site, and that may require appropriate cleaning and disposal depending upon the nature of the work activity required in these areas.

## 8.0 CONCLUSIONS AND RECOMMENDATIONS

It is concluded that HBM and other waste materials (including chemicals) are present within the Subject Buildings that will require special handling and disposal during building demolition or salvage. The subsections below provide summary details of these materials and recommendations to assist Teck in minimizing the exposure risk to workers down to acceptable levels during hazardous materials removal and demolition of the Subject Buildings. The risk can be mitigated to acceptable levels through strict adherence to the requirements of the appropriate regulations and guidelines regarding the safe handling, storage, and disposal of these materials.

### 8.1 Asbestos-Containing Materials

The following ACM are present within the Camp Buildings:

- Brown mosaic sheet flooring with asbestos-containing paper backing;
- Flower and square pattern sheet flooring with asbestos-containing paper backing;
- Beige speckled sheet flooring with asbestos-containing paper backing; and
- Dark charcoal grey mastic roof patches.



## PRE-DEMOLITION HAZARDOUS BUILDING MATERIALS ASSESSMENT

The following ACM are present within the Warehouse, Dry and Lab:

- Grey window putty; and
- Black fire stop caulking in electrical conduit.

The following ACM are present within the Office Complex:

- Flower pattern sheet flooring with asbestos-containing paper backing;
- Cement board lining furnace closets;
- Black window putty; and
- Black fire stop surrounding electrical conduit.

All of the above referenced materials contain chrysotile asbestos.

The following suspect ACM may be present within the Subject Buildings (See Sections 5.1.1, and 7.1):

- Gaskets on pipe flanges located throughout the Subject Buildings;
- Electrical insulating materials in equipment within the Powerhouse, Warehouse, Dry, and Lab, Office Complex, Distribution Pump House, Security Building, and Lake Pump House;
- Grey mastic on ducting within the Powerhouse;
- Gaskets within intrinsically safe lighting located throughout the Subject Buildings; and
- Levelling compounds below vinyl flooring.

No additional suspect ACM was found in the Powerhouse, Warehouse, Cold Storage Warehouse, or the Outbuildings.

The removal of asbestos-containing mastic, window putty, fire stop, and cement board should be conducted by a qualified contractor and will require, the use of moderate risk or Type II asbestos removal procedures, as defined in most jurisdictions in Canada, and in general accordance of Section 33 of the YT OHR.

Due to safety concerns it is not considered practical to remove the asbestos-containing mastic patches on the roof of Bunk Trailer 4 using asbestos-safe work procedures. Mechanical demolition of the roof of this building is recommended. Water should be as a dust suppressant. Due to the minor quantities likely to be present, to its non friable nature, and due to the fact that it is not considered to be a hazardous waste, it is not considered necessary to identify, separate, and remove these materials from the demolition waste.

The removal of asbestos-containing sheet flooring (with the exception of the sheet flooring in the Kitchen Trailer, details presented below) should be conducted by a qualified contractor and will require, the use of high risk or Type III asbestos removal procedures, as defined in most jurisdictions in Canada, and in general accordance of Section 33 with the YT OHR.



Gaskets (in piping and in lighting) are considered suspect ACM within the Subject Building, and should either be treated as asbestos-containing and removed using moderate risk asbestos safe work procedures, or tested to determine whether asbestos is present during the decommissioning of the associated systems and equipment. Levelling compounds found below vinyl flooring should be sampled and analysed in order to determine asbestos content. If found to contain asbestos, a risk assessment should be completed by a qualified individual to determine the appropriate level of control to be employed by a qualified contractor during removal.

Should any other materials suspected to contain asbestos and not discussed in this report be identified during demolition of the Subject Buildings, work on this material should immediately cease and the material should be assessed by a qualified individual. Suspect materials should either be treated as asbestos-containing and removed using appropriate asbestos safe work procedures, or tested to determine whether asbestos is present.

All asbestos-containing wastes should be disposed of in accordance with the requirements of the YT SWR and the Yukon Solid Waste Regulation and if transported off site, transported in accordance with the requirements of the Federal TDG Act and Regulations. Please note that it may be possible to obtain permission for the on-site burial of ACM and demolition waste. This option is not discussed further in this report and would be detailed in any proposed waste management plan for the site.

### *Kitchen Trailer*

The Kitchen Trailer was not assessed in detail due to safety concerns. Consequently, there may be additional materials that were not identified during the assessment inside the Kitchen Trailer. It is recommended that controlled demolition of the structure be conducted in a manner that allows for assessment of materials as they are uncovered and allows for safe access to the materials. It is recommended that the upper structure of the Kitchen Trailer be removed from the bottom structure and the use of a minimum of moderate risk asbestos safe work procedures and high risk personal protective equipment be used to cut out the asbestos-containing flooring for disposal.

## 8.2 Lead-Containing Paint

Many of the paint samples collected from the Subject Buildings during this assessment contain concentrations of lead greater than 90 mg/kg (Canadian Ministry of Health Hazardous Products Act LCP criteria) and are therefore considered to be LCP. Details of all paints sampled are presented in Section 7.0. The exterior paint on the Powerhouse, the Warehouse Dry, and Lab, the Warehouse, and the Office Complex is lead-containing. Loose and flaking LCP is present throughout the interior of the Subject Buildings and in small sections on some of the Building exteriors. Although, the quantities of loose and flaking paint observed at the time of the assessment are reported in Section 7.0, additional deterioration of painted surfaces may occur with time due to exposure to ambient environmental conditions.

Prior to building deconstruction or demolition, loose and flaking lead-containing paints should be removed in a manner that controls the airborne lead-containing dust to minimize the risk of occupational exposure to workers. As a general rule, workers engaged in interior demolition of painted or otherwise coated surfaces within the Subject Building should be protected through the use of gloves, disposable coveralls, and half mask respirators equipped with P100 cartridges. The level of worker protection required may increase depending upon the nature of the activity in which they are engaged and should be assessed on a task by task basis by a qualified individual.



During the demolition or deconstruction process, waste materials containing lead, such as flaking paint, are required to be tested for lead leachability potential, following the Toxicity Characteristic Leaching Procedure (TCLP). It is recommended that removed quantities of loose and flaking paint be bulked together and that representative samples of the bulk waste be collected for analysis. The results of the analysis should be assessed against threshold criteria for leachability established under the YT SWR, to determine if the materials are classified as a hazardous waste, and hence, subject to specific disposal requirements. The acceptable level for non-regulated disposal of LCP is less than 5 milligrams per litre (mg/L) as determined through analytical TCLP. The disposal of LCP is regulated under the TDG Act and by the YT SWR. When disposing of painted items, both the paint and the full depth of the associated substrate (concrete, plaster, etc.) should be tested.

All lead-containing wastes should be disposed of in accordance with the requirements of the YT SWR and the Yukon Solid Waste Regulation and transported in accordance with the requirements of the federal TDG Act and Regulations.

### 8.3 Other Hazardous Building Materials

#### 8.3.1 Mercury

Fluorescent light tubes containing mercury, high intensity discharge (HID) mercury lamps, neon exit signs containing mercury light tubes, and mercury thermometers were observed throughout the Subject Buildings.

When taken out of service, mercury-containing equipment should be disposed of in accordance with the requirements of the YT SWR and transported in accordance with the requirements of the Federal TDG Act and Regulations. In many jurisdictions, fluorescent lights containing mercury may be recycled.

#### 8.3.2 Ozone-Depleting Substance

Equipment containing ODS was not observed within the Subject Buildings.

#### 8.3.3 Polychlorinated Biphenyls

With the exception of suspect PCB containing light ballasts observed in the Camp Buildings, PCB-containing equipment was not observed in the Subject Buildings. Given the known construction date of the Subject Buildings (1991), it is not expected that additional PCB-containing materials will be present in the Subject Buildings.

Light ballasts in the Camp buildings should be removed, segregated, and classified as PCB or non-PCB before transportation or disposal. When taken out of service, the ballast label, the serial number, and the date stamp on ballasts that do not indicate or state “no PCB” or “Non PCB” should be recorded and compared with Environment Canada’s Report EPS 2/CC/2 (revised) August 1991, Identification of Lamp Ballasts Containing PCBs, to assess their likelihood of containing polychlorinated biphenyls (PCB).

If identified, PCB-containing ballasts should be handled, stored, and disposed of in accordance with the requirements of the YT OHR, YT SWR, and the Federal TDG Act and Regulations, current to the date of the work.



### 8.3.4 Radioactive Materials

Two hundred smoke detectors containing radioactive materials were observed within the Camp Buildings. Two smoke detectors containing radioactive materials were observed within the Office Complex.

Electronic sensors containing radioactive materials should be disposed of in accordance with the Federal Nuclear Substances and Radiation Devices Regulation (SOR/2000-207). Part 6 of this Regulation provides exemptions for smoke detectors meeting defined criteria and although individually each of the smoke detectors identified may be exempt from the Regulation, collectively this number of smoke detectors should be packaged together and disposed of in accordance with the requirements of the Regulation. The two smoke detectors found within the Concentrator Complex (Mill) can be disposed of with the smoke detectors found within the Camp Buildings and the Office Complex.

### 8.3.5 Crystalline Silica

All concrete sections of the Subject buildings should be viewed as a potential source of worker exposure to crystalline silica during demolition. In general it is expected that demolition of walls and the breakup of building slab and foundations will be completed by mechanical means (excavators). It is recommended that dust control measures be put in place during demolition, for example, the use of water. A risk assessment should be conducted by an individual knowledgeable regarding the nature of the work on each task likely to result in the release of airborne crystalline silica. Exposure control measures appropriate to each task will be required to be developed. The risk of exposure to crystalline silica will increase with the increased proximity of workers to the source of exposure, and with physical proximity to the equipment completing the demolition. For example, there is an increased risk of exposure to workers engaged in sawing concrete slabs over that to an excavator operator.

## 8.4 Chemicals

The Warehouse, Dry, and Lab Building, the Shop, and the Water Distribution Pump House were observed to have quantities of chemicals, oils, and mine reagents stored in the building. Where observed, these materials have been reported in Appendix H of this report. Glycol is likely to be present in pipelines and storage drums in the Powerhouse. Additional chemicals may be present in the large tanks located throughout the site. Full characterization of these materials will be the responsibility of an appropriately qualified decommissioning contractor. Industrial chemicals are considered special waste, and must be disposed of in accordance with the requirements of the YT SWR. It is the responsibility of the decommissioning contractor to prepare the safe work procedures appropriate for the handling and removal of all oil and chemical products.

During equipment removal, dismantling of the structure, or cleaning within the Subject Buildings, it is possible that spills and additional contamination will be observed. Should this be the case, additional investigation and characterization of materials may be required.



### 8.5 Microbial and Biological Contamination

Small amounts of microbial (mould) contamination was observed throughout the Subject Buildings that might present a hazard to workers at the site, and that may require appropriate cleaning and disposal. In general, these materials will not represent a hazard to workers during structural demolition. However, should concentration of these materials be present in locations where workers are engaged in interior demolition (such as drywall or fiberglass removal), a risk assessment should be conducted by a qualified individual knowledgeable regarding the required work activity in order to identify the appropriate worker protection and other controls necessary for work in these areas. In general, workers engaged in interior demolition in these areas should be protected through the use of half face piece respirators equipped with P100 filters and disposable coveralls. Appropriate worker hygiene standards should also be observed.

### 9.0 LIMITATIONS

This report does not constitute either a detailed removal specification for HBM or other items addressed in this report, or a contractual document. All drawings presented are schematic only and show only features directly relevant to the text of this report. These should not be relied upon for detailed measurements. All quantities presented are estimates only and represent the best judgement of the assessor at the time of the assessment and within the operating constraints present within the buildings. Quantities are presented for guidance purposes only. Any individual required to remove HBM or other materials from the Subject Buildings is responsible for independent verification of exact quantities of all materials. In some cases, environmental or other factors may result in expanded quantities of the materials identified.

The Kitchen Trailer was not accessed during this assessment due to safety concerns relating to a collapsed section of the roof. The building was assessed from the exterior only. Quantities of HBM not reported in this document may be observed during demolition.

This report has been prepared for the sole benefit of Teck Metals Ltd. (Teck). The report may not be relied upon by any other person or entity without the express written consent of Golder Associates Ltd. (Golder) and Teck. Electronic media is susceptible to unauthorized modifications, deterioration and incompatibility and therefore Teck cannot rely upon the electronic media versions of Golder's report or other work products.

Any use that a third party makes of this report, or any reliance on decisions made based on it, is the responsibility of such third parties. Golder accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. In connection with any contemplated or actual purchase or sale of property related to the Services, Golder will not be responsible for the independent conclusions, interpretations, interpolations and/or decisions of Teck or others, arising out of data which is directly the product of Golder's Services. Golder will not be responsible for any real or perceived decrease in a property value, its saleability or ability to gain financing through the reporting of information in this report.

Samples were only collected from accessible areas where access was deemed safe. Golder did not enter vessels or other equipment in order to obtain samples and did not conduct demolition or disassembly of equipment to gain access. No cutting or destructive examination of in-place equipment, tanks, or vessels occurred. Accessible areas included all building areas that could be reached using existing site ladders, staircases, and mezzanines, and included roofs where such could be accessed using existing access points (either from within the buildings, or by structurally mounted ladders), or areas that can be reached using ladders



supplied by Teck, or brought to the Site by Golder. Localised oil or chemical contamination of the building structure may not have been visible at the time of this assessment due to the presence of extensive dirt, debris, and in place equipment within the Subject Buildings. Additional sampling and inspection of the building during the demolition process may be required in order to properly determine the nature of observed contaminants.

Services performed by Golder were conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering and science professions currently practicing under similar conditions in the same locality, subject to the time limits and physical constraints applicable to the Services. No warranty, express or implied, is made. Golder is committed to providing environmental monitoring services; however failure to detect certain conditions is an inherent limitation of this specific type of work. The heterogeneous nature of mixtures, manufacturing variances, and laboratory detection limitations may result in HBM being identified or not identified that differs from that which actually exists. Golder has made our recommendations recognizing these limitations.

Unless requested in writing by Teck, samples will be disposed of immediately following analysis. Samples not submitted for analysis will be disposed of within 30 days of collection by Golder. Golder makes reasonable efforts to submit samples to an accredited, independent laboratory for analysis. Golder is not responsible for the laboratory quality control/quality assurance programs, and makes no warranty of the precision or accuracy of results reported by others.

Building materials, surfaces and other media may be inconsistent (non-homogeneous) in concentration of hazardous or regulated materials, and the reported results may vary. The potential for false-negative results exists and is not warranted by Golder. In some cases, circumstances (location, schedule, turnaround time, budget etc.) may require the use of direct reading instruments, Golder's in-house laboratory (if local), or other non-accredited facilities. Golder is not responsible for samples lost or damaged in shipping or transfer, or the time and expense associated with subsequent collection of samples that were lost, damaged, or spoiled by others. This report is not an environmental phase 1 assessment.

The conclusions presented in this report represent the judgement of the assessor, based on current environmental and health and safety standards, and on site conditions on the date(s) cited in this report. Due to the nature of the investigation and the limited data available, the assessor cannot warrant against undiscovered environmental liabilities. Golder's survey reports present professional opinions and findings of a scientific and technical nature. While attempts have been made to relate the data and findings to applicable health, safety or environmental laws and regulations, the report shall not be construed to offer legal opinion, advice or representations as to the requirements of, or compliance with, environmental laws, rules, regulations or policies of federal, provincial or local government agencies.

Should additional information become available, Golder requests that this information be brought to our attention so that we may re-assess the conclusions and recommendations presented herein.



## **10.0 CLOSURE**

We trust that this information is sufficient for your requirements at the present time. Should you have any questions or require any further information, please feel free to contact the undersigned at your convenience.

Thank you for the opportunity to be of service. We look forward to working with you again.

**GOLDER ASSOCIATES LTD.**

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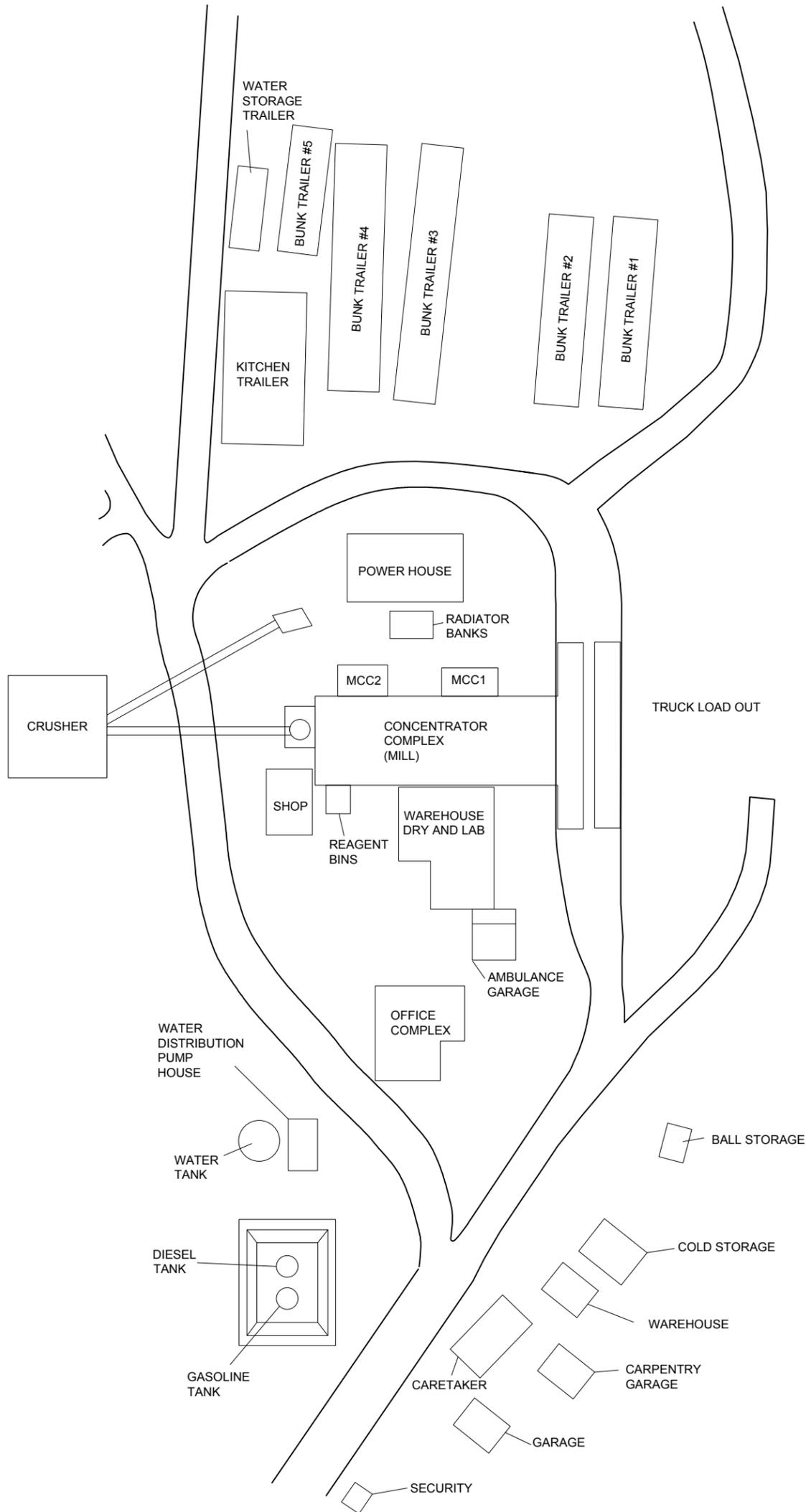
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# **APPENDIX A**

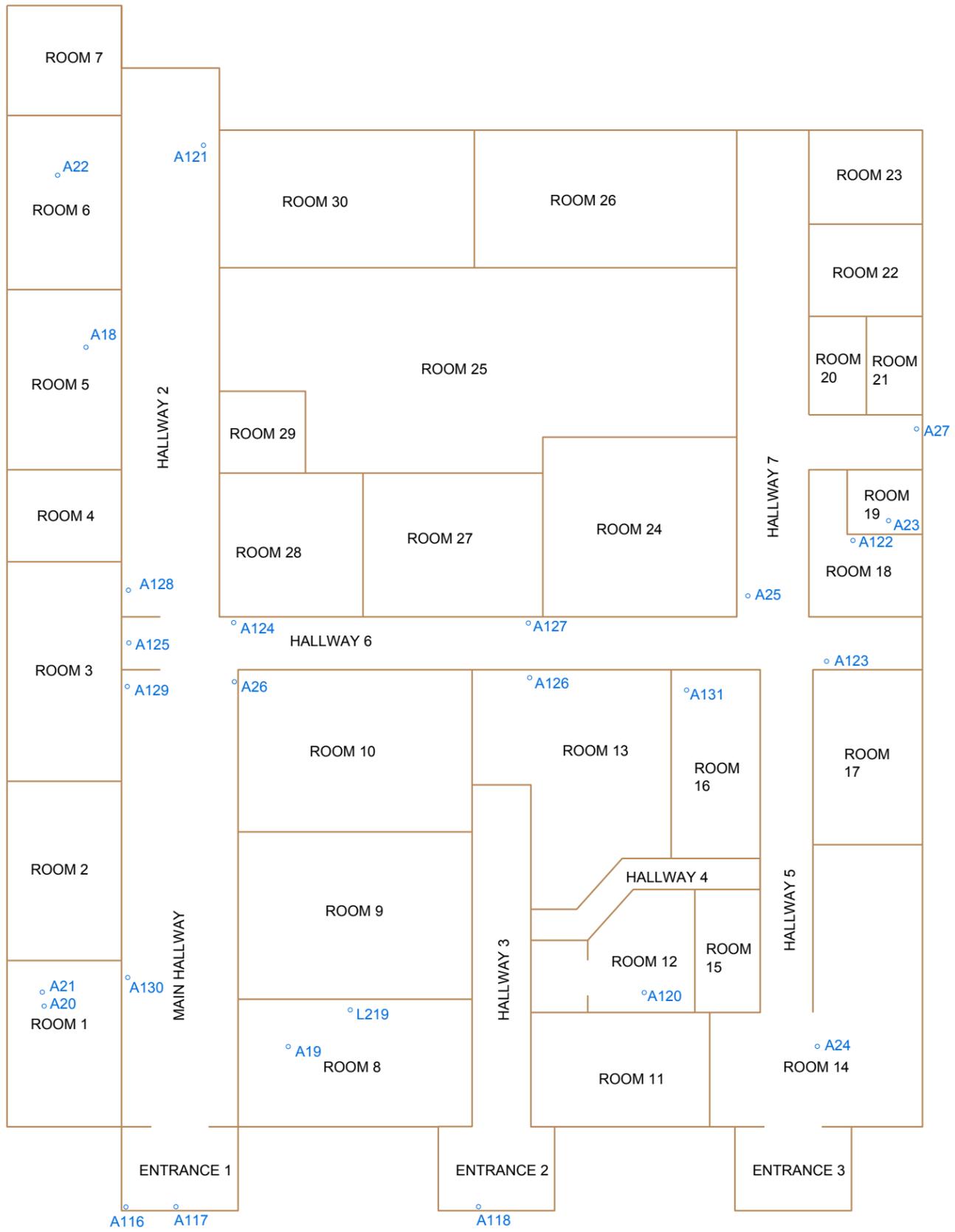
## **Site Plan and Floor Plans**



PROJECT		TECK METALS SA DENA HES HAZARDOUS BUILDING MATERIAL ASSESSMENT SA DENA HES MINE, YUKON TERRITORY	
TITLE			
<b>SITE PLAN</b>			
PROJECT No.	12-1021-0006-2000	FILE No.	1210210006-2000-01
DESIGN	RY	17OCT12	SCALE AS SHOWN
CADD	JHL	30OCT12	
CHECK	RY	03DEC12	
REVIEW	RE	03DEC12	

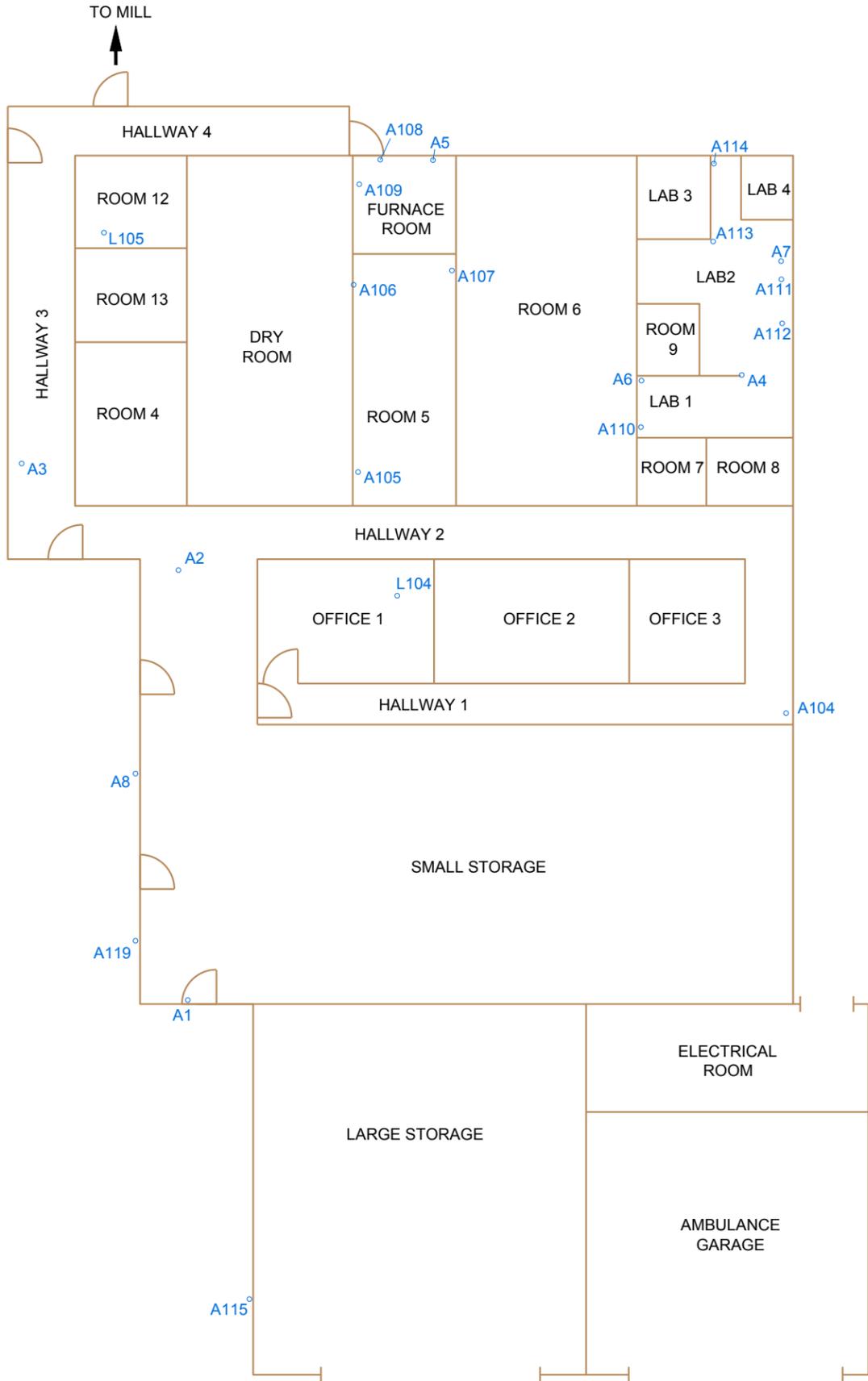


**FIGURE 1**



PROJECT		TECK METALS SA DENA HES HAZARDOUS BUILDING MATERIAL ASSESSMENT SA DENA HES MINE, YUKON TERRITORY			
TITLE					
<b>OFFICE COMPLEX BUILDING</b>					
PROJECT No.		12-1021-0006-2000		FILE No. 1210210006-2000-01	
DESIGN	RY	17OCT12	SCALE	AS SHOWN	
CADD	JHL	30OCT12	<b>FIGURE 2</b>		
CHECK	RY	03DEC12			
REVIEW	RE	03DEC12			





PROJECT		TECK METALS SA DENA HES HAZARDOUS BUILDING MATERIAL ASSESSMENT SA DENA HES MINE, YUKON TERRITORY			
TITLE					
<b>WAREHOUSE DRY &amp; LAB</b>					
PROJECT No.		12-1021-0006-2000		FILE No.	
DESIGN		RY		17OCT12	
CADD		JHL		30OCT12	
CHECK		RY		03DEC12	
REVIEW		RE		03DEC12	
				SCALE	
				AS SHOWN	
<b>FIGURE 3</b>					



# **APPENDIX B**

## **Outbuilding Photographs**



**APPENDIX B**  
Photographs of Outbuildings



*Photograph 1: Carpentry Garage, southeast of the Warehouse.*



*Photograph 2: Garage, southwest of the Carpentry Garage.*



## APPENDIX B

### Photographs of Outbuildings



*Photograph 3: Security Building near the site front entrance.*



*Photograph 4: Gribler Ridge, exploration camp west of the main mine buildings.*



## APPENDIX B

### Photographs of Outbuildings



*Photograph 5: Burnick Portal, near mine adit northwest of main mine buildings.*



*Photograph 6: Lake Pump House, near tailing ponds.*



## APPENDIX B

### Photographs of Outbuildings



*Photograph 7: Radiator Bank south of the Powerhouse.*



*Photograph 8: Ambulance Garage, attached to the Warehouse. Dry, and Lab.*



## APPENDIX B

### Photographs of Outbuildings



*Photograph 9: Water Distribution Pump House and Water Tank, north of Diesel and Gas Tanks.*



*Photograph 10: Diesel and Gasoline Tanks, south of Water Distribution and Pump House.*

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# **APPENDIX C**

## **Asbestos Inventory Tables**



## APPENDIX C Asbestos-Containing Materials Inventory Table

### Asbestos-Containing Materials Inventory – Camp (Bunk Trailers 1, 2, 3, 4, 5, Kitchen Trailer, and Water and Storage Trailer), Sä Dena Hes Mine, Yukon Territory

**Notes:** All tables should be read in conjunction with a review of the laboratory sample analysis reports presented in Appendix F. Many finishes within the Camp buildings consisted on the same architectural finishes. The Kitchen Trailer was only visually assessed through windows. See Section 7.1.1 of the report for observed materials. **Highlighted text in this table indicates the confirmed or suspected presence of Asbestos.**  
 ACM – Asbestos-containing material.  
 NACM – Non asbestos-containing material or no suspect ACM was observed on this equipment or in this space.  
 SACM – Suspect asbestos-containing material.

#### Bunk Trailer 1

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Exterior	NACM - Black tar on centre of roof (Sample A228) NACM - Silver mastic on Roof (Sample A227) NACM - Dark charcoal grey mastic around roof perimeter (Sample A226) NACM – Metal clad sheeting	NACM - Metal clad sheeting with fibreglass insulation	NACM - Wood steps NACM - Wood footings	NACM - White putty from south side of building around exterior light (Sample A229) NACM – Two metal doors
Corridor	NACM – 2'x4' Pinhole and fissure ceiling tile (Sample A30)	NACM - Metal clad sheeting with fibreglass insulation	NACM - Rubber flooring on wood	Not applicable
Rooms 1-30	NACM – Laid in ceiling tiles (2' wide) (Samples: A33, A216)	NACM - Modular wall board NACM – Wallpaper	NACM - Carpet on wood	NACM - Windows with rubber seals
Washroom & Showers	NACM - Laid in ceiling tiles (2' wide)	NACM - Modular wall board	ACM - Brown mosaic sheet flooring with paper backing (Sample A215, Photograph 1)	Not applicable
Laundry Room	NACM - Modular wall board	NACM - Modular wall board	ACM - Brown mosaic sheet flooring with paper backing (Sample A32, Photograph 1) NACM - Beige square pattern sheet flooring with weave backing (Sample A31)	Not applicable



## APPENDIX C Asbestos-Containing Materials Inventory Table

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Dry Room	NACM - Modular wall board	NACM - Modular wall board	ACM - Brown mosaic sheet flooring with paper backing	Not applicable
Furnace Rooms 1-6	NACM - Drywall with no joint compound	NACM - Drywall with no joint compound	ACM - Flower and square pattern sheet flooring with paper backing	Not applicable



**APPENDIX C**  
**Asbestos-Containing Materials Inventory Table**

**Bunk Trailer 2**

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Exterior	NACM - Sheet metal roof NACM - Black tar on centre of roof (Sample A35) NACM - Silver mastic on roof NACM - Dark grey mastic layer on roof (Sample A37) NACM - Cement under tar on roof (Sample A205) NACM - Roofing membrane (Sample A36)	NACM - Metal clad sheeting	NACM – Wood steps NACM - Wood footings	NACM – Two metal doors
Corridor	NACM - Metal clad sheeting above ceiling tiles (underside of roof) NACM – Laid in ceiling tiles (2' wide)	NACM - Metal clad sheeting	NACM - Rubber flooring on wood	NACM - Electrical base heater
Rooms 1-30	NACM - Laid in ceiling tiles (2' wide) (Sample A38)	NACM - Modular wall board NACM – Wallpaper	NACM - Yellow pattern sheet flooring with paper backing on wood (Sample A34)	NACM - Windows with rubber seals NACM - Electrical base heater
Washroom	NACM - Laid in ceiling tiles (2' wide)	NACM - Modular wall board	ACM – Beige specked pattern sheet flooring with paper backing (Sample A39, Photograph 3)	Not applicable
Laundry Room	NACM - Laid in ceiling tiles (2' wide)	NACM - Modular wall board	NACM - Dotted pattern sheet flooring with paper backing	Not applicable
Party Room	NACM - Laid in ceiling tiles (2' wide)	NACM - Modular wall board	NACM - Carpet on top of wood flooring	Not applicable
Furnace Room	NACM - Drywall with no joint compound	NACM - Drywall with no joint compound NACM - Red Mastic (Sample A206)	ACM - Flower and square pattern sheet flooring with paper backing	Not applicable



**APPENDIX C**  
Asbestos-Containing Materials Inventory Table

**Bunk Trailer 3**

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Exterior	NACM - Sheet metal roof NACM - Black tar on centre of roof NACM - Silver mastic on roof NACM - Dark grey mastic on roof NACM - Cement under tar on roof NACM - Roofing membrane	NACM - Metal clad sheeting	NACM - Wood steps NACM - Wood footings	NACM - Two metal doors
Corridor	NACM - 2' x 4' Pinhole and fissure ceiling tiles (Sample A208)	NACM - Modular wall board with no joint compound	NACM - Rubber flooring on wood	NACM - Electrical base heater
Rooms 1-42	NACM - Laid in ceiling tiles (2' wide) (Sample A233)	NACM - Modular wall board NACM - Wallpaper (Sample A211)	ACM - Flower and square pattern sheet flooring with paper backing (Sample A207, Photograph 2) on wood	NACM - Windows with rubber seals NACM - Electrical bass heater NACM - Room 23 – electrical panel NACM - Room 8 – electrical panel NACM - Room 5 – electrical panel
Washroom	NACM - Laid in ceiling tiles (2' wide)	NACM - Modular wall board	ACM - Brown mosaic sheet flooring with paper backing (Sample A210, Photograph 1)	Not applicable
Showers	NACM - Laid in ceiling tiles (2' wide)	NACM - Modular wall board NACM - Plastic panels	NACM - Beige speckled sheet flooring with paper backing (Sample A209)	Not applicable
Laundry Room	NACM - Laid in ceiling tiles (2' wide)	NACM - Modular wall board NACM - painted panels	NACM - Beige speckled sheet flooring with paper backing	Not applicable



## APPENDIX C Asbestos-Containing Materials Inventory Table

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Furnace Rooms 1-5	NACM - Drywall with no joint compound	NACM - Drywall with no joint compound	ACM - Flower and square pattern sheet flooring with paper backing	Not applicable
Electrical Room	NACM - Laid in ceiling tiles (2' wide)	NACM - Modular wall board	ACM - Brown mosaic sheet flooring with paper backing	Not applicable



**APPENDIX C**  
Asbestos-Containing Materials Inventory Table

**Bunk Trailer 4**

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Exterior	NACM - Black tar on centre of roof (Sample A224) NACM - Silver mastic on roof NACM - Dark charcoal grey mastic (Sample A225) NACM - Cement under tar on roof NACM - Sheet metal ACM - Dark charcoal grey mastic patch on roof (Sample A223, Photograph 4) NACM - Roofing membrane	NACM - Metal clad sheeting NACM - Metal door	NACM – Wood steps NACM - Wood footings	Not applicable
Corridor	NACM - 2' x 4' Pinhole and fissure ceiling tiles on wood	NACM - Modular wall board	NACM – Rubber flooring on wood	NACM - Electrical base heater
Rooms 1-42	NACM - Laid in ceiling tiles (2' wide)	NACM - Modular wall board NACM – Wallpaper	ACM - Flower and square pattern sheet flooring with paper backing on wood	NACM - Windows with rubber seals NACM - Electrical bass heater
Washroom	NACM - Laid in ceiling tiles (2' wide)	NACM – Painted modular wall board	ACM - Brown mosaic sheet flooring with paper backing	Not applicable
Showers	NACM - Laid in ceiling tiles (2' wide)	NACM - Painted modular wall board	NACM - Beige speckled sheet flooring with paper backing	Not applicable
Laundry Room	NACM - Laid in ceiling tiles (2' wide)	NACM - Painted modular wall board	NACM - Beige speckled sheet flooring with paper backing	Not applicable



## APPENDIX C Asbestos-Containing Materials Inventory Table

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Furnace Rooms 1-5	NACM - Drywall with no joint compound	NACM - Drywall with no joint compound	ACM - Flower and square pattern sheet flooring with paper backing	Not applicable
Electrical Room	NACM - Laid in ceiling tiles (2' wide)	NACM - Modular wall board	ACM - Brown mosaic sheet flooring with paper backing	Not applicable



**APPENDIX C**  
**Asbestos-Containing Materials Inventory Table**

**Bunk Trailer 5**

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Exterior	NACM - Black tar on center of roof (Sample A222) NACM - silver mastic (Sample A221) NACM - dark grey mastic NACM - sheet metal NACM - Grey mastic around vent (Sample A220)	NACM - Metal clad sheeting NACM - Metal door	NACM – Wood steps NACM - Wood footings	Not applicable
Corridor	NACM - Metal clad sheeting	NACM - Modular wall board	NACM - Rubber flooring on wood	NACM - Electrical base heater
Rooms 2-41	NACM - Laid in ceiling tiles (2' wide)	NACM – Painted modular wall board NACM – Wallpaper (Sample A214)	ACM - Flower and square pattern sheet flooring with paper backing (Sample A230, Photograph 2) on wood	NACM - Windows with rubber seals NACM - Electrical base heater
Washroom	NACM - Laid in ceiling tiles (2' wide)	NACM – Painted modular wall board	ACM - Brown mosaic sheet flooring with paper backing	Not applicable
Showers	NACM - Laid in ceiling tiles (2' wide)	NACM – Painted modular wall board NACM – Wallpaper (Sample A213)	ACM - Beige speckled sheet flooring with paper backing (Sample A212)	Not applicable
Laundry Room	NACM - Laid in ceiling tiles (2' wide)	NACM - Painted modular wall board	NACM - Beige speckled sheet flooring with paper backing	Not applicable
Furnace Rooms 1-3	NACM - Drywall with no joint compound	NACM - Drywall with no joint compound	ACM - Flower and square pattern sheet flooring with paper backing	Not applicable



**APPENDIX C**  
Asbestos-Containing Materials Inventory Table

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Electrical Room	NACM - Laid in ceiling tiles (2' wide)	NACM - Modular wall board	ACM - Brown mosaic sheet flooring with paper backing	Not applicable

**Water & Storage Trailer**

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Exterior	NACM - Sheet metal roof NACM - Black tar on centre of roof NACM - Silver mastic on roof NACM - Dark grey mastic on roof NACM - Roofing membrane	NACM - Metal clad sheeting	NACM – Wood Steps NACM - Wood footings	NACM - Grey putty around trim on south wall exterior (Sample A218) NACM – Grey mastic around chimney (Sample A219) NACM - Metal doors
Pump Room	NACM – Grey painted wood	NACM – Grey painted wood	NACM – Grey painted wood	NACM - Water storage tank and pumps
Storage Room	NACM - White panel	NACM - White panel	NACM - Beige mosaic sheet flooring with paper backing (Sample A217)	Not Applicable

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## APPENDIX C Asbestos-Containing Materials Inventory Table

### Asbestos-Containing Materials Inventory – Warehouse, Dry, and Lab, Sä Dena Hes Mine, Yukon Territory

**Notes:** All tables should be read in conjunction with a review of the laboratory sample analysis reports presented in Appendix F.

Highlighted text in this table indicates the confirmed or suspected presence of Asbestos.

ACM – Asbestos-containing material.

NACM – Non asbestos-containing material or no suspect ACM was observed on this equipment or in this space.

SACM – Suspect asbestos-containing material.

#### Warehouse Dry & Lab

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Small Storage	NACM - White plywood	NACM - Wood panel sheeting	NACM - Grey plywood flooring NACM - Black building paper beneath wood floor (Sample A1)	NACM - Mechanical piping with fiberglass insulating materials ACM - Three 6' x 3' windows with grey putty
Large Storage	NACM - Wood sheeting	NACM - Wood sheeting	NACM - Concrete	Not Applicable
Electrical Room	NACM - Wood beams	NACM - Wood sheeting	NACM - Wood flooring NACM - Soil	NACM - Electrical breakers (energized)
Hallway 3	NACM - White plywood	NACM - White plywood	NACM - 12" x 12" Grey with speckled floor tile (Sample A3)	Not Applicable
Room 12 (Fire Fighting Room)	NACM - White plywood ceiling	NACM - Drywall with no joint compound	NACM - Blue/grey plywood flooring NACM - Black building paper beneath wood floor	Not Applicable
Room 13 (Female Dry)	NACM - White plywood ceiling	NACM - White plywood	NACM - Blue/grey plywood flooring NACM - Black building paper beneath wood floor	Not Applicable
Room 4	NACM - White plywood ceiling	NACM - White plywood	NACM - Blue/grey plywood flooring NACM - Black building paper beneath wood floor	NACM - Electronic equipment



## APPENDIX C Asbestos-Containing Materials Inventory Table

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Male Dry Room	NACM - White plywood ceiling	NACM - White plywood	NACM - Blue/grey plywood flooring NACM - Black building paper beneath wood floor	NACM - Hot water tank
Room 5 (Shower & Bathroom)	NACM - White plywood ceiling NACM - Plastic sheeting	NACM - White plywood NACM - Square pattern plastic sheeting (Sample A106)	NACM - 12" x 12" Beige speckled floor tile on plywood NACM- Brown sheet flooring with paper backing (Sample A105) NACM - Black plastic liner	NACM - Large heater NACM - Caulking around shower liner (Sample 107)
Office 1	NACM - White wood panel	NACM - Wood panelling	NACM - 12" x 12" Beige striped floor tile on plywood	NACM - fibreglass NACM - Heater
Office 2	NACM - White wood panel	NACM - Wood panelling	NACM - 12" x 12" Beige striped floor tile on plywood	Not Applicable
Office 3	NACM - White wood panel ceiling	NACM - Wood panelling	NACM - 12" x 12" Beige striped floor tile on plywood	ACM - Two 3' x 3' window with grey putty
Hallway 2	NACM - Metal clad sheeting ceiling	NACM - White plywood	NACM - 12" x 12" Beige speckled floor tile (Sample A2) on plywood	Not Applicable
Furnace Room	NACM - White plywood ceiling	NACM - Drywall with drywall joint compound (Sample A109) NACM - Wood panelling	NACM - 12" x 12" Beige speckled floor tile (Sample A108) on plywood	NACM - Gasket (Sample A5) NACM- Furnace
Hallway 1	NACM - White plywood ceiling	NACM - Wood panelling	NACM - 12" x 12" Beige striped floor tile on plywood	ACM - Grey window putty (Sample A104, Photograph 8)
Room 6	NACM -White wood panel ceiling	NACM - White plywood	NACM - 12" x 12" Beige speckled floor tile on plywood	Not Applicable
Room 7	NACM - White wood panel ceiling	NACM - Wood panelling NACM - Drywall with drywall joint compound	NACM - 12" x 12" Beige striped floor tile on plywood	Not Applicable



## APPENDIX C Asbestos-Containing Materials Inventory Table

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Room 8	NACM - White wood panel ceiling	NACM - Drywall with drywall joint compound NACM - White plywood	NACM - 12" x 12" Beige striped floor tile on plywood	NACM - Two 3' x 3' window with no putty
Room 9	NACM - White wood panel ceiling	NACM - Drywall with drywall joint compound	NACM - 12" x 12" Beige striped floor tile on plywood	NACM - Interior 3' x 3' window with no putty
Lab 1	NACM - White wood panel ceiling	NACM - Drywall with joint compound (Samples: A110, A4, A6) NACM - Wood panelling	NACM - 12" x 12" Beige speckled floor tile on plywood	Not Applicable
Lab 2	NACM - White wood panel ceiling	NACM - White wood panelling	NACM - 12" x 12" Beige speckled floor tile on plywood	NACM - Cement boards in cupboard lining (Sample 111) NACM - Cement boards in fume hoods (Samples: A112, A7) <b>ACM - Black fire stop putty in electrical conduits (Sample A114, Photograph 9)</b> NACM - Two 3' x 4' windows with no putty
Lab 3	NACM - White wood panel ceiling	NACM - White wood panelling NACM - Drywall with drywall joint compound (Sample A113)	NACM - 12" x 12" Beige speckled floor tile on plywood	Not Applicable
Lab 4	NACM - Drywall	NACM - Drywall with joint compound	NACM - 12" x 12" Beige striped floor tile on plywood	NACM - 2' x 3' window with no putty
Attic	NACM - Metal sheeting	NACM - Green roof shingles	NACM - Wood	Not Applicable



## APPENDIX C Asbestos-Containing Materials Inventory Table

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Exterior	NACM - Brown shingles and Tar (Large Storage Warehouse Roof) (Samples: A115, A8) NACM – Black shingles with silver mastic (Same roof as Office Complex) on lowered roof NACM - Green shingles (Mine Dry and Lab Roof) (Sample A119)	NACM - Metal clad sheeting with fibreglass insulation beneath NACM - Wood sheeting with fibreglass insulation beneath	NACM - Plywood walkway	Not Applicable

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## APPENDIX C Asbestos-Containing Materials Inventory Table

### Asbestos-Containing Materials Inventory – Office Complex, Sä Dena Hes Mine, Yukon Territory

**Notes:** All tables should be read in conjunction with a review of the laboratory sample analysis reports presented in Appendix F.

Highlighted text in this table indicates the confirmed or suspected presence of Asbestos.

ACM – Asbestos-containing material.

NACM – Non asbestos-containing material or no suspect ACM was observed on this equipment or in this space.

SACM – Suspect asbestos-containing material.

#### Office Complex Building

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Exterior	NACM - Metal roof NACM - Green shingles on main roof NACM - Green shingles on north middle entrance roof (Sample A118) NACM - Green shingles on northwest entrance roof NACM - Black shingles on northeast entrance roof (Sample A117) NACM – Silver mastic on roof seams (Sample A116)	NACM - Metal Cladding with fibreglass insulation	Not applicable	NACM - Windows with no putty
Room 1	NACM - White textured ceiling panels NACM - Fibreglass installation	NACM - White modular wall boards	NACM - Square pattern sheet flooring with pink stripes with paper backing (Sample A20) NACM - Beige with grey sheet flooring with paper backing (Sample A21)	NACM - Windows with no putty
Room 2	NACM - White textured ceiling panels	NACM - White modular wall boards	NACM - Square pattern sheet flooring with pink stripes	NACM - Window with no putty
Room 3	NACM - White textured ceiling panels	NACM - White modular wall boards	NACM - Beige (6") patterned sheet flooring with paper backing	NACM - Windows with no putty



**APPENDIX C**  
**Asbestos-Containing Materials Inventory Table**

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Room 4	NACM - White textured ceiling panels	NACM - White modular wall boards	NACM - Beige (6") patterned sheet flooring with paper backing	NACM - Window with no putty
Room 5	NACM - White textured ceiling panels	NACM - Wooden panels NACM - White and beige modular wall boards	NACM - Beige (6") patterned sheet flooring with paper backing (Sample A18)	NACM - Electrical panel
Room 6	NACM - White textured ceiling panels	NACM - Wooden panels NACM - White and beige modular wall boards	NACM - Beige patterned sheet flooring with no backing (Sample A22)	NACM – Furnace in wood lined closet
Room 7	NACM - White textured ceiling panels	NACM - Wooden panels NACM - White and beige modular wall boards	NACM - Beige (6") patterned sheet flooring with paper backing	NACM - Window with no putty
Room 8	NACM - White painted wood	NACM - Wooden panels NACM - White and beige modular wall boards	NACM - Beige streaked 1' x 1' floor tile (Sample A19)	NACM - Window with no putty
Room 9	NACM - White textured ceiling panels	NACM - Modular wall boards	NACM - Beige streaked 1' x 1' floor tile	NACM - Electrical panel
Room 10	NACM - White textured ceiling panels	NACM - Modular wall boards	NACM - Beige streaked 1' x 1' floor tile	NACM - Window with rubber seal
Room 11	NACM - White textured ceiling panels	NACM - Modular wall boards	NACM - Beige streaked 1' x 1' floor tile	NACM - Window with rubber seal



**APPENDIX C**  
**Asbestos-Containing Materials Inventory Table**

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Room 12	NACM - White textured ceiling panels	NACM - Modular wall boards	NACM - Beige and white square pattern sheet flooring (Sample A120) under carpet	Not Applicable
Main Hallway 1	NACM - White painted drywall with joint compound (Sample A128)	NACM - White painted drywall with joint compound (Samples: A26, A129, A130) NACM - Wooden panelling	NACM - Carpet on plywood	Not Applicable
Entrance 1	NACM - White painted wood	NACM - White painted wood	NACM - Plywood	Not Applicable
Hallway 2	NACM - Plywood	NACM - Metal clad sheeting with fibreglass insulation	NACM - Wood	ACM - Two 2' x 4' windows with black putty (Sample A121, Photograph 16)
Hallway 6	NACM - White painted drywall with joint compound	NACM - White painted drywall with drywall joint compound (Samples: A123, A124, A125, A126, A127)	NACM - Beige streaked 1' x 1' floor tile	Not Applicable
Room 25	NACM - White textured ceiling panel	NACM - Modular wall boards NACM - Wooden panelling	NACM - Beige streaked 1' x 1' floor tile	Not Applicable
Hallway 7	NACM - White painted drywall with joint compound	NACM - White painted drywall with drywall joint compound (Sample A25)	NACM - Beige streaked 1' x 1' floor tile	ACM - Cement board panelling in furnace closet (Sample A27, Photograph 15)
Hallway 5	NACM - White textured ceiling panel	NACM - Modular wall boards	NACM - Beige (6") patterned sheet flooring with paper backing	Not Applicable



## APPENDIX C Asbestos-Containing Materials Inventory Table

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Entrance 2	NACM - Plywood	NACM - Plywood	NACM - Plywood	NACM - Spray foam around door frame
Entrance 3	NACM - Plywood	NACM - Plywood	NACM - Plywood	NACM - Collapsed fibreglass installation
	NACM - Fibreglass			
Room 13	NACM - White wooden panels	NACM - Wooden panels	ACM - Flower pattern sheet flooring with paper backing	NACM - Window with rubber seal
Room 14	NACM - White wooden panels	NACM - Modular wall boards	ACM - Flower pattern sheet flooring with paper backing (Sample A24, photograph 14)	NACM - 3 windows with rubber seal
Room 15	NACM - Particle board with vinyl cover	NACM - Ceramic tile	ACM - Flower pattern sheet flooring with paper backing	Not Applicable
Room 16	NACM - White textured ceiling panels (Sample A131)	NACM - Modular wall boards	NACM - Beige streaked 1' x 1' floor tile	Not Applicable
Room 17	NACM - White textured ceiling panels	NACM - Beige modular wall boards	NACM - Beige streaked 1' x 1' floor tile	NACM - Window with no putty
Room 18	NACM - White textured ceiling panels	NACM - Beige modular wall boards NACM - Wooden panels	NACM - Beige streaked 1' x 1' floor tile	NACM - Window with no putty
Room 19	NACM - White textured ceiling panels	NACM - Modular wall boards	NACM - Cream tile sheet flooring with paper backing (Sample A23)	ACM - Fire stop caulking in electrical conduit hole (Sample A122, Photograph 17)
Room 20	NACM - White textured ceiling panels	NACM - Modular wall boards	ACM - Flower pattern sheet flooring with paper backing	Not Applicable
Room 21	NACM - White textured ceiling panels	NACM - Modular wall boards	ACM - Flower pattern sheet flooring with paper backing	Not Applicable
Room 22	NACM - White textured ceiling panels	NACM - Modular wall boards	NACM - Beige streaked 1' x 1' floor tile	ACM - Cement board panelling in furnace closet
	NACM - Pink fiberglass	NACM - Wooden panels		



## APPENDIX C Asbestos-Containing Materials Inventory Table

Room ID	Ceilings	Walls	Floors	Other Asbestos Materials
Room 23	NACM - White textured ceiling panels	NACM - Modular wall boards NACM - Wooden panels	NACM - Beige streaked 1' x 1' floor tile	NACM - Window with no putty
Room 24	NACM - White textured ceiling panels	NACM - Modular wall boards NACM - Wooden panels	NACM - Beige streaked 1' x 1' floor tile	Not Applicable
Room 26	NACM - White textured ceiling panels	NACM - Modular wall boards NACM - Wooden panels	NACM - Beige streaked 1' x 1' floor tile	Not Applicable
Room 27	NACM - White textured ceiling panels	NACM - Modular wall boards NACM - Wooden panels	NACM - Beige streaked 1' x 1' floor tile	NACM - Window with no putty
Room 28	NACM - White textured ceiling panels	NACM - Modular wall boards NACM - Wooden panels	NACM - Beige streaked 1' x 1' floor tile	NACM - Window with no putty
Room 29	NACM - White textured ceiling panels	NACM - Modular wall boards NACM - Wooden panels	NACM - Beige streaked 1' x 1' floor tile	NACM - Window with no putty
Room 30	NACM - White textured ceiling panels	NACM - Modular wall boards NACM - Wooden panels	NACM - Beige streaked 1' x 1' floor tile	NACM - Window with no putty
Hallway 3	NACM - White textured ceiling panels	NACM - Modular wall boards	NACM - Beige (6") patterned sheet flooring with paper backing	Not Applicable
Hallway 4	NACM - White textured ceiling panels	NACM - Modular wall boards	NACM - Beige streaked 1' x 1' floor tile	ACM - Cement board panelling in furnace closet

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# **APPENDIX D**

## **Selected Photographs**



## APPENDIX D

### Selected Photographs



*Photograph 1: Asbestos-containing brown mosaic sheet flooring with paper backing found in Bunk Trailers 1, 3, 4, and 5, the Kitchen Trailer (Samples A32, A210, A215).*

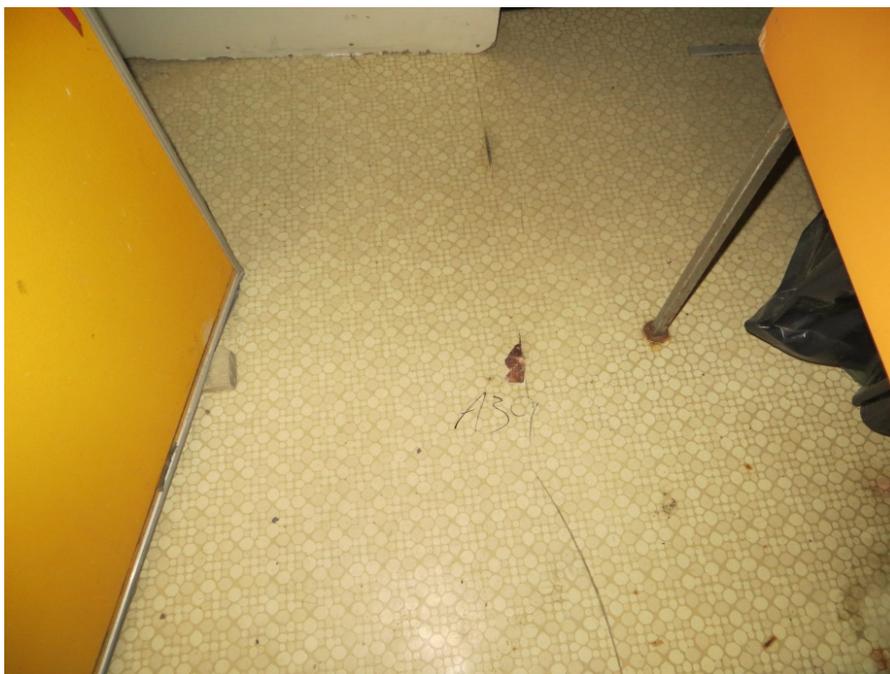


*Photograph 2: Asbestos-containing flower and square pattern sheet flooring with paper backing found in Bunk Trailers 1, 2, 3, 4, and 5 (Samples A207 and A230).*



## APPENDIX D

### Selected Photographs



*Photograph 3: Asbestos-containing beige speckled sheet flooring with paper backing found in Bunk Trailer 2 and the Kitchen Trailer (Sample A39).*

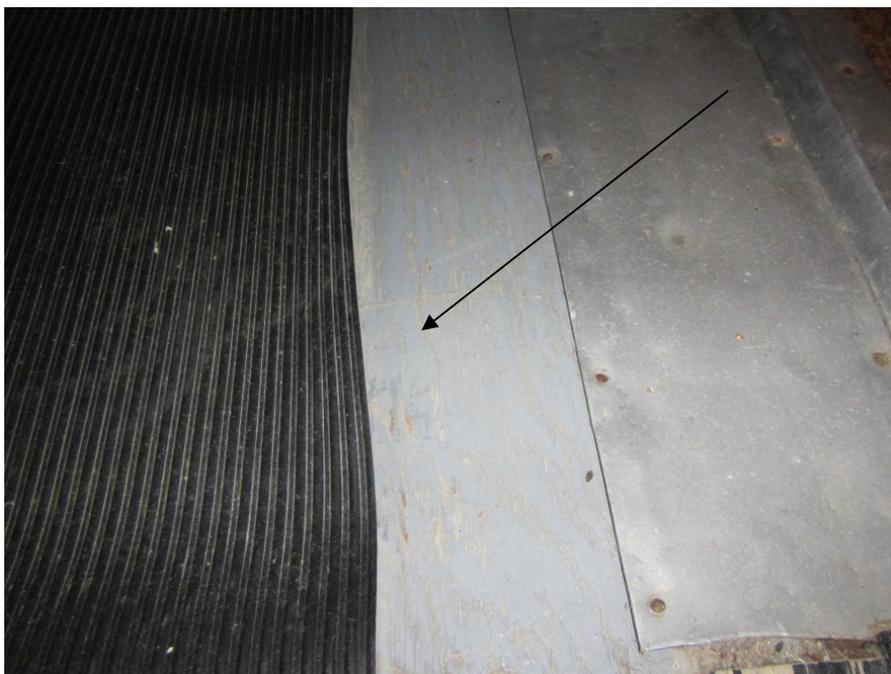


*Photograph 4: Asbestos-containing dark charcoal grey mastic patch on roof of Bunk Trailer 4 (Sample A223).*



## APPENDIX D

### Selected Photographs



*Photograph 5: Lead-containing grey paint on corridor floor in Bunk Trailer 1 (Sample L205).*



*Photograph 6: Grey loose and flaking LCP (Sample L5) from the floor in the Powerhouse.*



## APPENDIX D Selected Photographs



Photograph 7: White loose and flaking LCP (Sample L6) from the Glycol pipelines in the Powerhouse.



Photograph 8: Asbestos-containing grey window putty (Sample A104) in the Warehouse, Dry, and Lab.



## APPENDIX D

### Selected Photographs



Photograph 9: Asbestos-containing black fire stop (Sample A114) around electrical conduit in Lab 2 of the Warehouse, Dry, and lab.

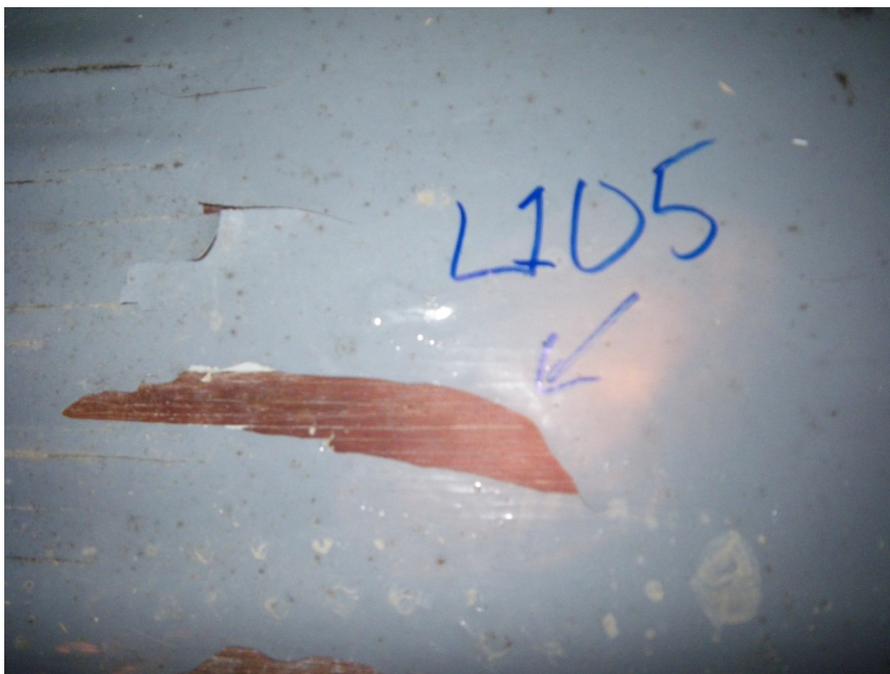


Photograph 10: White loose and flaking LCP (Sample L1) in the Small Storage of the Warehouse, Dry, and Lab.



## APPENDIX D

### Selected Photographs



Photograph 11: Grey loose and flaking LCP (Sample L105) from the floor in Warehouse, Dry, and Lab.



Photograph 12: Stored chemicals in Warehouse, Dry, and Lab, Laboratory.



## APPENDIX D

### Selected Photographs



Photograph 13: Stored chemicals in the Laboratory of the Warehouse, Dry, and Lab.



Photograph 14: Asbestos-containing flower pattern sheet flooring with paper backing (Sample A24) in the Office Complex Building.



**APPENDIX D**  
Selected Photographs



*Photograph 15: Asbestos-containing cement (Sample A27) board lining the furnace closets in the Office Complex.*



*Photograph 16: Asbestos-containing black window putty (Sample A121) in the Office complex building.*

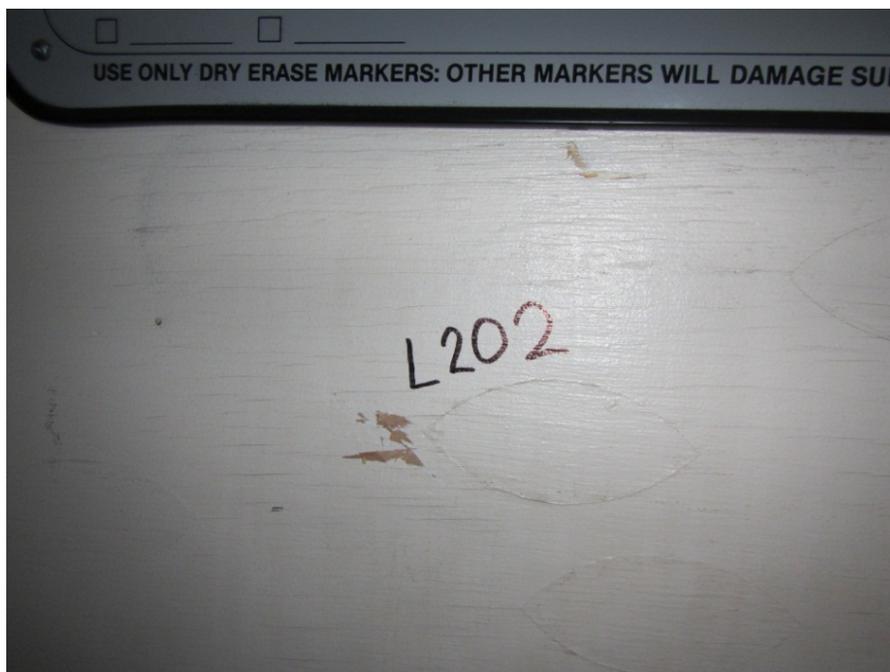


## APPENDIX D

### Selected Photographs



Photograph 17: Black fire stop around electrical conduit (Sample A122) in the Office Complex.



Photograph 18: White minor loose and flaking LCP (Sample L202) in the floor of the Shop.



**APPENDIX D**  
Selected Photographs



*Photograph 19: Stored chemicals in Shop.*



*Photograph 20: Orange Loose and Flaking LCP (Sample L8) on the exterior of the Cold Storage Warehouse.*



## APPENDIX D

### Selected Photographs



*Photograph 21: White LCP (Sample L215) from the interior wall of the Carpentry Garage.*



*Photograph 22: White LCP (Sample L214) on door frame of Security Building.*



## APPENDIX D

### Selected Photographs



Photograph 23: Red LCP (Sample L218) from the exterior of the Lake Pump House.



Photograph 24: Blue loose and flaking LCP (Sample L217) from the Radiator Bank.



## APPENDIX D

### Selected Photographs



*Photograph 25: Stored drums in Water Distribution Pump House.*



*Photograph 26: Tank with red loose and flaking LCP (Sample L 103) near the Ball Storage.*



## APPENDIX D

### Selected Photographs



*Photograph 27: Yellow container near the Crusher Building with yellow loose and flaking LCP (Sample L216).*

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# **APPENDIX E**

## **Asbestos Laboratory Results**

**Laboratory Results from Preliminary Assessment  
(Please note that these have not been separated on a  
building by building basis. Only those samples referred in  
Section 7.0 are applicable to this report).**

# Laboratory Bulk Asbestos Test Report



Environmental, Geotechnical and Materials Professionals

Client: Golder Associates Ltd.

Address: 500-4260 Still Creek Dr., Burnaby, BC, Canada V5C 6C6

Project Name: 12-1021-0006

Project Number: / P.O. Number: 12-1021-0006

Date Analyzed: 08/16/12

Page Number: 1 of 2

Analytical method: Polarized light microscopy using dispersion staining (EPA/600/R-93/116)

Sample I.D. Number	Laboratory I.D. Number	Sample Color	Type of Asbestos	Percentage of Asbestos	Other Fibers	Percentage of Other Fibers	Type of Material
A-1	12B-10314	Black	ND	ND	CELL	95.0	Paper
A-2	12B-10315	Beige/Black	ND	ND	CELL	<1.0	Floor Tile/Mastic
A-3	12B-10316	Grey/Brown	ND	ND	CELL	<1.0	Floor Tile/Mastic
A-4	12B-10317	White	ND	ND	CELL	<1.0	Drywall Joint Comp.
A-5	12B-10318	Brown	ND	ND	ND	ND	Gasket
A-6	12B-10319	White	ND	ND	CELL	<1.0	Drywall Joint Comp.
A-7	12B-10320	Tan	ND	ND	SYNTH	<1.0	Cement Board
A-8	12B-10321	Black	ND	ND	CELL	15.0	Shingle/Tar Paper
A-9	12B-10322	Grey/Brown	ND	ND	CELL/FBGL	1.0/5.0	Sheet Flooring
A-10	12B-10323	White/Tan	ND	ND	ND	ND	Flooring
A-11	12B-10324	Tan/White	ND	ND	CELL/FBGL	50.0/30.0	Ceiling Tile
A-12	12B-10325	White	ND	ND	CELL	<1.0	Drywall Joint Comp.
A-13	12B-10326	White	ND	ND	CELL/SYNTH	<1.0/5.0	Drywall Joint Comp.
A-14	12B-10327	Tan	ND	ND	CELL	90.0	Paper
A-15	12B-10328	White	ND	ND	CELL	<1.0	Drywall Joint Comp.
A-16	12B-10329	White	ND	ND	CELL	<1.0	Drywall Joint Comp.
A-17	12B-10330	Beige	ND	ND	ND	ND	Floor Tile
A-18	12B-10331	Beige	ND	ND	CELL/FBGL	1.0/3.0	Sheet Flooring
A-19	12B-10332	Beige/Tan	ND	ND	CELL	<1.0	Floor Tile/Mastic
A-20	12B-10333	Beige	ND	ND	CELL/FBGL	3.0/5.0	Sheet Flooring
A-21	12B-10334	Beige	ND	ND	CELL/FBGL	2.0/5.0	Sheet Flooring
A-22	12B-10335	Beige	ND	ND	ND	ND	Flooring
A-23	12B-10336	Cream	ND	ND	CELL	5.0	Flooring
A-24	12B-10337	Beige/Tan	CHRY	10.0	ND	ND	Sheet Flooring
A-25	12B-10338	White	ND	ND	CELL	<1.0	Drywall Joint Comp.

Abbreviations: ND-None Detected. Asbestos Type: ACTN-Actinolite, AMOS-Amosite, ANTH-Anthophyllite, CHRY-Chrysotile, CROC- Crocidolite, TREM-Tremolite. Other Fibers: CELL-Cellulose, FBGL-Fiberglass/Mineral wool, ANML-Animal, SYNTH-Synthetic, MNRL-Non-Asbestiform Mineral, OTHR-Other. Trace: <0.25%

NOTE: Materials containing heavy binders, small asbestos fibers, or heterogenous asbestos content should not be deemed absent of asbestos, or a non-asbestos containing material based solely on PLM analysis. Such materials include, but are not limited to: floor tiles, plasters, caulking, and joint compounds.

Reported percentage of asbestos is based upon a calibrated visual estimate of area. \*Denotes that the asbestos content was verified with point counting. \*\*Denotes that the asbestos content was verified by gravimetric reduction.(EPA/600/R-93/116) Samples that contain discreetly identifiable layers will be analyzed and reported separately, if any layer is found to contain asbestos. When no asbestos is detected in any layer of a sample, or separation of layers is impossible, the sample will be reported as a composite sample. All samples will be held for 60 days before disposal, unless otherwise requested.

This report relates only to items tested and makes no statement as to the location the samples were collected from, or the contents of surrounding materials. This report shall not be reproduced except in full, without written approval of this lab. Use of the NVLAP logo must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Date Received:	8/10/2012
Turnaround Time:	Normal
Report Issue Date:	8/16/2012
Sample Set Number:	72.23404.8058



LAB CODE: 200471-0

ATC Associates, Inc.

11121 Canal Road

Analyst Signature:

*Helen M. Bray*  
Helen M. Bray, Microscopist

Unsigned reports have not yet been proofread, and should not be considered complete.

Cincinnati, OH 45241

Tel: 513.771.2112

Fax: 513.782.6908



## **Laboratory Results from Phase 2 Assessment**

# Laboratory Bulk Asbestos Test Report



Shaping the Future

Client: Golder Associates Ltd.

Address: 500-4260 Still Creek Dr., Burnaby, BC, Canada V5C 6C6

Project Name: SDH HBMA, Camp

Project Number: / P.O. Number: 12-1021-0006 / N/A

Date Analyzed: 10/04/12

Page Number: 1 of 1

Analytical method: Polarized light microscopy using dispersion staining ( EPA/600/R-93/116 )

Sample I.D. Number	Laboratory I.D. Number	Sample Color	Type of Asbestos	Percentage of Asbestos	Other Fibers	Percentage of Other Fibers	Type of Material
A205	12B-11965	Grey	ND	ND	CELL	<1.0	Cement
A206	12B-11966	Red	ND	ND	CELL	<1.0	Mastic
A207	12B-11967	White/Brown	CHRY	10.0	CELL	<1.0	Flooring/Mastic
A208	12B-11968	White/Lt. Grey	ND	ND	FBGL/CELL	<1.0/20.0	Ceiling Tile
A209	12B-11969	Beige	ND	ND	CELL	5.0	Flooring/Mastic
A210	12B-11970	Brown	CHRY	10.0	CELL	<1.0	Flooring/Mastic
A211	12B-11971	White/Brown	ND	ND	CELL	5.0	Wallpaper
A212	12B-11972	Brown	CHRY	10.0	CELL	<1.0	Flooring/Mastic
A213	12B-11973	White	ND	ND	CELL	5.0	Wallpaper
A214	12B-11974	White	ND	ND	CELL	5.0	Wallpaper
A215	12B-11975	Brown	CHRY	10.0	CELL	<1.0	Flooring/Mastic
A216	12B-11976	White/Brown	ND	ND	CELL	99.0	Ceiling Tile
A217	12B-11977	Brown	ND	ND	SYNTH/CELL	1.0/<1.0	Flooring/Mastic
A218	12B-11978	Grey	ND	ND	SYNTH	<1.0	Putty
A219	12B-11979	Grey	ND	ND	SYNTH/CELL	<1.0/<1.0	Mastic
A220	12B-11980	Grey	ND	ND	CELL	<1.0	Mastic
A221	12B-11981	Silver	ND	ND	SYNTH/CELL	<1.0/<1.0	Mastic
A222	12B-11982	Black	ND	ND	CELL	<1.0	Tar
A223	12B-11983	Dk. Charcoal Grey	CHRY	12.0	CELL	<1.0	Mastic
A224	12B-11984	Black	ND	ND	CELL	<1.0	Tar
A225	12B-11985	Dk. Charcoal Grey	ND	ND	FBGL/CELL	<1.0/<1.0	Mastic
A226	12B-11986	Dk. Charcoal Grey	ND	ND	CELL	<1.0	Mastic
A227	12B-11987	Silver	ND	ND	SYNTH/CELL	<1.0/<1.0	Mastic
A228	12B-11988	Black	ND	ND	CELL	<1.0	Tar
A229	12B-11989	White	ND	ND	CELL	<1.0	Putty

Abbreviations: ND-None Detected. Asbestos Type: ACTN-Actinolite, AMOS-Amosite, ANTH-Anthophyllite, CHRY-Chrysotile, CROC- Crocidolite, TREM-Tremolite. Other Fibers: CELL-Cellulose, FBGL-Fiberglass/Mineral wool, ANML-Animal, SYNTH-Synthetic, MNRL-Non-Asbestiform Mineral, OTHR-Other. Trace: <0.25%

NOTE: Materials containing heavy binders, small asbestos fibers, or heterogenous asbestos content should not be deemed absent of asbestos, or a non-asbestos containing material based solely on PLM analysis. Such materials include, but are not limited to: floor tiles, plasters, caulking, and joint compounds.

Reported percentage of asbestos is based upon a calibrated visual estimate of area. \*Denotes that the asbestos content was verified with point counting. \*\*Denotes that the asbestos content was verified by gravimetric reduction.(EPA/600/R-93/116) Samples that contain discreetly identifiable layers will be analyzed and reported separately, if any layer is found to contain asbestos. When no asbestos is detected in any layer of a sample, or separation of layers is impossible, the sample will be reported as a composite sample. All samples will be held for 60 days before disposal, unless otherwise requested.

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Date Received:	9/26/2012
Turnaround Time:	Normal
Report Issue Date:	10/4/2012
Sample Set Number:	72.23404.8124



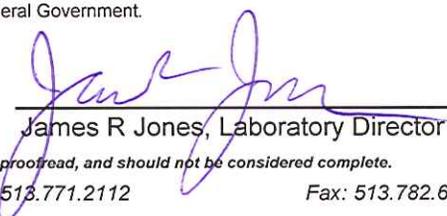
LAB CODE: 200471-0

Cardno ATC

11121 Canal Road

Cincinnati, OH 45241

Analyst Signature:

  
James R Jones, Laboratory Director

Unsigned reports have not yet been proofread, and should not be considered complete.

Tel: 513.771.2112

Fax: 513.782.6908













# **APPENDIX F**

## **Lead Laboratory Results**

**Laboratory Results from Preliminary Assessment  
(Please note that these have not been separated on a  
building by building basis. Only those samples referred in  
Section 7.0 are applicable to this report).**

Your Project #: 12-1021-0006  
Site Location: SA DENA HES, YT  
Your C.O.C. #: 08355631

**Attention: Russell English**  
GOLDER ASSOCIATES LTD  
4260 STILL CREEK DRIVE  
Suite 500  
BURNABY, BC  
Canada V5C 6C6

Report Date: 2012/08/14

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B270384**  
Received: 2012/08/09, 13:05

Sample Matrix: PAINT  
# Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by ICP-AES (acid extr. solid)	9	2012/08/14	2012/08/14	BBY7SOP-00018	SW846 6010C

\* Results relate only to the items tested.

Encryption Key



Kelly Janda

14 Aug 2012 18:15:48 -07:00

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

Kelly Janda, B.Sc, Burnaby Project Manager  
Email: KJanda@maxxam.ca  
Phone# (604) 638-5019

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

Total cover pages: 1



Maxxam Job #: B270384  
Report Date: 2012/08/14

GOLDER ASSOCIATES LTD  
Client Project #: 12-1021-0006  
Site Location: SA DENA HES, YT  
Sampler Initials: RY

**LEAD IN PAINT CHIPS (PAINT)**

Maxxam ID		ED7416	ED7417	ED7418	ED7419	ED7420	ED7421	ED7422	ED7423	ED7424		
	UNITS	L1	L2	L3	L4	L5	L6	L7	L8	L9	RDL	QC Batch
<b>Total Metals by ICP</b>												
Total Lead (Pb)	mg/kg	145	3300	1390	846	1270	1380	264	3280	17.3	2.0	6079328

---

RDL = Reportable Detection Limit

Maxxam Job #: B270384  
 Report Date: 2012/08/14

GOLDER ASSOCIATES LTD  
 Client Project #: 12-1021-0006  
 Site Location: SA DENA HES, YT  
 Sampler Initials: RY

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Method Blank		RPD		QC Standard	
			Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6079328	Total Lead (Pb)	2012/08/14	<2.0	mg/kg	14.8	35	98	80 - 120

---

N/A = Not Applicable

RPD = Relative Percent Difference

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

QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

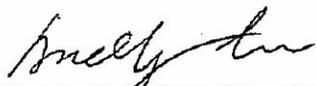
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

**Validation Signature Page**

**Maxxam Job #: B270384**

---

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



---

Andy Lu, Data Validation Coordinator

---

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## **Laboratory Results from Phase 2 Assessment**

Your Project #: 12-1021-0006  
Site Location: SDH HBMA CAMP.  
Your C.O.C. #: 08358428

**Attention: Rebecca Yanciw**  
GOLDER ASSOCIATES LTD  
4260 STILL CREEK DRIVE  
Suite 500  
BURNABY, BC  
Canada V5C 6C6

Report Date: 2012/09/28

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B286164**  
Received: 2012/09/25, 17:30

Sample Matrix: PAINT  
# Samples Received: 3

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Elements by ICP-AES (acid extr. solid)	3	2012/09/28	2012/09/28	BBY7SOP-00018	SW846 6010C

\* Results relate only to the items tested.

Encryption Key

Lanoy Luangkhamdeng

28 Sep 2012 15:09:47 -07:00

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

Kelly Janda, B.Sc, Burnaby Project Manager  
Email: KJanda@maxxam.ca  
Phone# (604) 638-5019

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



Maxxam Job #: B286164  
Report Date: 2012/09/28

GOLDER ASSOCIATES LTD  
Client Project #: 12-1021-0006  
Site Location: SDH HBMA CAMP  
Sampler Initials: RY

**LEAD IN PAINT CHIPS (PAINT)**

Maxxam ID		EO2644	EO2645	EO2646		
Sampling Date		2012/09/19	2012/09/19	2012/09/19		
	UNITS	L203	L204	L205	RDL	QC Batch
<b>Total Metals by ICP</b>						
Total Lead (Pb)	mg/kg	62.1	16.6	1210	2.0	6209525

---

RDL = Reportable Detection Limit



Maxxam Job #: B286164  
Report Date: 2012/09/28

GOLDER ASSOCIATES LTD  
Client Project #: 12-1021-0006  
Site Location: SDH HBMA CAMP.  
Sampler Initials: RY

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Method Blank		RPD		QC Standard	
			Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6209525	Total Lead (Pb)	2012/09/28	<2.0	mg/kg	19.9	35	99	80 - 120

---

N/A = Not Applicable

RPD = Relative Percent Difference

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

QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

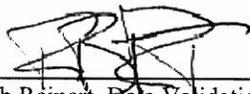
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

**Validation Signature Page**

**Maxxam Job #: B286164**

---

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



---

Rob Reinert, Data Validation Coordinator

---

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

Your Project #: 12-1021-0006  
Site Location: SDH HBMA POWERHOUSE  
Your C.O.C. #: 08358429

**Attention: Rebecca Yanciw**  
GOLDER ASSOCIATES LTD  
4260 STILL CREEK DRIVE  
Suite 500  
BURNABY, BC  
Canada V5C 6C6

Report Date: 2012/09/28

## CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B286165**  
Received: 2012/09/25, 17:30

Sample Matrix: PAINT  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Elements by ICP-AES (acid extr. solid)	1	2012/09/28	2012/09/28	BBY7SOP-00018	SW846 6010C

\* Results relate only to the items tested.

Encryption Key



Rob MacArthur

28 Sep 2012 17:26:24 -07:00

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

Kelly Janda, B.Sc, Burnaby Project Manager  
Email: KJanda@maxxam.ca  
Phone# (604) 638-5019

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

Total cover pages: 1



Maxxam Job #: B286165  
Report Date: 2012/09/28

GOLDER ASSOCIATES LTD  
Client Project #: 12-1021-0006  
Site Location: SDH HBMA POWERHOUSE  
Sampler Initials: RY

**LEAD IN PAINT CHIPS (PAINT)**

Maxxam ID		EO2647		
Sampling Date		2012/09/17		
	<b>UNITS</b>	<b>L201</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Total Metals by ICP</b>				
Total Lead (Pb)	mg/kg	55.4	2.0	6209525

---

RDL = Reportable Detection Limit

Maxxam Job #: B286165  
 Report Date: 2012/09/28

GOLDER ASSOCIATES LTD  
 Client Project #: 12-1021-0006  
 Site Location: SDH HBMA POWERHOUSE  
 Sampler Initials: RY

**QUALITY ASSURANCE REPORT**

QC Batch	Parameter	Date	Method Blank		RPD		QC Standard	
			Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6209525	Total Lead (Pb)	2012/09/28	<2.0	mg/kg	19.9	35	99	80 - 120

---

N/A = Not Applicable

RPD = Relative Percent Difference

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

QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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

**Validation Signature Page**

**Maxxam Job #: B286165**

---

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



---

Rob Reinert, Data Validation Coordinator

---

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

Your Project #: 12-1021-0006  
Site Location: SDH HBMA WAREHOUSE, LAB + DRY  
Your C.O.C. #: 08358432

**Attention: Rebecca Yanciw**  
GOLDER ASSOCIATES LTD  
4260 STILL CREEK DRIVE  
Suite 500  
BURNABY, BC  
Canada V5C 6C6

Report Date: 2012/09/28

### CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B286167**  
Received: 2012/09/25, 17:30

Sample Matrix: PAINT  
# Samples Received: 2

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Elements by ICP-AES (acid extr. solid)	2	2012/09/28	2012/09/28	BBY7SOP-00018	SW846 6010C

\* Results relate only to the items tested.

Encryption Key



Rob MacArthur

28 Sep 2012 17:26:25 -07:00

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

Kelly Janda, B.Sc, Burnaby Project Manager  
Email: KJanda@maxxam.ca  
Phone# (604) 638-5019

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

Total cover pages: 1



Maxxam Job #: B286167  
Report Date: 2012/09/28

GOLDER ASSOCIATES LTD  
Client Project #: 12-1021-0006  
Site Location: SDH HBMA WAREHOUSE, LAB + DRY  
Sampler Initials: RY

**LEAD IN PAINT CHIPS (PAINT)**

Maxxam ID		EO2649	EO2650		
Sampling Date		2012/09/18	2012/09/18		
	<b>UNITS</b>	<b>L104</b>	<b>L105</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Total Metals by ICP</b>					
Total Lead (Pb)	mg/kg	61.5	3190	2.0	6209525

---

RDL = Reportable Detection Limit



Maxxam Job #: B286167  
Report Date: 2012/09/28

GOLDER ASSOCIATES LTD  
Client Project #: 12-1021-0006  
Site Location: SDH HBMA WAREHOUSE, LAB + DRY  
Sampler Initials: RY

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Method Blank		RPD		QC Standard	
			Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6209525	Total Lead (Pb)	2012/09/28	<2.0	mg/kg	19.9	35	99	80 - 120

---

N/A = Not Applicable

RPD = Relative Percent Difference

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

QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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

**Validation Signature Page**

**Maxxam Job #: B286167**

---

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



---

Rob Reinert, Data Validation Coordinator

---

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

Your Project #: 12-1021-0006  
Site Location: SDH HBMA OFFICE COMPLEX  
Your C.O.C. #: 08358430

**Attention: Rebecca Yanciw**  
GOLDER ASSOCIATES LTD  
4260 STILL CREEK DRIVE  
Suite 500  
BURNABY, BC  
Canada V5C 6C6

Report Date: 2012/09/28

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B286166**  
**Received: 2012/09/25, 17:30**

Sample Matrix: PAINT  
# Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by ICP-AES (acid extr. solid)	1	2012/09/28	2012/09/28	BBY7SOP-00018	SW846 6010C

\* Results relate only to the items tested.

Encryption Key

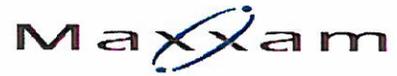
Lanoy Luangkhamdeng  
28 Sep 2012 15:09:48 -07:00

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

Kelly Janda, B.Sc, Burnaby Project Manager  
Email: KJanda@maxxam.ca  
Phone# (604) 638-5019

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Total cover pages: 1



Maxxam Job #: B286166  
Report Date: 2012/09/28

GOLDER ASSOCIATES LTD  
Client Project #: 12-1021-0006  
Site Location: SDH HBMA OFFICE COMPLEX  
Sampler Initials: RY

**LEAD IN PAINT CHIPS (PAINT)**

Maxxam ID		EO2648		
Sampling Date		2012/09/19		
	<b>UNITS</b>	<b>L219</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Total Metals by ICP</b>				
Total Lead (Pb)	mg/kg	13.0	2.0	6209525

---

RDL = Reportable Detection Limit



Maxxam Job #: B286166  
Report Date: 2012/09/28

GOLDER ASSOCIATES LTD  
Client Project #: 12-1021-0006  
Site Location: SDH HBMA OFFICE COMPLEX  
Sampler Initials: RY

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Method Blank		RPD		QC Standard	
			Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6209525	Total Lead (Pb)	2012/09/28	<2.0	mg/kg	19.9	35	99	80 - 120

---

N/A = Not Applicable

RPD = Relative Percent Difference

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

QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

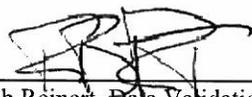
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

**Validation Signature Page**

**Maxxam Job #: B286166**

---

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



---

Rob Reinert, Data Validation Coordinator

---

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Your Project #: 12-1021-0006  
Site Location: SDH HBMA OUTBUILDING  
Your C.O.C. #: 08358435

**Attention: Rebecca Yanciw**  
GOLDER ASSOCIATES LTD  
4260 STILL CREEK DRIVE  
Suite 500  
BURNABY, BC  
Canada V5C 6C6

Report Date: 2012/10/01

## CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B286170**  
Received: 2012/09/25, 17:30

Sample Matrix: PAINT  
# Samples Received: 9

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Elements by ICP-AES (acid extr. solid)	9	2012/09/28	2012/09/28	BBY7SOP-00018	SW846 6010C

\* Results relate only to the items tested.

Encryption Key



Kelly Janda

01 Oct 2012 17:38:49 -07:00

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

Kelly Janda, B.Sc, Burnaby Project Manager  
Email: KJanda@maxxam.ca  
Phone# (604) 638-5019

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Total cover pages: 1



Maxxam Job #: B286170  
Report Date: 2012/10/01

GOLDER ASSOCIATES LTD  
Client Project #: 12-1021-0006  
Site Location: SDH HBMA OUTBUILDING  
Sampler Initials: RY

**LEAD IN PAINT CHIPS (PAINT)**

Maxxam ID		EO2658	EO2659	EO2660	EO2661	EO2662	EO2663	EO2664	EO2665	EO2666		
Sampling Date		2012/09/17	2012/09/17	2012/09/17	2012/09/17	2012/09/21	2012/09/21	2012/09/21	2012/09/21	2012/09/21		
	UNITS	L101	L102	L103	L202	L214	L215	L216	L217	L218	RDL	QC Batch
<b>Total Metals by ICP</b>												
Total Lead (Pb)	mg/kg	83.3	70.2	2120	770	367	649	9250	141	1140	2.0	6210867

---

RDL = Reportable Detection Limit



Maxxam Job #: B286170  
Report Date: 2012/10/01

GOLDER ASSOCIATES LTD  
Client Project #: 12-1021-0006  
Site Location: SDH HBMA OUTBUILDING  
Sampler Initials: RY

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Method Blank		RPD		QC Standard	
			Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6210867	Total Lead (Pb)	2012/09/28	<2.0	mg/kg	2.2	35	96	80 - 120

---

N/A = Not Applicable

RPD = Relative Percent Difference

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

QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

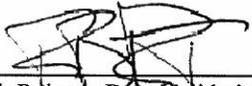
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

**Validation Signature Page**

**Maxxam Job #: B286170**

---

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



---

Rob Reinert, Data Validation Coordinator

---

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# **APPENDIX G**

## **PCB Laboratory Results**

Your Project #: 12-1021-0006  
Site Location: SDH HBMA CAMP  
Your C.O.C. #: 08358436

**Attention: Rebecca Yanciw**  
GOLDER ASSOCIATES LTD  
4260 STILL CREEK DRIVE  
Suite 500  
BURNABY, BC  
Canada V5C 6C6

Report Date: 2012/10/02

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B286172**  
Received: 2012/09/25, 17:30

Sample Matrix: Solid  
# Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Polychlorinated Biphenyls in Soil	1	N/A	2012/10/02	BBY8SOP-00036	EPA 8082A

\* Results relate only to the items tested.

Encryption Key



Kelly Janda

02 Oct 2012 17:54:14 -07:00

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

Kelly Janda, B.Sc, Burnaby Project Manager  
Email: KJanda@maxxam.ca  
Phone# (604) 638-5019

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

Total cover pages: 1



Maxxam Job #: B286172  
Report Date: 2012/10/02

GOLDER ASSOCIATES LTD  
Client Project #: 12-1021-0006  
Site Location: SDH HBMA CAMP  
Sampler Initials: RY

**POLYCHLORINATED BIPHENYLS BY GC-ECD (SOLID)**

Maxxam ID		EO2668		
Sampling Date		2012/09/19		
	<b>UNITS</b>	<b>PCB-1</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Polychlorinated Biphenyls</b>				
Aroclor 1242	mg/kg	<1.2(1)	1.2	6215869
Aroclor 1248	mg/kg	<1.2(1)	1.2	6215869
Aroclor 1254	mg/kg	<1.2(1)	1.2	6215869
Aroclor 1260	mg/kg	<1.2(1)	1.2	6215869
Total PCB	mg/kg	<1.2(1)	1.2	6215869
<b>Surrogate Recovery (%)</b>				
Hexabromobiphenyl (sur.)	%	68		6215869

RDL = Reportable Detection Limit  
(1) - RDL raised due to limited initial sample amount.



Maxxam Job #: B286172  
Report Date: 2012/10/02

GOLDER ASSOCIATES LTD  
Client Project #: 12-1021-0006  
Site Location: SDH HBMA CAMP  
Sampler Initials: RY

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6215869	Hexabromobiphenyl (sur.)	2012/10/02	85	60 - 130	87	60 - 130	92	%		
6215869	Aroclor 1254	2012/10/02	96	70 - 110	92	70 - 110	<0.030	mg/kg	NC	50
6215869	Aroclor 1242	2012/10/02					<0.030	mg/kg	NC	50
6215869	Aroclor 1248	2012/10/02					<0.030	mg/kg	NC	50
6215869	Aroclor 1260	2012/10/02					<0.030	mg/kg	NC	50
6215869	Total PCB	2012/10/02					<0.030	mg/kg	NC	50

---

N/A = Not Applicable

RPD = Relative Percent Difference

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

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

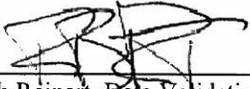
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

**Validation Signature Page**

**Maxxam Job #: B286172**

---

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



---

Rob Reinert, Data Validation Coordinator

---

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



# **APPENDIX H**

## **Chemical Inventory**



## APPENDIX H Chemical Inventory

**Table 1: Warehouse, Dry, and Lab, Laboratory Chemical Inventory**

Chemical	Quantity <sup>1</sup>	Comments
Potassium Chlorate	4 Gallon	Bucket
Sodium Thiosulphate	4 Gallon	Bucket
Iron	100 Grams (4x)	Solid
Lead	100 grams	Solid
Zinc	100 grams	Solid
Xenol	100 ml (2x)	Orange
Zinc	100 grams	Solid
Silver	500 ml (2x)	Reference solution
Zinc	500 ml (3x)	Reference solution
Iron	500 ml (2x)	Reference solution
Lead	500 ml	Reference solution
Bismuth	500 ml	Reference solution
Copper	500 ml (2x)	Reference solution
Lead	100 grams	Concentrate
Copper/Lead	100 grams	Ore
Zinc	100 grams	Concentrate
Zinc/Lead/Copper/Tin/Silver	100 grams	Ore
Buffer Solution	500 ml	pH of 4
Buffer Solution	500 ml	pH of 7
Unknown Liquid	50 ml (2x)	Not applicable
Lead/Zinc/Iron	1 L	Liquid Concentrate
Nitric Acid	250 ml	Plastic vials
Vacuum Pump Oil	250 ml	Not applicable
Zinc	3 Drums	Concentrate rejects
Sulphuric Acid	2 L (10x)	Bottles
Hydrochloric Acid	2 L (2x)	Bottles
Nitric Acid	2 L (3x)	Bottles
Fluoboric Acid	500 ml	Not applicable
Sodium Silicate	500 ml	Solid
Urea	500 ml	Solid
L-Ascorbic Acid	(x2)	Solid
Tetracetic Acid	1L	Not applicable
Cove Base Adhesive	1L	Can
Sodium Sulfate	1L	Solid
Sodium Sulphhydrate	1L	Solid
Thyodene	1L	Solid
Sodium Hydroxide	500 grams	Not applicable
Sodium Carbonate	500 grams	Not applicable
Ammonium Sulphate	500 grams	Not applicable



## APPENDIX H Chemical Inventory

Chemical	Quantity <sup>1</sup>	Comments
Ammonium Molybdate	500 grams	Not applicable
Unknown	250 ml	Can
Phenolphthalein	250 ml (2x)	Not applicable
Potassium Iodide	500 ml	Not applicable
Thiourea	1 L	Solid
Ammonium Peroxy Disulphate	4L	Not applicable
4-Nitrophenol	50 grams	Not applicable
CuSO <sub>4</sub>	500 ml	Not applicable
Ammonium Acetate	5 Gallon	Pail
Ammonium Chloride	1 box	Not applicable
Buffer Solution	4 Gallons (2x)	Boxes pH of 7 and pH of 10
Chemical Resin Samples	100	Sample bags
Spray Can		Tree/Log Marking
Ultra Sonic Cleaner	50 ml	Not applicable
Spray Paint	1 spray can	Not applicable
Unknown Crystals	200 ml	White , solid Plastic bottle
Lead/Zinc	100 samples	Concentrates
NH <sub>4</sub> Ac	4 Gallons	Jerry Can
Zinc Buffer	4 Gallons	Jerry Can
0.05M EDTA	4 Gallons	Jerry Can
1M EDTA	4 Gallons	Jerry Can
Ammonium Acetate	200 ml in a 1L bottle	Not applicable
Lead Buffer	100 ml in a 1 L bottle	Not applicable
CH <sub>4</sub> COO <sub>4</sub> NH <sub>4</sub> F Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> SH <sub>2</sub> O	100 ml in a 1 Litre bottle	Not applicable
Zinc Buffer	500 ml in a 1 Litre bottle	Not applicable
Methanol	4L	bottle
Acetone	4L (2x)	bottle
Propanol	4L	bottle
Nitric Acid	2L (4x)	Bottle Yellow, transparent liquid
Hydrochloric Acid	2L (5x)	Bottle
Acetic Acid	2L (9x)	Bottle
Sulphuric Acid	400 ml	Not applicable
Miscellaneous Cleaning Products		Not applicable
Acetone	250 ml	Not applicable
Ammonium Hydroxide	2L (7x)	Bottle
Silver	100 ml	Not applicable



## APPENDIX H Chemical Inventory

Chemical	Quantity <sup>1</sup>	Comments
Nitric Acid	400 ml	Not applicable
Unknown	5 Gallons (18x)	Pails
Silica Sand	(3x)	Bags
Zinc/Lead concentrate samples	33	Sample bags
Sodium Thiosulphate	1L (7x)	Empty bottles
Ore	(6x)	Buckets
Unknown	(2x)	Bags
Xanthate	125 ml	Small bottle in box
Isobutyl Carbinol	125 ml	Small bottle in box
Aerofroth	125 ml (2x)	Small bottle in box
Buffer solution	125 ml (4x)	Small bottle in box
Aerofroth	125 ml (6x)	Small bottle in box
Uniflot	125 ml (5x)	Small bottle in box Yellow, transparent liquid
CuSO <sub>4</sub>	200 ml	Blue liquid Plastic container in box
Soda Ash	200 ml	Solid Small bottle in box
NaCN	120 ml	Solid Small bottle in box
Unknown Liquid	500 ml	Plastic bottle in box
CuSO <sub>4</sub>	400 ml	Small bottle in box
Xanthate	125 ml	Solid pellets Small bottle in box
Percol	100 ml	Solid Small bottle in box

Notes:

- 1) The quantities listed are estimates only and are presented for guidance only. Any contractor required to remove chemicals or other materials from this building is responsible for independent verification of exact quantities.



## APPENDIX H Chemical Inventory

**Table 2: Water Distribution Pump House Chemical Inventory**

Chemical	Quantity <sup>1</sup>	Comments
DFL Diesel Fuel Lubricant	1 L bottles	Not applicable
Pail of Waste Oil	Unknown	Not applicable
Unknown	Drum	Label unreadable
Kerosene	10 gallon pail	Not applicable
Fire Extinguishers	4	Not applicable
Unknown	600 Gallon Tank	Unknown contents
Chloryte	10 gallon pail	Not applicable
Unknown	Plastic Drum	No label present
Unknown	Metal Drum	No label present
Oil	Box of small oil containers	Not applicable
Waste oil	10 gallon pail	Not applicable
Methyl Isobutyl Carbinol	8 Drum	Not applicable
Waste Oil	5.3 gallon pails (4x)	Not applicable
Unknown	8 metal drums	Not applicable

Notes:

- 1) The quantities listed are estimates only and are presented for guidance only. Any contractor required to remove chemicals or other materials from this building is responsible for independent verification of exact quantities.



## APPENDIX H Chemical Inventory

**Table 3: Shop Chemical Inventory**

Chemical	Quantity <sup>1, 2</sup>	Comments
Propane	20 gallon tank	Not applicable
'Emergency Spill Kit'	1 drum	Not applicable
Pro-Roc Spray Texture	1 spray can	Not applicable
Drive Train Oil	5.3 gallon drums (9x)	Not applicable
Heavy Duty Engine Oil	5.3 gallon drum	Not applicable
Plastic Cement	Unknown	Not applicable
Diesel Engine Oil	4 Litres	Not applicable
Copper II Green Preservative	4 Litres	Not applicable
Waste Oil	Bins	Not applicable
Waste Oil	1 drum	Not applicable
Coolant Additive	1 empty drum	Not applicable
Bead Filled Epoxy Resin	4 gallon pail	Not applicable
Unknown	Drums (3x)	Not applicable
Unknown	100 L pail	Not applicable
Compressed Oxygen	1 cylinder	Not applicable
Gasoline	3 jerry cans	Not applicable
'Hole Plug'	3 bags	Not applicable
Resin for Two-Part Epoxy	1 gallon	Not applicable

Notes:

- 1) A number of smaller items required for vehicle and other maintenance activities by the site caretaker are also present that are expected to be removed by the caretaker prior to demolition. Any contractor required to remove chemicals or other materials from this building should confirm that all personal items have been removed from the building prior to disposal.
- 2) The quantities listed are estimates only and are presented for guidance only. Any contractor required to remove chemicals or other materials from this building is responsible for independent verification of exact quantities.

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