OHE CONSULTANTS
Occupational Hygiene & Environment

HAZARDOUS BUILDING MATERIALS SURVEY

Williams Parkway Operations Building
1975 Williams Parkway East
Brampton, Ontario
L6S 6E5

Presented to:

City of Brampton
2 Wellington Street West
Brampton, Ontario
L6Y 4R2

July 2021

OHE Project No: 24918-097

Submitted by:

OHE Consultants
Occupational Hygiene & Environment
311 Matheson Blvd. East
Mississauga, Ontario
L4Z 1X8

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OHE Consultants (OHE) was retained by City of Brampton to perform a Hazardous Building Materials Survey in Williams Parkway Operations Building located at 1975 Williams Parkway East, Brampton, Ontario (herein referred to as the "Subject Location").

The site survey was conducted by Abdulkadeer Dudhiyawala, Project Specialist of OHE on April 22, 2021. The survey consisted of a review of existing environmental reports (where available), visual inspection for the presence of designated substances, and sampling of materials suspected to contain hazardous building materials, particularly asbestos and lead.

A summary of the hazardous building materials survey findings is as follows:

Asbestos

Asbestos-Containing Materials (ACMs) were not identified at the Subject Location.

Lead

Lead-containing paint was not identified at the Subject Location. A detailed description of the colours and locations is presented in Table I.2 found in Appendix I. It is assumed that the results presented apply to all paint(s) of the same colour.

Lead may be present in wiring connectors and electric cable sheathing.

Lead may be present in solder joints on copper piping.

Lead is often present in ceramic building products such as floor or wall tiles. Workers performing demolition or alterations to these tiles should be informed of the potential for lead to be present.

Mercury

Mercury-containing thermostats were not observed at the Subject Location.

Mercury is present as a vapour in fluorescent light bulbs.

Mercury may be present as a component in electrical equipment, such as silent, position dependent switches.

Silica

Silica is presumed to be present in materials such as fillers for paints and mastic and in bricks, ceramics, masonry, concrete and mortar.

PCBs

Fluorescent light fixtures were observed at the Subject Location during the survey. However, based on the construction date of the building (2014), the ballasts are not suspected to contain PCBs.

Ozone Depleting Substances

Ozone depleting substances are suspected to be present in refrigerators located outside of IT Room-22 at the Subject Location during the survey.

Water Damaged and Mould Impacted Building Materials

Water damaged and mould impacted materials were not observed at the Subject Location during the survey.

Man-Made Mineral Fibres

Man-made mineral fibres were observed in the form of pipe insulation at the Subject Location during the survey.

Aboveground/Underground Fuel Storage Tank

Two (2) aboveground storage tanks containing oil were observed in the Waste Oil Room at the Subject Location.

Urea Formaldehyde Foam Insulation

Urea formaldehyde foam insulation was not observed at the Subject Location during the survey.

Hazardous building materials may be present in concealed area such as behind solid block walls, drywall and concrete walls; above solid drywall ceilings; under ceramic tiles; under concrete floors; and inside pipe chases. In situations where hazardous building materials extend into a non-accessible area, the materials were assumed to also be present in those areas and have been reported as such. Contractors and maintenance personnel should be warned of the possibility of undisclosed hazardous building materials in enclosed areas. All suspect building materials discovered in these areas should be treated as hazardous until proven otherwise as per applicable regulations and guidelines.

This executive summary provides a brief overview of the survey findings. It is not intended to substitute for the complete survey report, nor does it discuss specific issues documented in the report. The executive summary should not be used as a substitute to reading the complete report.

1 INTRODUCTION

OHE Consultants (OHE) was retained by City of Brampton to perform a Hazardous Building Materials Survey in Williams Parkway Operations Building located at 1975 Williams Parkway East, Brampton, Ontario (herein referred to as the "Subject Location").

The site survey was conducted by Abdulkadeer, Project Specialist of OHE on April 22, 2021.

1.1 Building Description

Items	Details
Building Use	Fleet operations facility
Number of Floors	One (1)
Total area	82452 ft^2
Date in service	2014
Structure	Structural steelwork
Exterior cladding	Metal walls composite
Flooring	Concrete
Wall	Drywall and pre-fabricated aluminium
Ceiling	Metal deck

1.2 Scope of Work

The following details the scope of work:

- A visual inspection of accessible areas of the Subject Location to identify hazardous building materials;
- Bulk sampling and analysis of materials suspected to contain asbestos and testing for lead in paint;
- Recommendations for removal of hazardous building materials prior to renovation and/or demolition activities; and
- Preparation of a report summarizing the findings and results of the hazardous building materials reassessment survey.

1.3 Appendices Outline

The following is an outline and description of the attached appendices:

- Drawings showing the locations of bulk samples are attached in Appendix A.
- Selected site photographs are attached in Appendix B.

- A summary of hazardous materials is attached in Appendix C.
- Background information on hazardous building materials, including a brief discussion of the properties, uses, and hazards associated with exposure, is attached in Appendix D.
- Laboratory analysis reports are attached in Appendix E.
- A summary of applicable provincial regulations and guidelines pertaining to hazardous building materials is attached in Appendix F.
- The survey methodology including bulk sample analysis methodology and assessment of hazardous building materials methodology is attached in Appendix G.
- Limitations of the project are attached in Appendix H.
- Results of sampling for asbestos and lead and visual assessment for storage tanks are attached in Appendix I.

2 SURVEY FINDINGS AND DISCUSSION

The locations of bulk samples for asbestos are shown on Drawings 1.1 to 1.3 presented in Appendix A.

The locations of bulk samples for lead are shown on Drawings 2.1 and 2.2 presented in Appendix A.

2.1 ACMs

Asbestos-Containing Materials (ACMs) were not identified at the Subject Location.

2.2 Lead

Lead-containing paint was not identified at the Subject Location. A detailed description of the colours and locations is presented in Table I.2 found in Appendix I. It is assumed that the results presented apply to all paint(s) of the same colour.

Lead may be present in wiring connectors and electric cable sheathing.

Lead may be present in solder joints on copper piping.

Lead is often present in ceramic building products such as floor or wall tiles. Workers performing demolition or alterations to these tiles should be informed of the potential for lead to be present.

Prior to disturbance of lead-containing materials, the materials should be removed using the appropriate type of removal operation as specified in the applicable guidelines and regulations.

Where lead has been identified to be in fair or poor condition, the materials should be removed by using the appropriate type of lead removal operation as per applicable regulations and guidelines.

2.3 Mercury

Mercury-containing thermostats were not observed at the Subject Location during the survey.

Mercury is present as vapour in fluorescent light bulbs.

Mercury may be present as a component in electrical equipment, such as silent, position dependent switches.

Prior to disturbance of mercury-containing materials, the materials should be removed and disposed as specified in the applicable guidelines and regulations. Simple personal hygiene practices will be sufficient to protect workers from possible mercury exposure.

2.4 Silica

Silica is presumed to be present in materials such as fillers for paints and mastic and in brick, concrete and mortar.

Silica-containing materials should be handled using the appropriate type of operation as specified in the applicable guidelines and regulations. No adverse effects from exposure to silica are likely to occur unless silica in the material is reduced to a respirable size and the airborne concentrations exceed the 8-hour time-weighted average.

2.5 Isocyanates

Isocyanates were not identified within the Subject Location and are not expected to be found.

2.6 Vinyl Chloride

Vinyl chloride was not identified within the Subject Location and is not expected to be found.

2.7 Benzene

Benzene was not identified within the Subject Location and is not expected to be found.

2.8 Acrylonitrile

Acrylonitrile was not identified within the Subject Location and is not expected to be found.

2.9 Coke Oven Emissions

Coke oven emissions were not identified within the Subject Location and are not expected to be found.

2.10 Arsenic

Arsenic was not identified within the Subject Location and is not expected to be found.

2.11 Ethylene Oxide

Ethylene oxide was not identified within the Subject Location and is not expected to be found.

2.12 PCBs

Fluorescent light fixtures were observed at the Subject Location during the survey.However, based on the construction date of the building (2014), the ballasts are not suspected to contain PCBs.

2.13 Ozone Depleting Substances

Ozone depleting substances are suspected to be present in refrigerators located outside IT Room-22 at the Subject Location.

2.14 Water Damaged and Mould Impacted Building Materials

Water damaged and mould impacted materials were not observed at the Subject Location during the survey.

2.15 Man-Made Mineral Fibres

Man-made mineral fibres were observed in the form of pipe insulation at the Subject Location during the survey.

2.16 Aboveground/Underground Fuel Storage Tanks

Two (2) aboveground storage tanks containing oil were observed in the Waste Oil Room at the Subject Location.

2.17 Urea Formaldehyde Foam Insulation

Urea formaldehyde foam insulation was not observed at the Subject Location during the survey.

Hazardous building materials may be present in concealed area such as behind solid block walls, drywall and concrete walls; above solid drywall ceilings; under ceramic tiles; under concrete floors; and inside pipe chases. In situations where hazardous building materials extend into a non-accessible area, the materials were assumed to also be present in those areas and have been reported as such. Contractors and maintenance personnel should be warned of the possibility of undisclosed hazardous building materials in enclosed areas. All suspect building materials discovered in these areas should be treated as hazardous until proven otherwise as per applicable regulations and guidelines.

3 RECOMMENDATIONS

OHE's recommendations, based on the findings of the survey, are as follows:

- Renovations and/or demolition operations that are likely to generate lead-containing dust shall be carried out in accordance with the following requirements:
  - Guideline: Lead on Construction Projects, issued by Ontario Ministry of Labour (Lead Guideline);
  - Ontario Regulation 490/09 "Designated Substances" (O. Reg. 490/09); and
  - Ontario Regulation 213/91 "Construction Projects" (O. Reg. 213/91).

- Renovations and/or demolition operations that are likely to disturb mercury-containing equipment shall be carried out in a manner to minimize the potential for spills in accordance with the following regulations:
  - O. Reg. 490/09; and
  - O. Reg. 213/91.

- Renovations and/or demolition operations that are likely to generate silica-containing dust shall be carried out in accordance with the following requirements:
  - Guideline: Silica on Construction Projects, issued by Ontario Ministry of Labour (Silica Guideline);
  - O. Reg. 490/09; and
  - O. Reg. 213/91.

- Renovations and/or demolition operations that are likely to disturb fibreglass insulation shall be carried out in a manner to minimize the creation and spread of dust and in accordance with the following regulation:
  - O. Reg. 213/91.

- Examine all equipment suspected to contain ozone depleting substances prior to disposal to determine their content. Equipment identified to contain ozone depleting substances should be transported and disposed of following procedures specified in applicable regulations.

- Disposal of hazardous building materials shall be completed as per all applicable regulations.

- Should suspect hazardous building materials be discovered during any demolition or renovation work in the Subject Location, the contractor shall stop all work and immediately notify personnel from both **City of Brampton** and OHE Consultants.

4 GENERAL STATEMENT OF LIMITATIONS

The information and opinions rendered in this report are for use exclusively by **City of Brampton**. OHE reserves the right to review and comment on any interpretation of the data or conclusions derived by **City of Brampton.** No other representation, either expressed or implied, is included in this report.

The scope of this report is limited to possible hazardous building materials found within (or part of) the subject spaces included in the survey only. The survey only considered issues of the building structure, mechanical equipment, and their finishes. The survey did not consider current or past use of the property or occupant articles within the building (i.e. furniture, stock items, etc.), nor does it report on possible contaminants in the soil and groundwater of the site, vessels, drums, underground storage tanks, etc. The survey consisted of accessible areas only; samples were not collected if accessibility was restricted.

The field observations and analysis are considered sufficient in detail and scope to form a reasonable basis for the findings presented in this report. OHE warrants that the findings and conclusions contained herein have been made in accordance with generally accepted evaluation methods in the industry and applicable regulations at the time of the performance of the survey.

It is possible, due to the nature of building construction, that conditions may exist which could not be reasonably identified within the scope of the survey or which were not apparent during the site investigation. OHE believes that the information collected during the survey period concerning the property is reliable. No other warranties are implied or expressed.

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Occupational Hygiene & Environment

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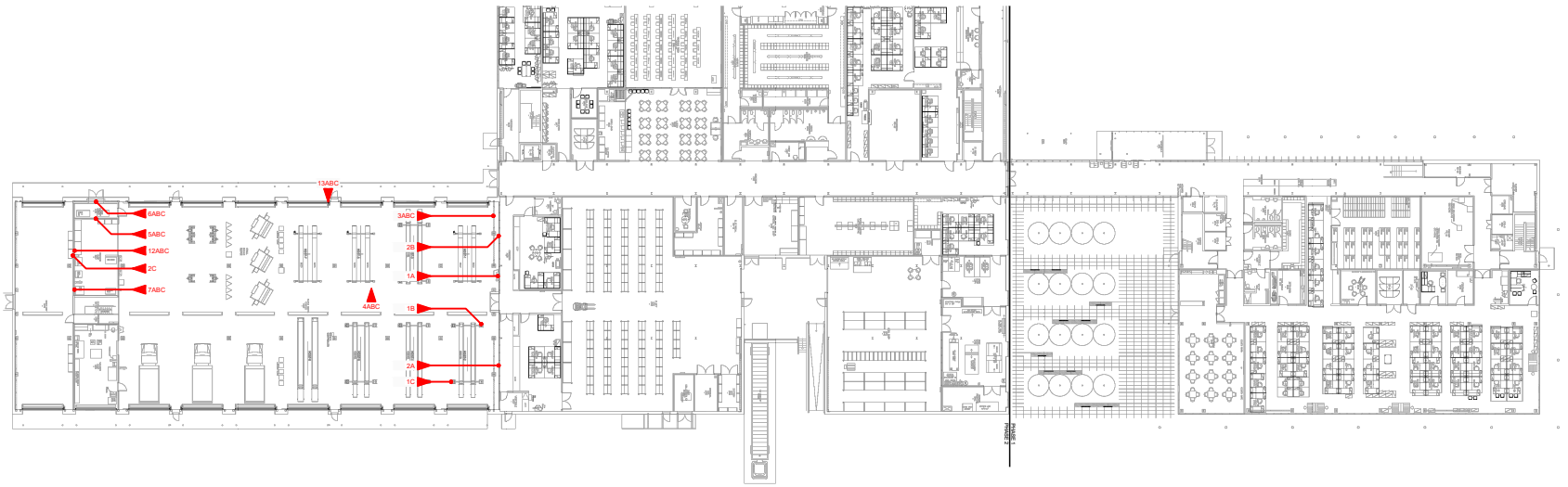
Michal Zitnik, M.H.Sc., CIH, ROH
Vice President

DRAWINGS



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xx Asbestos Bulk Sample Location

Notes:
Locations of site features are approximate and may vary from that shown.

Drawing Title:

Asbestos Bulk Sample Locations

Client Address:

City of Brampton
2 Wellington Street
Brampton, Ontario

Project Location:
Williams Parkway Operational Building
Ground Floor
1975 Williams Parkway
Brampton, Ontario

Project No: 24918-097

N

Date: Jul. 2021	Drawing No: 1.1
Scale: NTS	
Drawn By: DN	
Approved By: MZ	

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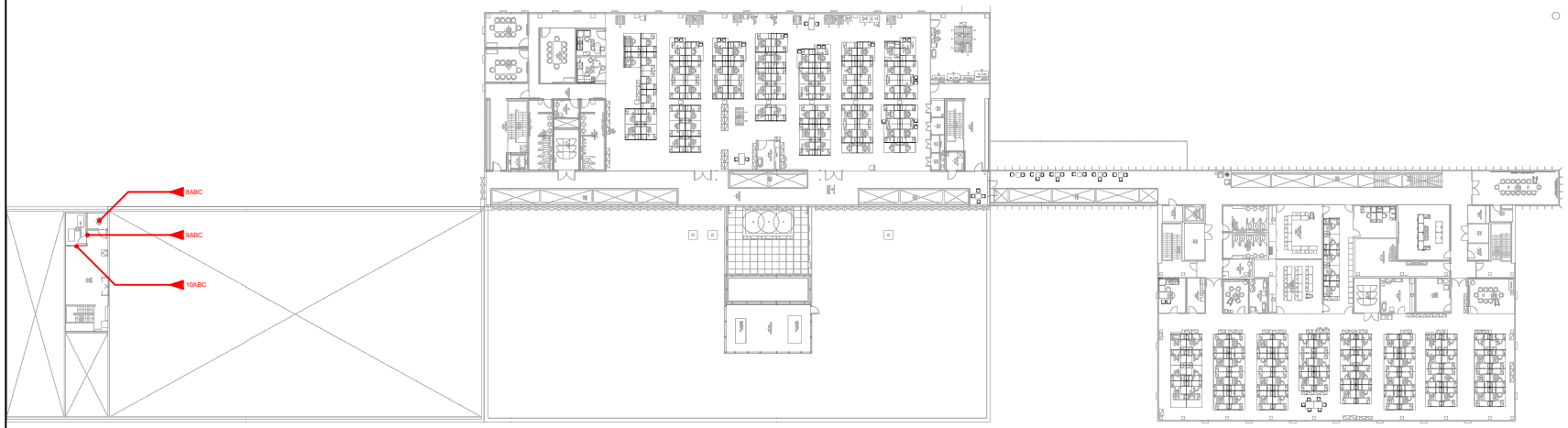

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xx Asbestos Bulk Sample Location

Notes:
Locations of site features are approximate and may vary from that shown.

Drawing Title:

Asbestos Bulk Sample Locations

Client Address:

City of Brampton
2 Wellington Street
Brampton, Ontario

Project Location:
Williams Parkway Operational Building
First Floor
1975 Williams Parkway
Brampton, Ontario

Project No: 24918-097

N

Date: Jul. 2021

Scale: NTS

Drawn By: DN

Approved By: MZ

Drawing No:

1.2

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Legend:

xx Asbestos Bulk Sample Location

Notes:
Locations of site features are approximate and may vary from that shown.

Drawing Title:

Asbestos Bulk Sample Locations

Client Address:

City of Brampton
2 Wellington Street
Brampton, Ontario

Project Location:
Williams Parkway Operational Building
Roof
1975 Williams Parkway
Brampton, Ontario

Project No: 24918-097

N

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Scale: NTS	
Drawn By: DN	
Approved By: MZ	

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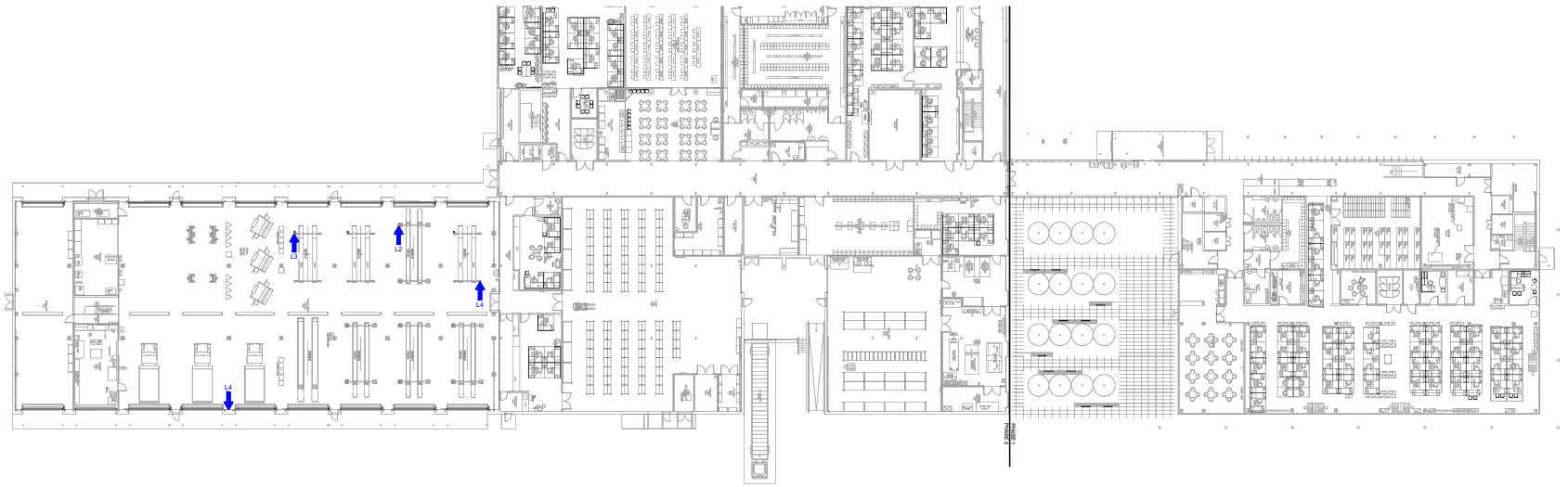

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LX Lead Bulk Sample Location

Notes:
Locations of site features are approximate and may vary from that shown.

Drawing Title:

Lead Bulk Sample Locations

Client Address:

City of Brampton
2 Wellington Street
Brampton, Ontario

Project Location:
Williams Parkway Operational Building
Ground Floor
1975 Williams Parkway
Brampton, Ontario

Project No: 24918-097

N

Date: Jul. 2021	Drawing No: 2.1
Scale: NTS	
Drawn By: DN	
Approved By: MZ	

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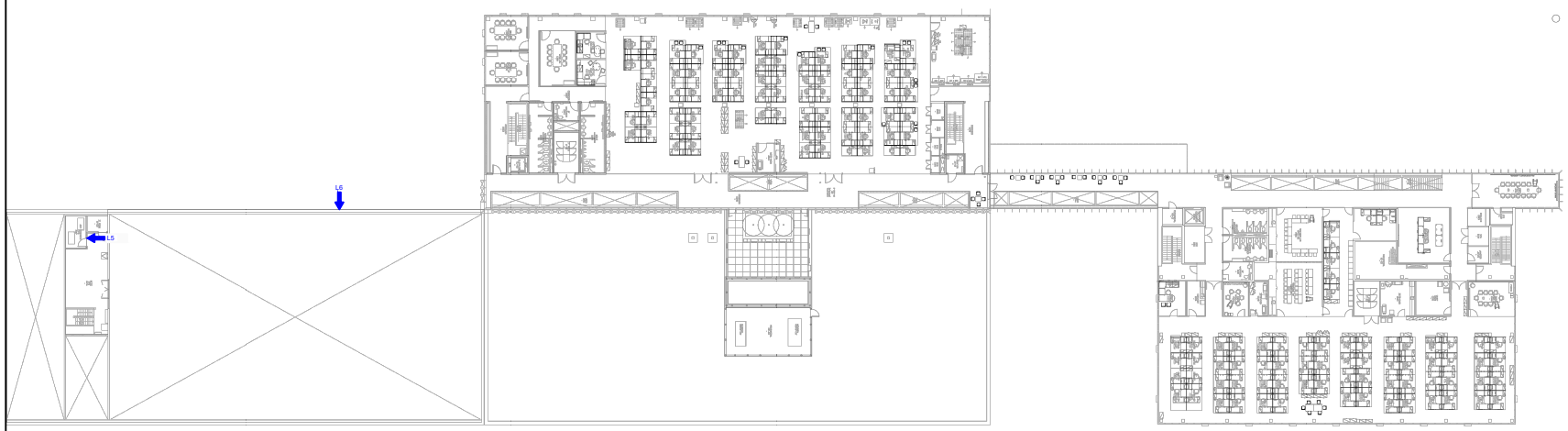

Legend:

LX Lead Bulk Sample Location

Notes:
Locations of site features are approximate and may vary from that shown.

Drawing Title:

Lead Bulk Sample Locations

Client Address:

City of Brampton
2 Wellington Street
Brampton, Ontario

Project Location:
Williams Parkway Operational Building
First Floor
1975 Williams Parkway
Brampton, Ontario

Project No: 24918-097

N

Date: Jul. 2021

Scale: NTS

Drawn By: DN

Approved By: MZ

Drawing No:

2.2

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SITE PHOTOGRAPHS

Storage Tanks

Photograph 1: View of an aboveground storage tank containing oil observed on the Waste Oil Room at the Subject Location.

Photograph 2: View of an aboveground storage tank containing oil observed on the Waste Oil Room at the Subject Location.

Ozone Depleting Substances

Photograph 3: View of a refrigerator suspected to contain ozone depleting refrigerant observed outside IT Room-22 at the Subject Location.

HAZARDOUS MATERIALS SUMMARY TABLE

Hazardous Materials Summary Table

Room Name & Number/ ID	Surface	Material Observed	Potential Hazardous Material	Condition	Friable/ Non-Friable	Quantity	Sample Id.	Abatement Priority	Estimated Abatement Cost
Fleet operational facility	Column	Cement parging, Grey	No asbestos detected	–	–	–	24918-097-1A to 24918-097-1C	–	–
Fleet operational facility	Wall	Block mortar	No asbestos detected	–	–	–	24918-097-2A to 24918-097-2C	–	–
Fleet operational facility	Window frames	Caulking material, Light grey	No asbestos detected	–	–	–	24918-097-3A to 24918-097-3C	–	–
Fleet operational facility	Floor	Caulking material, Grey	No asbestos detected	–	–	–	24918-097-4A to 24918-097-4C	–	–
Fleet operational facility	Wall	Paint,White	No lead detected	–	–	–	24918-097-L1	–	–
Fleet operational facility	Hoist-3	Paint, Blue	No lead detected	–	–	–	24918-097-L2	–	–
Fleet operational facility	Hoist-5	Paint, Dark yellow	No lead detected	–	–	–	24918-097-L3	–	–
Fleet operational facility	Wall	Paint, Light grey	No lead detected	–	–	–	24918-097-L4	–	–
Waste oil room	Wall	Fire stopping material, Red	No asbestos detected	–	–	–	24918-097-5A to 24918-097-5C	–	–
Waste oil room	HVAC ducts	Duct mastic, Grey	No asbestos detected	–	–	–	24918-097-6A to 24918-097-6C	–	–
Machine shop	Floor	Expansion joint material, Black	No asbestos detected	–	–	–	24918-097-7A to 24918-097-7C	–	–

Hazardous Materials Summary Table

Room Name & Number/ ID	Surface	Material Observed	Potential Hazardous Material	Condition	Friable/ Non-Friable	Quantity	Sample Id.	Abatement Priority	Estimated Abatement Cost
Machine shop	Walls	Expansion joint material, Grey	No asbestos detected	–	–		24918-097-12A to 24918-097-12C		
IT Room 22	Floor	VFTs: 12”x12”	No asbestos detected	–	–	–	24918-097-8A to 24918-097-8C	–	–
Air Compressor Room 2107	Door frame	Caulking material, Black	No asbestos detected	–	–	–	24918-097-9A to 24918-097-9C	–	–
Air Compressor Room 2107	Door frame	Paint, Light cream paint	No lead detected	–	–	–	24918-097-L5	–	–
Room 2106	Wall	Mastic, light grey	No asbestos detected	–	–	–	24918-097-10A to 24918-097-10C	–	–
Roof	Pipes	Caulking material, Black	No asbestos detected	–	–	–	24918-097-11A to 24918-097-11C	–	–
Machine shop	Walls	Expansion joint, grey	No asbestos detected	–	–	–	24918-097-12A to 24918-097-12C		
Exterior	Poles	Paint, Light yellow paint	No lead detected	–	–	–	24918-097-L6	–	–
Exterior	Walls	Caulking material, White	No asbestos detected	–	–		24918-097-13A to 24918-097-13C	–	–

Legend

Condition	Intact (no visible damage), Minor Damage (small amounts broken, scrapped, deteriorated), Severe Damage (serious damage observed)
Potential for Damage	Low = low traffic, minor air turbulence, low vibration, Moderate = moderate traffic, air movement, vibration, Height = Likelihood of disturbance is high
Abatement Priority	1 = immediate abatement required, 2 = abatement required within 12 months, 3 = abatement required if material is affected either through renovation or disturbance

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BACKGROUND INFORMATION ON HAZARDOUS MATERIALS

ASBESTOS

Asbestos is a naturally occurring mineral. Asbestos is divided into two mineral groups: Serpentine and Amphibole. The division between the two types of asbestos is based upon the crystalline structure. The fibers of asbestos are long and thin, easily distinguishable when compared with non-asbestos minerals. The construction industry has been using asbestos for many years because of the ability of asbestos to withstand high temperatures as well as its strength and resistance to corrosive chemicals.

When asbestos-containing material is disturbed dust is released into the air that contains asbestos fibers that have the potential to be inhaled into the lungs. Depending on the size of the individual fibers inhaled, some fibers can make their way deep into the air sacs (alveoli) of the lungs. Exposure to asbestos fibers may result in scarring of the lung tissue (asbestosis), cancer of the chest cavity (mesothelioma) or other asbestos related cancers.

ACRYLONITRILE

Acrylonitrile is explosive, flammable and toxic, found as a colorless or yellow clear liquid. It is used to produce a variety of products including plastics, adhesives, gaskets, seals and hoses. Health effects resulting in acute exposure to acrylonitrile vary from minor symptoms such as eye irritation, itching skin, blisters, and headaches, sneezing and vomiting. Chronic exposure may cause cancers of the stomach, lymph system and brain.

ARSENIC

The common form of arsenic is grey in color with a metallic appearance. Arsenic has been used in the manufacturing of glass to eliminate the green color resulting from the impurities of iron compounds. It was also used in the productions of poisons. Arsenic is poisonous in doses significantly larger than 65 mg (1 grain), and poisoning can arise from a single large dose or from repeated small doses.

BENZENE

Benzene is an aromatic organic hydrocarbon existing either as a clear liquid or a vapour. Benzene is highly flammable and volatile material and was primarily a by-product in petroleum refineries. However, it has also been commonly used to produce styrene, synthetic rubbers, plastics, resins and solvents.

Serious health effects can occur from exposure to benzene, mainly as a result of inhalation of vapours and mists. Ingestion by swallowing and absorption through the skin are also possible routes of exposure. Health effects can result from ingesting food or drink contaminated with benzene. Symptoms can range from irritated eyes, red blistering skin, headaches, nausea and drowsiness. Benzene exposure can also induce blood and bone marrow toxicity.

COKE OVEN EMISSIONS

Coke oven emissions can be either in a condensed form as a brownish thick liquid, or uncondensed form as a vapour. Coke oven emissions are a mixture of coal tar, coal tar pitch, and creosote and contain chemicals such as benzo(a)pyrene, benzanthracene, chrysene, and phenanthrene.

Chronic (long-term) exposure to coke oven emissions in humans results in conjunctivitis, severe dermatitis, and lesions of the respiratory and digestive systems. Epidemiologic studies of coke oven workers have reported an increase in cancer of the lung, trachea, bronchus, kidney, prostate, and other sites.

ETHYLENE OXIDE

Sources of ethylene oxide emissions into the air include uncontrolled emissions or venting with other gases in industrial settings. Other sources of ethylene oxide air emissions include automobile exhaust and its release from commodity-fumigated materials. Individuals may be exposed to ethylene oxide through breathing contaminated air or from smoking tobacco or being in the proximity to someone who is smoking.

Ethylene Oxide has been linked to reproductive damage, including spontaneous abortions; cytogenetic damage; neurological effects ranging from nausea and dizziness to peripheral paralysis; and tissue irritation.

ISOCYANATES

Isocyanates are compounds that contain a group of atoms consisting of Nitrogen (N), Carbon (C), and Oxygen (O), which make isocyanates very useful in the manufacturing industry. Isocyanates are commonly used in the production of plastics, foams, and coatings.

Health effects associated with exposure to isocyanates are: decreased lung function, cold and flu-like symptoms, fever and shortness of breath. Exposure to isocyanates can be through inhalation of vapour, mist or dust, or by direct contact.

LEAD

For thousands of years lead has been used industrially because of its poor conductive property. Lead has been commonly used for electric storage batteries, pigments, paints, and rubber compounds.

Health effects associated with lead exposure can result in damage to the kidneys, gastrointestinal system, nervous system and reproductive system. Symptoms range from vomiting, and abdominal cramps to pains in joints and muscles.

MERCURY

At Room temperature mercury is in the form of a silver colored liquid. Mercury can exist in three forms: elemental, the pure form; organic, where mercury is bonded to a carbon molecule; or inorganic, where mercury is bonded to a molecule other than carbon.

Mercury can be absorbed into the body by inhalation, ingestion or absorption through the skin. As a health hazard mercury can affect the respiratory system resulting in coughing and chest pains. Mercury poisoning can also cause kidney damage, skin irritation and may even harm the nervous system.

SILICA

Silica can be found naturally in two forms, crystalline or amorphous material. Crystalline silica is regulated due to its significant toxicity over the amorphous silica. The three most common forms of crystalline silica in the workplace are: quartz, cristobalite and tridymite. The physical properties of silica make it a valuable substance for use in a variety of different industries and processes such as an abrasive and scouring compound, fillers for paint and mastic and optical equipment. Health effects resulting from exposure to crystalline silica range from eye and skin irritation, coughing and sneezing to silicosis a progressive lung disease.

VINYL CHLORIDE

Vinyl chloride is required in the manufacture of polyvinyl chloride (PVC) and at Room temperature is present as a colorless, flammable gas. Vinyl chloride is also known as chloroethene, chloroethylene, and ethylene monochloride, and can result from the breakdown of other substances such as trichloroethane, trichloroethylene, and tetrachloroethylene.

Common exposure is a result of inhaling vinyl chloride from industrial leaks, hazardous waste sites and landfills. Symptoms of breathing vinyl chloride are sleepiness, dizziness or labored breathing. Chronic exposure can cause liver and nerve damage or cancer.

OZONE DEPLETING SUBSTANCES

The main source of ozone depleting substances is in the form of man-made halocarbon refrigerants (chlorofluorocarbon (CFCs), freons and halons). CFCs and other contributory substances are referred to as ozone-depleting substances (ODS). Since the ozone layer of the earth prevents most harmful ultraviolet light from passing through the Earth's atmosphere, these ozone depleting substances require proper disposal and limit its release into the atmosphere. The main health concern regarding ODS are the effects of increased surface UV radiation on human health.

MOULD

Mould is a colloquial term used to define large and taxonomically diverse number of fungal species where their growth results in a “mouldy” appearance on porous building materials (i.e. gypsum wallboard, wood, suspended ceiling tiles, etc.). Essentially, the building materials become discoloured by a layer of fungal growth.

Mould is a fungus that grows in the form of multicellular filaments called hyphae. A connected network of hyphae, called a mycelium, is considered a single organism. Mould reproduces via spores and the formation and shape of these spores is traditionally used to classify the mould into its respective genus. In order for mould to grow it requires two things: a food source (i.e. gypsum wallboard, ceiling tiles, etc.) and water.

Mould is ubiquitous in nature and is required to breakdown detritus in nature; hence, mould spores are a common component of outdoor and indoor air. Although mould spores can be found in both indoor and outdoor air, mould growth on buildings materials is a concern. First, it can degrade the building materials and second, it can lead to a variety of health problems. General symptoms caused by mould are allergenic reactions such as watery, itchy eyes, cough, headaches or migraines, difficulty breathing, rashes, tiredness, sinus problems, nasal blockage and frequent sneezing. Various practices can be followed to mitigate mould issues in buildings, the most important of which is to remedy any water intrusion issues in a building as it facilitates the growth of mould. Removal of the affected building materials and repair of the source of water intrusion is required in buildings. Once the affected buildings have been removed the source of the allergenic reactions are reduced and/or eliminated.

PCBs

PCBs were widely used as dielectric and coolant fluids, for example in transformers, capacitors, and electric motors. Due to PCBs environmental toxicity and classification as a persistent organic pollutant, PCB production has been banned. According to the U.S. Environmental Protection Agency (EPA), PCBs have been shown to cause cancer in animals, and there is also evidence that they can cause cancer in humans. Concerns about the toxicity of PCBs are largely based on compounds within this group that share a structural similarity and toxic mode of action with dioxin. Toxic effects such as endocrine disruption and neurotoxicity are also associated with other compounds within the group.

LABORATORY ANALYSIS REPORTS

emcscientific
INCORPORATED

Laboratory Analysis Report

To:

Fred Atrash
OHE Consultants Inc.
311 Matheson Boulevard East
Mississauga, Ontario
L4Z 1X8

EMC LAB REPORT NUMBER: A68343
Job/Project Name:
Analysis Method: Polarized Light Microscopy – EPA 600
Date Received: Apr 23/21 **Date Analyzed:** May 10/21
Analyst: Dina Yousif
Reviewed By: Fajun Chen, Ph.D., *Laboratory Director*

No. of Phases Analyzed: 42
Job No: 24918-097
Number of Samples: 39
Date Reported: May 10/21

Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)			
				Asbestos Fibres		Non-asbestos Fibres	Non-fibrous Material
24918-097-1A	A68343-1	Cement parging: grey / Column, North side, Fleet operation facility	Grey, cementitious material	**ND**			100
24918-097-1B	A68343-2	Cement parging: grey / Column, North side, Fleet operation facility	Grey, cementitious material	**ND**			100
24918-097-1C	A68343-3	Cement parging: grey / Column, East side, Fleet operation facility	Grey, cementitious material	**ND**			100
24918-097-2A	A68343-4	Mortar / Gap between section of block wall, North wall, Fleet operation facility	Grey, cementitious material	**ND**			100
24918-097-2B	A68343-5	Mortar / Gap between section of block wall, North wall, Fleet operation facility	Grey, cementitious material	**ND**			100
24918-097-2C	A68343-6	Mortar / Gap between section of block wall, South wall, Fleet operation facility	Grey, cementitious material	**ND**			100
24918-097-3A	A68343-7	Caulking material: light grey / In gap between walls and window frames, North side, Fleet operation facility	Grey, caulking	**ND**			100
24918-097-3B	A68343-8	Caulking material: light grey / In gap between walls and window frames, North side, Fleet operation facility	Grey, caulking	**ND**			100

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Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)			
				Asbestos Fibres		Non-asbestos Fibres	Non-fibrous Material
24918-097-3C	A68343-9	Caulking material: light grey / In gap between walls and window frames, North side, Fleet operation facility	Grey, caulking	**ND**			100
24918-097-4A	A68343-10	Caulking material: grey / In gap between sections of concrete floor, Fleet operation facility	Grey, caulking	**ND**			100
24918-097-4B	A68343-11	Caulking material: grey / In gap between sections of concrete floor, Fleet operation facility	Grey, caulking	**ND**			100
24918-097-4C	A68343-12	Caulking material: grey / In gap between sections of concrete floor, Fleet operation facility	Grey, caulking	**ND**			100
24918-097-5A	A68343-13	Fire stopping material: red / Around pipe penetration from walls, Waste oil room	Red, caulking	**ND**			100
24918-097-5B	A68343-14	Fire stopping material: red / Around pipe penetration from walls, Waste oil room	Red, caulking	**ND**			100
24918-097-5C	A68343-15	Fire stopping material: red / Around pipe penetration from walls, Waste oil room	Red, caulking	**ND**			100
24918-097-6A	A68343-16	Duct mastic: grey / In between section of HVAC joints, Waste oil room	Grey, mastic	**ND**			100

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Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)			
				Asbestos Fibres		Non-asbestos Fibres	Non-fibrous Material
24918-097-6B	A68343-17	Duct mastic: grey / In between section of HVAC joints, Waste oil room	Grey, mastic	**ND**			100
24918-097-6C	A68343-18	Duct mastic: grey / In between section of HVAC joints, Waste oil room	Grey, mastic	**ND**			100
24918-097-7A	A68343-19	Expansion joint: black / In gap between walls and floor, South side, Machine shop	Brown and black, fibrous material with tar	**ND**		75	25
24918-097-7B	A68343-20	Expansion joint: black / In gap between walls and floor, South side, Machine shop	Brown and black, fibrous material with tar	**ND**		75	25
24918-097-7C	A68343-21	Expansion joint: black / In gap between walls and floor, South side, Machine shop	Brown and black, fibrous material with tar	**ND**		75	25
24918-097-8A	A68343-22	VFTs: 12"x12" beige with white and beige streaks and yellow mastic / Floor, IT room-22	2 Phases: a) Grey, vinyl flooring b) Yellow, mastic	 **ND** **ND**		 1	 100 99
24918-097-8B	A68343-23	VFTs: 12"x12" beige with white and beige streaks and yellow mastic / Floor, IT room-22	2 Phases: a) Grey, vinyl flooring b) Yellow, mastic	 **ND** **ND**		 1	 100 99
24918-097-8C	A68343-24	VFTs: 12"x12" beige with white and beige streaks and yellow mastic / Floor, IT room-22	2 Phases: a) Grey, vinyl flooring b) Yellow, mastic	 **ND** **ND**		 1	 100 99
24918-097-9A	A68343-25	Caulking material: black / Around door frames, Air compressor room-	Black, caulking	**ND**			100

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Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)			
				Asbestos Fibres		Non-asbestos Fibres	Non-fibrous Material
		2107					
24918-097-9B	A68343-26	Caulking material: black / Around door frames, Air compressor room-2107	Black, caulking	**ND**			100
24918-097-9C	A68343-27	Caulking material: black / Around door frames, Air compressor room-2107	Black, caulking	**ND**			100
24918-097-10A	A68343-28	Mastic: light grey / Under vinyl baseboard,Mezz stg-2106	Off white, mastic	**ND**			100
24918-097-10B	A68343-29	Mastic: light grey / Under vinyl baseboard,Mezz stg-2106	Off white, mastic	**ND**			100
24918-097-10C	A68343-30	Mastic: light grey / Under vinyl baseboard,Mezz stg-2106	Off white, mastic	**ND**			100
24918-097-11A	A68343-31	Caulking material: black / Around pipes, Roof	Black, caulking	**ND**			100
24918-097-11B	A68343-32	Caulking material: black / Around pipes, Roof	Black, caulking	**ND**			100
24918-097-11C	A68343-33	Caulking material: black / Around pipes, Roof	Black, caulking	**ND**			100
24918-097-12A	A68343-34	Expansion joint: grey / In between section of block wall, South wall, Machine shop	Grey, caulking	**ND**			100
24918-097-12B	A68343-35	Expansion joint: grey / In between section of block wall, South wall, Machine shop	Grey, caulking	**ND**			100

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Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)			
				Asbestos Fibres		Non-asbestos Fibres	Non-fibrous Material
24918-097-12C	A68343-36	Expansion joint: grey / In between section of block wall, South wall, Machine shop	Grey, caulking	**ND**			100
24918-097-13A	A68343-37	Caulking material: white / Gap between exterior bay doors and walls, West wall, Exterior	White, caulking	**ND**			100
24918-097-13B	A68343-38	Caulking material: white / Gap between exterior bay doors and walls, West wall, Exterior	White, caulking	**ND**			100
24918-097-13C	A68343-39	Caulking material: white / Gap between exterior bay doors and walls, West wall, Exterior	White, caulking	**ND**			100

Note:
1. Bulk samples are analyzed using Polarized Light Microscopy (PLM) and dispersion staining techniques. The analytical procedures are in accordance with EPA 600/R-93/116 method.
2. The results are only related to the samples analyzed. **ND** = None Detected (no asbestos fibres were observed), **NA** = Not Analyzed (analysis stopped due to a previous positive result).
3. This report may not be reproduced, except in full without the written approval of EMC Scientific Inc. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.
4. The Ontario Regulatory Threshold for asbestos is 0.5%. The limit of quantification (LOQ) is 0.5%.

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EMSL Canada Or	552106707
CustomerID:	55OHEI93
CustomerPO:	24918-097
ProjectID:	

Attn: **Fred Atrash**
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Phone:	(905) 890-9000
Fax:	(905) 890-9005
Received:	4/23/2021 09:15 AM
Collected:	4/22/2021

Project: **24918-097**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*Weight*	*RDL*	*Lead Concentration*
24918-097-L1	4/22/2021	4/28/2021	0.2438 g	0.0082 % wt	<0.0082 % wt
552106707-0001	Site: White paint, north block wall, fleet operation facility				
24918-097-L2	4/22/2021	4/28/2021	0.0936 g	0.021 % wt	<0.021 % wt
552106707-0002	Site: Blue paint, hoist-3, fleet operation facility Insufficient sample to reach reporting limit.				
24918-097-L3	4/22/2021	4/28/2021	0.1098 g	0.018 % wt	<0.018 % wt
552106707-0003	Site: Dark yellow paint, hoist-5, fleet operation facility Insufficient sample to reach reporting limit.				
24918-097-L4	4/22/2021	4/28/2021	0.2374 g	0.0084 % wt	<0.0084 % wt
552106707-0004	Site: Light grey paint, east wall, fleet operation facility				
24918-097-L5	4/22/2021	4/28/2021	0.2450 g	0.0082 % wt	<0.0082 % wt
552106707-0005	Site: Light cream paint, door frames, air compressor room - 2107				
24918-097-L6	4/22/2021	4/28/2021	0.2502 g	0.0080 % wt	<0.0080 % wt
552106707-0006	Site: Light yellow paint, poles, west exit way				

Rowena Fanto, Lead Supervisor
or other approved signatory

Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008% wt based on the minimum sample weight per our SOP. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.
Samples analyzed by EMSL Canada Inc. Mississauga, ON AIHA-LAP, LLC - ELLAP #196142

Initial report from 05/07/2021 08:37:26

APPLICABLE REGULATIONS AND/OR GUIDELINES

DESIGNATED SUBSTANCES REGULATIONS

In accordance with Section 30 of the Occupational Health and Safety Act (OHSA), Designated Substances and other potentially hazardous building materials must be identified prior to construction or demolition that may disturb such materials. Designated Substances include:

Asbestos	Benzene
Lead	Acrylonitrile
Mercury	Coke Oven Emissions
Silica	Arsenic
Isocyanates	Ethylene Oxide
Vinyl Chloride	

A Designated Substances report is completed to fulfil the Owner's requirements under Section 30 of the OHSA. A copy of the report must be provided to the general contractor who in turn must submit the report to all subcontractors prior to the commencement of any demolition, construction or renovation work.

Ontario Regulation 490/09 "Designated Substances" (O. Reg. 490/09) provides guidance on exposure monitoring, permissible exposure levels, medical monitoring, etc. for all Designated Substances in an industrial setting. There are no specific Ministry of Labour (MOL) regulations for control of the Designated Substances, with the exception of asbestos, on construction projects; however, the MOL actively enforces the general duty clause of the OHSA to take all reasonable precautions in the circumstances of protection of a worker. It is important to note that Ontario Regulation 213/91 "Construction Projects" (O. Reg. 213/91) applies to construction projects and provides instruction on general requirements, safe work practices, reporting, etc.

ASBESTOS

Three regulations govern the control, handling, transport and disposal of asbestos in Ontario:

- Ontario Regulation 278/05 "Asbestos on Construction Projects and in Buildings and Repair Operations" made under OHSA (O. Reg. 278/05);
- Ontario Regulation 347/90 "General – Waste Management" (as amended) made under the Environmental Protection Act (O. Reg. 347/90); and,
- The regulations respecting "The Handling and Offering for Transport and Transporting of Dangerous Goods".

O. Reg. 278/05

O. Reg. 278/05 applies to buildings with regards to maintenance, renovations or demolition work where Asbestos-Containing Materials (ACMs) are or may be disturbed.

Under O. Reg. 278/05 a building owner must instate an Asbestos Management Program (AMP) for the building. The major requirements for the AMP including the following:

- Preparation and maintenance of a record of the location of ACMs in the building;
- Notification of the building's tenants of the location of such material;
- Establishment of a training program for those employees of the owner who may work in close proximity to and disturb the material;
- Periodic inspection (once in a 12 month period) of the material to determine its condition;
- Remedial action on material that has deteriorated following the precautions and procedures prescribed by the regulation as Type 1, Type 2 and Type 3; and,
- Removal of ACMs to the extent practicable prior to demolition of a building or part thereof.

The regulation prescribes work to be conducted according to three procedure types. The procedure to be followed depends on the type of material and the regulation provides instruction on how the work must be performed.

O. Reg. 347/90

O. Reg. 347/90 applies to the disposal of all hazardous materials, including asbestos waste, from the location of generation to a landfill site. The regulation also prescribes procedures on how the asbestos waste is to be buried at the landfill site.

The major requirements to the building owner are to ensure that:

- The waste is appropriately packaged and labelled;
- The transport vehicle has an appropriate placard;
- The asbestos waste is transported on the same day as received by the landfill site; and,
- The route of travel is the most direct.

The building owners are held responsible for their asbestos waste as prescribed in the regulation until it is accepted by the waste disposal site.

These regulations govern the packaging mode of transport labelling, placards and documentation of waste while in transport. The labelling requirements differ from O. Reg. 347/90.

The major requirement to the building owner is to ensure the waste meets the packaging requirements and that a bill of lading accompanies the shipment.

LEAD

As stated previously there are no specific regulations regarding lead on construction projects; however, the MOL published a guideline entitled "Lead on Construction Projects" to raise the awareness of employers and workers to the hazards posed by lead in construction and the measures and procedures that should be taken to control those hazards.

The document provides information on the following:

- Health effects associated with lead exposure;
- Methods for controlling the lead hazard;
- Classification of work; and,
- Measure and procedures for working with lead.

The guideline classifies operations involving lead-containing materials into three groups, Type 1, Type 2 and Type 3 operations. The procedure to be followed depends on the anticipated airborne concentration of lead generated during the operation, which is dependent on the type of work performed. The guideline also provides instruction on how the work must be performed.

SILICA

Again, there are no specific regulations regarding silica on construction projects; however, the MOL published a guideline entitled "Silica on Construction Projects" to raise the awareness of employers and workers to the hazards posed by silica in construction and the measures and procedures that should be taken to control those hazards.

- Health effects associated with silica exposure;
- Methods for controlling the silica hazard;
- Classification of work; and,
- Measure and procedures for working with silica.

The guideline classifies operations involving silica-containing materials into three groups, Type 1, Type 2 and Type 3 operations. The procedure to be followed depends on the anticipated airborne concentration of silica generated during the operation, which is dependent on the type of work performed. The

guideline also provides instruction on how the work must be performed.

POLYCHLORINATED BIPHENYLS (PCBs)

The federal PCB Regulations, SOR/2008-273, regulates the use, handling, storage, management and release of PCBs and any product containing PCBs. The purpose of the regulation is to also accelerate the elimination of these substances by setting deadlines to end the use of PCBs and products containing PCBs and sending them for destruction.

Ontario Regulation 362/90 "Waste Management-PCBs" made under the Environmental Protection Act (O. Reg. 362/90) controls the waste management and transfer of PCBs. Under O. Reg. 362/90 a PCB material is defined as a material containing a PCB concentration of 50 parts per million (ppm) by weight.

OZONE DEPLETING SUBSTANCES

The federal Ozone Depleting Substances Regulations SOR/99-7 (as amended), regulates the import, export, manufacture, use and sale of ozone depleting substances (e.g. chlorofluorocarbons, halons, etc.) in Canada.

In addition, the federal Halocarbon Regulations SOR/2003-289 (as amended), governs the release, recovery and recycling of ozone depleting substances and their halocarbon alternatives in refrigeration and air conditioning equipment in Canada.

Lastly, Ontario Regulation 463/10 made under the Environmental Protection Act regulates the disposal, transport and transfer of ozone depleting substances and halocarbons and refrigerants in Ontario.

MOULD AND WATER DAMAGED BUILDING MATERIALS

Currently, there are no Canadian regulations that govern the presence of mould and water damaged materials in the workplace environment. However, the Health Canada document "Fungal Contamination in Public Buildings: Health Effects and Investigation Methodology" (2004) concludes that current knowledge supports the need to prevent damp conditions and mould growth and to remediate mould growth and clean mould contamination in buildings. Therefore, the presence of mould growth, mould contaminated materials and/or water damaged materials in the occupied environment is interpreted as a failure of Health Canada guidelines and as such requires remedial action.

In addition, the MOL has issued a document titled "Alert: Mould in Workplace Buildings". This document explains the MOL's position with respect to the presence of mould growth in workplace buildings. Essentially, there is a responsibility to ensure the health and safety of workers. This includes protecting workers from biological hazards in workplace buildings. Various sections of the Industrial, Construction, Mining or Health Care regulations may also apply to maintenance and remediation activities.

The Canadian Construction Association (CCA) document CCA 82 - 2004 “Mould Guidelines for the Canadian Construction Industry” (CCA 82/04) provides guidelines for the assessment and remediation of mould in indoor environments.

ABOVEGROUND AND UNDERGROUND STORAGE TANKS

The regulatory framework for storage tanks is as follows:

- Technical Standards and Safety Act
- Ontario Regulation 217/01: Liquid Fuels
- Liquid Fuels Handling Code 2017
- CSA B139-15 Installation Code for Oil Burning Equipment

CSA B139-15 holds strength as a regulation through a Technical Standards & Safety Authority adoption document making it part of the Liquid Fuels Handling Code 2017. The Liquid Fuels Handling Code 2017 was made part of Ontario Regulation 217/01 by way of a Technical Standards & Safety Authority adoption document.

SURVEY METHODOLOGY

GENERAL SURVEY METHODOLOGY

The survey consisted of an extensive examination of all accessible areas of the building to identify hazardous building materials. Materials suspected to contain hazardous materials were assessed based on the surveyor's knowledge regarding the historical use of hazardous building materials in buildings, through published data and through previous experiences.

Accessible is defined as an area above a suspended ceiling tile, within an access hatch or behind a closed door, not impeded by any structure, article or thing. An area enclosed by cement block, plaster, solid lumber, etc., where minor demolition is required to gain entry is considered non-accessible. The walkthrough survey was augmented with layout drawings where available.

OHE's surveyors completed a Room by Room sheet which details the findings in each room entered. The Room by Room sheet details the room number and/or room description including the materials observed in the room and the condition of the material. The Room by Room sheet also records sampling information, quantity of the material(s), accessibility of the material(s) and the recommended control action.

OHE's approach to the work followed accepted industry procedures as well as our own in-house protocols. The examination of materials was largely performed visually with some occasion where physical contact was necessary to assess the condition or examine for underlying layers.

ASBESTOS SURVEY METHODOLOGY

This following information summarizes the bulk sample analysis methodology and the methodology for the assessment of the condition of Asbestos-Containing Materials (ACMs).

Bulk samples were collected for subsequent analysis during the building survey. A small volume of material (approximately one teaspoon full) was removed either from a damaged section of suspect material or cut out of intact material and then repaired by sealing with an appropriate surfacing compound, tape, paint or plaster to prevent fibre release. The collected samples were placed in plastic bags and sealed until they were opened by an independent laboratory.

Bulk Sample Analysis Methodology

The bulk samples of suspect ACMs were analyzed in accordance with a US EPA method for the determination of asbestos content in bulk materials, EPA Method 600/R-93/116.

The EPA Method requires that the samples be analyzed using the Polarized Light Microscopy (PLM) technique. The percentage of asbestos in the sample is measured as perceived by the analyst in comparison to standard area projections and is greatly influenced by the analyst's experience. The method is useful for the qualitative identification of asbestos (type) and the semi-quantitative (% estimates) determination of asbestos content in bulk samples.

The asbestos bulk samples were analyzed by EMSL Canada Incorporated, an independent and NVLAP accredited laboratory. To ensure quality results, the independent laboratory chosen must successfully participate in an "Asbestos Proficiency Analytical Testing Program" and as such, this laboratory is responsible for their findings.

Assessment of ACMs Methodology

The assessment of ACMs involves the evaluation of a number of factors by the surveyor including:

- Asbestos content
- Condition of the material
- Accessibility
- Water damage
- Activity and vibration
- Presence in air plenum/direct air stream

Where ACMs are found to be in good condition, firmly bound and not likely to deteriorate or fall, the recommended procedure is to evaluate the condition of the material on a periodic basis (which should be at least once a year unless specified more frequently) in order to detect gradual deterioration. This process is referred to as an "Operation and Maintenance Program".

Damaged material is identified by surface crumbling, blistering, water stains, gouges, marring or being otherwise abraded. The accumulation of powder dust or debris similar in appearance to the suspect material can be used as confirmatory evidence.

In situations where the ACMs are found to have deteriorated or likely to fall, the following are the four abatement options that may be specified in this report:

1. **Cleaning**. The cleaning of asbestos-containing debris may be performed using a High Efficiency Particulate Air (HEPA) filter vacuum cleaner or by damp wiping techniques. All fallen asbestos material must be cleaned upon discovery. In situations where the material will continue to fall due to deterioration, damage or abrasion, additional corrective work is required, i.e., the material must be repaired, permanently enclosed or removed.

2. **Repairs**. This option is usually selected in situations where damage to the ACMs are of a minor nature and is not likely to reoccur due to accessibility or activity. This method of repair is chosen in situations where performing the repair activities will not cause significant disturbance to the underlying material. Typical repairs include the repair of thermal insulation by the application of mastic (paint adhesive) to lagging (canvas cloth). The repair of sprayed fireproofing or acoustical texturized material can involve the application of an encapsulant to limited areas of abraded or damaged material. If this option is followed, the sprayed material must be capable of supporting the additional weight of the encapsulant.

3. **Enclosure**. An enclosure consists of the construction of a physical barrier, typically constructed from drywall or metal sheeting. This option is applicable in situations where the removal of materials with asbestos is not practicable, is of a high financial cost, or where damage is likely to occur without a protective

barrier. Where the installation of the barrier is likely to disturb the ACMs, the work must be performed in isolation from the building's normal environment.

4. **Removal**. This option is recommended in situations where the ACMs are damaged beyond repair and the material is highly likely to be damaged due to nearby activities, by renovation or during demolition. The precautions employed may vary depending on the volume of the material to be removed and whether the material is friable or not. Typical programs can include the use of glove bags for limited amounts of thermal pipe insulation or minor amounts of fireproofing may be removed within a small polyethylene lined enclosure. For larger amounts of asbestos, more stringent protocols are used and consist of attached shower facilities, the establishment of a negative pressure differential, a filtration system for the air and monitoring for exposure to asbestos fibres.

METHODOLOGY FOR LEAD IN PAINT ANALYSIS

Testing for lead in paint was carried out using an X-ray Fluorescence (XRF) Spectrum Analyser. Painted surfaces contain concentrations of various elements which the XRF can detect using low-level radioactivity. The XRF unit is positioned against the exposed painted surface and the radiation from the XRF is directed at the painted surface. The radiation is absorbed by the painted surface and emits energy back to the analyzer as fluorescence. The level of fluorescence will be distinctive to a particular element present in the paint. Lead emissions are measured by the analyzer, and then converted into an electrical signal. The analyzer uses this electric signal to calculate and display the lead concentration in the paint surface. The low levels of radiation provide for accurate readings with the precision of ±0.05 mg/cm2 when measuring lead concentrations. The XRF is equipped with a depth index that indicates where the lead is located within the paint layers. The detection limit of the instrument varies with depth and ranges from 0.002 mg/cm2 to 0.05 mg/cm2. The analyzer used by OHE performs an automatic self-calibration/quality control check when the unit is switched on.

METHODOLOGY FOR LEAD IN PAINT BULK SAMPLING AND ANALYSIS

Bulk samples were collected for subsequent analysis during the building survey. A small volume of material (approximately one teaspoon full) was removed either from a damaged section of suspect material or removed from an inconspicuous area using clean hand tools. The collected samples were placed in plastic bags and sealed until they were opened by an independent laboratory

Bulk Sample Analysis Methodology

Bulk samples of suspect lead-containing materials were analyzed in accordance with a US EPA method for the determination of lead content in bulk materials, EPA Method (SW 846 3050B/7000B). The EPA Method requires that the samples be analyzed using the Flame Atomic Absorption Spectrometry (SW 846 3050B/7000B) technique. This method may be used determine trace elements in solution.

The lead bulk samples were analyzed by EMSL Analytical, Incorporated, an independent and ELLAP accredited laboratory.

METHODOLOGY FOR THE INVESTIGATION OF PCB-CONTAINING EQUIPMENT

The investigation for PCBs included a representative and random examination of fluorescent lamp ballasts present in each building. Information collected from the labels of inspected light ballasts was cross referenced with the Environment Canada publication entitled "Identification of Lamp Ballasts Containing PCBs" (Revised August 1991). The investigation was restricted to the equipment observed and excludes PCB-containing components that may be concealed. Due to safety precautions, only the exterior of electrical equipment was inspected. If the equipment labels did not provide enough information on the contents with respect to the subject substances, the findings were noted and recommendations regarding the next course of action were provided.

METHODOLOGY FOR THE INVESTIGATION OF OZONE DEPLETING SUBSTANCES

The investigation for ODSs included a visual examination of devices, equipment and building systems that are suspected to contain ODSs, including but not limited to, chillers, coolers, refrigerators and HVAC systems. The investigation was restricted to the equipment observed and excludes components that may be concealed. Due to safety precautions, only the exterior of devices, equipment and building systems were inspected. If the equipment labels did not provide enough information on the contents with respect to the subject substances, the findings were noted and recommendations regarding the next course of action were provided.

METHODOLOGY FOR THE INVESTIGATION OF MOULD AND WATER DAMAGED BUILDING MATERIALS

The investigation for mould and water damaged building materials included a visual inspection along accessible building finishes (i.e. walls, floors, ceilings, etc.).

Where applicable, the use of a moisture meter and/or an intrusive visual inspection was conducted. The following outlines the methodology for moisture measurements and intrusive visual inspections:

Less than 17% MC/WME	“DRY”	Optimal state
17-20% MC/WME	“AT RISK”	Moist conditions that may or may not support mould amplification*
Greater than 20% MC/WME	“WET” or “SATURATED”	High water activity and the likelihood of mould amplification*

* Mould amplification is dependent upon current environmental conditions and the composition of the building materials.

Methodology for the Investigation of Other Hazardous Substances

The scope of work for the subject survey also consisted of a visual inspection for the presence of other potentially hazardous building materials and substances including mercury, silica, manmade mineral fibres, urea formaldehyde foam insulation and aboveground/underground storage tanks.

PROJECT LIMITATIONS

The survey was non-destructive in nature where applicable, samples were taken in these areas where suspect material was present during the survey.

Hazardous building materials may be present in areas not accessible for view and identification. In situations where hazardous building materials extend into a non-accessible area, the materials were assumed to also be present in those areas and have been reported as such. Contractors and maintenance personnel should be warned of the possibility of undisclosed hazardous building materials in enclosed areas. All hazardous building materials discovered in these areas should be treated as a hazardous building material until proven otherwise as per all applicable regulations and guidelines.

Asbestos is also assumed to be present in various building materials which were not sampled as part of the survey since they were excluded from the scope of work. These materials include, but are not limited to, vermiculite in solid block walls, above solid ceilings and in manufactured wall panels; elevator and lift brakes; high voltage wiring; mechanical packing, ropes and gaskets; exterior cladding, soffit and fascia boards on building; roofing materials, roofing felt/tar; and building paper and refractory materials within boilers. In cases of demolition and/or renovation, all excluded materials shall be assumed asbestos-containing until proven otherwise by bulk sampling and analysis.

In cases where asbestos was identified in some but not all samples of similar materials, the conservative approach was applied and all such material was assumed and reported to contain asbestos. When a renovation is planned, we recommend a detailed sampling of suspected asbestos-containing material to confirm the presence of asbestos. Materials that are removed through renovations should be replaced with non-asbestos-containing materials only. This must be documented. Confirmatory sampling will not be required on any new products if the manufacturer supplies written confirmation that these materials are asbestos-free.

Water damaged building materials were observed in various locations throughout the Subject Location. The locations detailed in this report are based on the observations noted at the time of the site visit and can change if site conditions change. For removal and/or repair operations, these areas should be confirmed on-site.

RESULTS OF SAMPLING AND TESTING:

Asbestos

Lead

Above ground Storage Tanks

Table I.1

Summary of Bulk Samples Analysis Results for the Presence of Asbestos by Polarized Light Microscopy (PLM) with Dispersion Staining

Collected on April 22, 2021

OHE Sample Number	Sample Description	Sample Location	Analysis Results (% and Type of Asbestos)
24918-097-1A	Cement parging: grey	Column, North side, Fleet operation facility	None Detected
24918-097-1B	Cement parging: grey	Column, North side, Fleet operation facility	None Detected
24918-097-1C	Cement parging: grey	Column, East side, Fleet operation facility	None Detected
24918-097-2A	Mortar	Gap in section of block wall, North wall, Fleet operation facility	None Detected
24918-097-2B	Mortar	Gap in section of block wall, North wall, Fleet operation facility	None Detected
24918-097-2C	Mortar	Gap in section of block wall, South wall, Fleet operation facility	None Detected
24918-097-3A	Caulking material: light grey	Gap between walls and window frames, North side, Fleet operation facility	None Detected
24918-097-3B	Caulking material: light grey	Gap between walls and window frames, North side, Fleet operation facility	None Detected
24918-097-3C	Caulking material: light grey	Gap between walls and window frames, North side, Fleet operation facility	None Detected
24918-097-4A	Caulking material: grey	Gap between sections of concrete floor, Fleet operation facility	None Detected
24918-097-4B	Caulking material: grey	Gap between sections of concrete floor, Fleet operation facility	None Detected
24918-097-4C	Caulking material: grey	Gap between sections of concrete floor, Fleet operation facility	None Detected
24918-097-5A	Fire stopping material: red	Around pipe penetration from walls, Waste Oil Room	None Detected
24918-097-5B	Fire stopping material: red	Around pipe penetration from walls, Waste Oil Room	None Detected
24918-097-5C	Fire stopping material: red	Around pipe penetration from walls, Waste Oil Room	None Detected

Table I.1 (Continued)

OHE Sample Number	Sample Description	Sample Location	Analysis Results (% and Type of Asbestos)
24918-097-6A	Duct mastic: grey	Between section of HVAC joints, Waste oil room	None Detected
24918-097-6B	Duct mastic: grey	Between section of HVAC joints, Waste oil room	None Detected
24918-097-6C	Duct mastic: grey	Between section of HVAC joints, Waste oil room	None Detected
24918-097-7A	Expansion joint: black	Gap between walls and floor, South side, Machine shop	None Detected
24918-097-7B	Expansion joint: black	Gap between walls and floor, South side, Machine shop	None Detected
24918-097-7C	Expansion joint: black	Gap between walls and floor, South side, Machine shop	None Detected
24918-097-8A	VFTs: 12”x12” beige with white and beige streaks	Floor, IT Room-22	None Detected
	Mastic: yellow	Floor, IT Room-22	None Detected
24918-097-8B	VFTs: 12”x12” beige with white and beige streaks	Floor, IT Room-22	None Detected
	Mastic: yellow	Floor, IT Room-22	None Detected
24918-097-8C	VFTs: 12”x12” beige with white and beige streaks	Floor, IT Room-22	None Detected
	Mastic: yellow	Floor, IT Room-22	None Detected
24918-097-9A	Caulking material: black	Around door frames, Air compressor room 2107	None Detected
24918-097-9B	Caulking material: black	Around door frames, Air compressor room 2107	None Detected
24918-097-9C	Caulking material: black	Around door frames, Air compressor room 2107	None Detected
24918-097-10A	Mastic: light grey	Under vinyl baseboard, Room 2106	None Detected
24918-097-10B	Mastic: light grey	Under vinyl baseboard, Room 2106	None Detected
24918-097-10C	Mastic: light grey	Under vinyl baseboard, Room 2106	None Detected
24918-097-11A	Caulking material: black	Around pipes, Roof	None Detected
24918-097-11B	Caulking material: black	Around pipes, Roof	None Detected
24918-097-11C	Caulking material: black	Around pipes, Roof	None Detected

Table I.1 (Continued)

OHE Sample Number	Sample Description	Sample Location	Analysis Results (% and Type of Asbestos)
24918-097-12A	Expansion joint: grey	Between sections of block wall, South wall, Machine shop	None Detected
24918-097-12B	Expansion joint: grey	Between sections of block wall, South wall, Machine shop	None Detected
24918-097-12C	Expansion joint: grey	Between sections of block wall, South wall, Machine shop	None Detected
24918-097-13A	Caulking material: white	Gap between exterior bay doors and walls, West wall, Exterior	None Detected
24918-097-13B	Caulking material: white	Gap between exterior bay doors and walls, West wall, Exterior	None Detected
24918-097-13C	Caulking material: white	Gap between exterior bay doors and walls, West wall, Exterior	None Detected

Table I.2

Summary of Bulk Sample Analysis Results for the Presence of Lead by Flame Atomic Absorption Spectrometry (AAS)

Collected on April 22, 2021

OHE Sample Number	Sample Description	Sample Location	Contains Lead by weight (%)
24918-097- L1	White paint	North Block Wall, Fleet operation facility	<0.0082
24918-097- L2	Blue paint	Hoist 3, Fleet operation facility	<0.021
24918-097- L3	Dark yellow paint	Hoist 5, Fleet operation facility	<0.018
24918-097- L4	Light grey paint	East wall, Fleet operation facility	<0.0084
24918-097- L5	Light cream paint	Door frames, Air compressor room 2107	<0.0082
24918-097- L6	Light yellow paint	Poles, West exit way	<0.0080

Table I.3

Summary of Visual Inspection for Aboveground/Underground Storage Tanks

Item	Observation
Location	Aboveground-Waste Oil Room
Number of tanks	2
Make and model	Unknown
Fuel type	Oil
Type of construction	Metal
Year equipment was installed	Unknown
Condition of equipment	Good
Size	1,360 L
Compliance with TSSA regulations	-
Cathodic protection test station	Not Applicable