



January 31, 2013

## DESIGNATED SUBSTANCES AND CONTROLLED PRODUCTS SURVEY

# Airport New Terminal - 1200 Airport Boulevard, Oshawa, Ontario



REPORT

**Submitted to:**

Mr. John Turpin, Project Manager, Facilities Management  
The Corporation of the City of Oshawa  
50 Centre Street South  
Oshawa, Ontario  
L1H 3Z7

**Report Number:** 12-1187-0086 (1003)

**Distribution:**

1 Copy– The Corporation of the City of Oshawa  
2 Copies - Golder Associates Ltd.





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**DESIGNATED SUBSTANCES AND CONTROLLED PRODUCTS  
SURVEY - AIRPORT NEW TERMINAL - 1200 AIRPORT  
BOULEVARD, OSHAWA, ONTARIO**

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## 1.0 INTRODUCTION

The Corporation of the City of Oshawa (the “City”) retained Golder Associates Ltd. (“Golder”) to conduct a non-intrusive Designated Substances Survey (“DSS”) of the two-storey terminal building located at 1200 Airport Boulevard, Oshawa, Ontario (the “Site”). The survey was conducted on July 13, 2012 by Mr. Garrett MacDonald, of Golder’s GTA Environmental Health and Safety Group.

The survey was performed with the objective of identifying designated substances, as required under the *Ontario Occupational Health and Safety Act* (the “Act”), and to provide recommendations to remove or manage these materials for environmental due diligence, and in accordance with provincial regulations and guidelines.

The designated substances surveyed included: asbestos-containing materials (“ACM”); lead; mercury; and silica. The remaining designated substances (acrylonitrile, arsenic, benzene, coke oven emissions, ethylene oxide, isocyanates, and vinyl chloride) were not expected to be present at the Site; however, if observed, their presence was noted. Select hazardous materials including polychlorinated biphenyls (“PCBs”), ozone depleting substances (“ODS”), and other chemicals stored and managed on-Site were also noted, where observed.

### 1.1 Description of Site Building

The Site is a two-storey terminal building consisting of waiting areas, a cafeteria, and office space with some mechanical and operational rooms. The building was originally constructed in 1995, and occupies approximately 14,500 square feet. The Site was occupied at the time of investigation.

The following is a brief description of the building systems observed:

**Structural:** the Site was observed to be constructed with a concrete foundation, a combination of concrete and concrete block supporting walls, and corrugated metal decking systems. The exterior of the Site building is finished with a metal facade.

**Walls:** consisted of various materials and material combinations including drywall, ceramic tile, and concrete.

**Flooring:** included ceramic tile, concrete, and carpet.

**Ceilings:** where present consisted of drywall, and “lay-in” acoustic ceiling tiles.

**Mechanical:** generally, the Site is heated and cooled via roof-top heating, ventilating and air conditioning (“HVAC”) units, with deck-mounted ductwork throughout each floor. HVAC systems also include a perimeter heating system (i.e. Induction units), which heats the perimeter of each floor. The perimeter induction unit system is fed through perimeter, deck-mounted induction units, which are fed from perimeter vertical and horizontal shafts.

Where observed, the mechanical ductwork was noted to be both fibreglass-insulated and un-insulated. The mechanical pipe insulation was noted to be insulated with non-asbestos pipe insulation, or un-insulated. Illumination for the building is provided by fluorescent light fixtures.

## 2.0 SCOPE OF WORK

The Scope of Work involved conducting a non-intrusive building materials survey within the Site to:

- identify designated substances and other selected hazardous materials present at the Site;



- conduct representative bulk sampling of materials suspected of containing asbestos and paint suspected of containing lead, to supplement visual observations;
- complete analysis of bulk samples for asbestos type/percentage or lead content;
- note any controlled products and other hazardous chemicals stored and managed on-Site, and where present, make observations/recommendations on potential environmental management issues; and,
- provide a report detailing the findings and any recommendations with respect to removal or management of any identified designated substances on-Site, in accordance with applicable legislation.

The Scope of Work did not include the investigation for possible contamination in the soil or groundwater of the Site, or the presence of underground storage tanks or buried pipes. The Scope of Work was limited to readily accessible building materials that are part of the building envelope only, and are present above the floor slab. The roof matrix was not sampled during the investigation.

### **3.0 REGULATIONS, GUIDELINES, STANDARDS AND INVESTIGATION METHODOLOGY**

The Regulations, Guidelines, and Standards referenced throughout this report are listed and defined in Appendix E. Similarly, the Investigation and Sampling Methodology are provided in Appendix F.

## **4.0 RESULTS AND DISCUSSION**

### **4.1 Asbestos**

A total of three samples representing one distinct homogeneous building material (exterior caulking material) was collected from the Site and submitted to International Asbestos Testing Laboratories (“IATL”) for asbestos content analysis and was found to be non-asbestos-containing.

A summary of the asbestos samples collected including location, area, condition, asbestos content, and recommendations are presented in *Appendix A - Spreadsheet of Findings – Asbestos*. The Laboratory Certificate of Analysis is presented in *Appendix B - Laboratory Certificate of Analysis – Asbestos*.

Due to the nature of the investigation, asbestos-containing building materials may be present in areas that were inaccessible, given the limitations of Golder’s investigative methodology noted above. Any materials found in these spaces that were not previously identified should be considered asbestos-containing until proven otherwise. Other components considered to be non-friable asbestos-suspected materials (i.e., the electrical system & components) identified herein were not sampled as the sampling process will damage the integrity of these items.

### **4.2 Lead**

A total of three samples of painted surfaces were collected from the Site and submitted to International Asbestos Testing Laboratories (IATL) for lead content analysis. The samples were analyzed and found to contain no detectable presence of lead. As discussed in *Appendix E – Regulations, Guidelines and Standards – Lead*, and based on the analytical results, all painted surfaces are considered to be lead free.



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## DESIGNATED SUBSTANCES AND CONTROLLED PRODUCTS SURVEY - AIRPORT NEW TERMINAL - 1200 AIRPORT BOULEVARD, OSHAWA, ONTARIO

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A summary of the samples collected including location, area, condition, lead content, and recommendations are presented in *Appendix C - Spreadsheet of Findings - Lead*. The Laboratory Certificate of Analysis is presented in *Appendix D - Laboratory Certificate of Analysis - Lead*.

Furthermore, lead is suspected to be present in batteries, associated with emergency lighting and exit signs, as the solder on (copper) domestic water pipes and as lead coating on the steel beams and columns throughout the Site. Lead sheeting may also be possibly concealed behind other finished surfaces throughout the Site (i.e. flashing, brick ties, plugs for weeping holes in brick, etc.), however was not observed during Golder's investigation.

### 4.3 Mercury

Approximately 300 fluorescent light tubes were observed throughout the Site which are suspected to contain small amounts of mercury vapour. Mercury is also likely present in concealed locations/equipment such as within: thermostats; thermometers; electrical switches; sensors; gauges; meters where equipment may be used to pump, distribute, treat and monitor waste, etc. No samples of this material were collected.

### 4.4 Silica

Silica is a naturally occurring mineral and may be found as common aggregates in concrete products, mortar, brick and ceiling tiles and is likely present in the Site. The health risk associated from exposure to silica is due primarily to the inhalation of respirable crystalline silica, particularly in the form of dust associated with the abrading or cutting of silica-containing materials. Silica is suspected to be present in concrete and concrete products (mortar, concrete, etc.) throughout the Site. No samples of this material were collected.

### 4.5 Polychlorinated Biphenyls

The Site was visually assessed for the presence of PCBs in the fluorescent light ballasts. Where necessary, label information from the ballasts such as the manufacturer, model numbers, serial numbers, and date codes was collected and compared to the criteria found in the Environment Canada Report EPS 2/CC/2 (revised) August 1991, [Identification of Lamp Ballasts Containing PCBs](#). Approximately 150 fluorescent light ballasts were observed throughout the Site. Due to the risk of electrocution the manufacturer, model and serial numbers were not reviewed for the ballasts. Based on the buildings age, none of ballasts investigated are suspected to contain PCBs.

No other suspect PCB was observed during the investigation.

### 4.6 Ozone Depleting Substances

During the investigation, Golder noted several refrigeration units suspected of containing ODS including a fountain located in the Main Entrance Room; a vending machine, also, located in the Main Entrance Room; three water fountains located in the First and Second Floor Offices; six refrigerators located in the First Floor Cafeteria and Second Floor Offices; and three air conditioning units, two of which were roof-mounted air conditioning units and the other being a portable window mounted unit in the Second Floor Offices. No other suspect ODS were observed during the investigation.

### 4.7 Controlled Products and Hazardous Chemicals Inventory

No other controlled products were noted reported at the Site.



## **5.0 CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Asbestos**

Through Site investigation and laboratory analytical testing, asbestos was not identified/suspected in the building materials investigated.

If suspected ACM not identified in this report are encountered during any future renovation/demolition activities, the work should stop immediately and the material tested to confirm the presence or absence of asbestos. This would be executed in order to provide recommendations on the applicable work procedures as prescribed under O. Reg. 278/05. Due to the age of this Site, as well as the numerous renovations completed, there is a strong possibility that additional concealed materials not identified or known may arise during future renovation or maintenance activities. Based on this, it is Golder's opinion that a contingency is carried for all renovation work to allow for the identification and abatement of previously unidentified materials. In addition, contractors retained to work on this project should be notified of this limitation and written procedures should be established in case additional materials are identified. The overall objective is to minimize exposure during any proposed renovations.

### **5.2 Lead**

Based on the Laboratory Certificate of Analysis, none of the sampled painted finishes at the Site have detectable concentrations of lead. As mentioned earlier, the MOL currently does not have criteria for the classification of lead-containing paint. However, since lead was not detected in any of the paint samples collected during the survey, the paint on Site is considered to be lead free.

Suspected lead-containing solder is present on domestic water pipes throughout the Site. During renovation or demolition activities, inaccessible lead-containing materials may be uncovered (i.e., lead sheeting, domestic water pipes, flashing or brick ties). All bulk lead-containing materials should be extracted and sent to a recycling facility. If recycling of the lead is not practicable then it must be disposed of in an approved landfill as lead waste.

O. Reg. 490/09 prescribes an occupational exposure limit the (OEL) for lead at  $0.05 \text{ mg/m}^3$  calculated as an 8 hour/daily and a 40 hour/weekly Time Weighted Average limit ("TWA"). Despite the fact that O. Reg. 490/09 does not generally apply to a construction project, employers still have the general duty and responsibility under Part III, Section 25(2)(h) of the *Act* to protect workers.

Based on this, if personnel are required to perform operations where significant levels of airborne dust containing lead may be generated, then measures must be taken by the contractor to ensure the OEL for lead is not exceeded and that all reasonable regulatory and health and safety precautions are taken. The MOL Guideline publication, Guideline - Lead on Construction Projects, dated September 2004 (updated April 2011), provides a classification system to assist with determining the required control measures necessary, based on the proposed work activity.

### **5.3 Mercury**

Mercury is suspected to be present within the approximately 150 fluorescent light bulbs observed throughout the Site. It is recommended that at the time of their disposal, mercury vapour bulbs may be recycled and possibly reused by qualified personnel or may be disposed of in accordance with procedures specified by federal and



provincial regulations. It is recommended that at the time of their disposal, mercury bulbs are kept separate from all other waste to prevent damage to the glass bulb/fixture containing the mercury.

Prior to renovation or demolition operations mercury-containing components should be identified and labelled. Any components suspected to contain mercury should be presumed mercury-containing until proven otherwise. Staff who may work in the mediate vicinity of mercury-containing components should be trained in the safe handling of mercury-containing components, as well as in the handling and mediate action procedures for small scale mercury spills which may occur on-Site.

## **5.4 Silica**

Sampling for crystalline silica was not conducted during this assessment. However, silica is likely to be present in the aggregate-based materials used to construct the building. During any renovation activities, it is recommended that materials suspected to contain silica are routinely misted with water to control airborne dust levels, thereby preventing worker and public exposure to silica. Any work involving disturbances to silica must be completed in accordance with the Guideline - Silica on Construction Projects, dated September 2004 (updated April 2011).

## **5.5 Polychlorinated Biphenyls**

Based on information collected from the Site and visual identification, the fluorescent light ballasts most likely do not contain PCBs. For confirmation purposes prior to disposing of light ballast, all light ballasts must be checked and compared to the Environment Canada's Report EPS 2/CC/2 (revised) August 1991, Identification of Lamp Ballasts Containing PCBs. Ballasts clearly identified as "Non-PCB" or "PCB-Free" can be recycled or disposed of as regular construction waste. All other ballasts must be identified by the markings, date code, model and serial number to confirm the presence of PCBs. If the ballast cannot be positively identified as non PCB-containing, then the ballast should be disposed of as PCB-containing. All PCB-containing materials should be handled, stored or disposed of in accordance with the PCB Regulations (SOR 2008/273) and General Waste Regulation (O. Reg. 347/90). If the ballasts are free of PCBs they can be disposed of as solid, non-hazardous waste as they do not exceed the small quantity exemption established by the MOE. No samples of this material were collected.

## **5.6 Ozone Depleting Substances**

Suspected ODS are present within various refrigeration units located through the Site. Prior to demolition activities the refrigerants should be drained by a licensed technician before the equipment is decommissioned and up-to-date records should be kept detailing the transfer quantities by refrigerant types and given to the owner for their records. Maintenance, transfer and disposal of refrigerants must be conducted in accordance with the Regulation respecting Ozone Depleting Substances and other Halocarbons (O. Reg. 463/10).

## **5.7 Other Hazardous Materials**

Based on the survey, the following materials were not identified in the investigated areas at the Site: acrylonitrile; benzene; coke oven emissions; ethylene oxide; isocyanates; and vinyl chloride.

## **6.0 LIMITATIONS**

This report was prepared for the exclusive use of The Corporation of the City of Oshawa. This report is based on data and information collected during the Site visits conducted by Golder and is based solely on Site



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## DESIGNATED SUBSTANCES AND CONTROLLED PRODUCTS SURVEY - AIRPORT NEW TERMINAL - 1200 AIRPORT BOULEVARD, OSHAWA, ONTARIO

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conditions encountered at the time of the survey, supplemented by historical information and data obtained by Golder as described in this report.

The conclusions and recommendations contained in this report are based upon professional opinions with regard to the subject matter. These opinions are in accordance with applicable and currently accepted occupational health and safety or environmental assessment standards and practices applicable to these locations and are subject to the following inherent limitations:

- The data and findings presented in this report are valid as of the date of the investigation. The passage of time, manifestation of latent conditions or occurrence of future events may warrant further exploration at the properties, analysis of the data, and re-evaluation of the findings, observations, and conclusions expressed in this report.
- The findings, observations and conclusions expressed by Golder in this report are not, and should not be considered, an opinion concerning compliance of any past or present owner or operator of the Site with any federal, provincial or local laws or regulations.
- It is our understanding that this DSS is not intended to be a Pre-Construction/Pre-Demolition Survey. Prior to starting any scheduled renovation/demolition work on the interior and/or exterior of the Site building, a more intrusive Project Specific Pre-Construction/Pre-Demolition Survey may also be required to adequately investigate, identify and report on concealed materials. The Building Owner, in conjunction with the Occupant and/or Contractor, must review the on-Site conditions to determine if additional investigation and/or sampling for Asbestos and other Designated Substances should be completed.
- Additional hazardous building materials not identified in this report may become evident during renovation activities. Should additional information become available, Golder requests that this information be brought to our attention so that we may re-assess the conclusions presented herein.
- 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.
- Golder's report presents professional opinions and findings of a scientific and technical nature. While attempts were made to relate the data and findings to applicable environmental and occupational health & safety laws and regulations, the report shall not be construed to offer legal opinion or representations as to the requirements of, nor compliance with, environmental and occupational health & safety laws, rules, regulations or policies of federal, provincial, or local governmental agencies. Any use of this assessment report constitutes acceptance of the limits of Golder's liability. Golder's liability extends only to its client and not to other parties who may obtain this assessment report. Issues raised by the report should be reviewed by appropriate legal counsel.
- The data reported and the findings and recommendations expressed in this report are limited by the Scope of Work. The Scope of Work is based on the request of the client, availability of access to the property and time constraints.
- In evaluating the Site conditions, Golder has relied in good faith on information provided by others. We accept no responsibility for any deficiency, mis-statements or inaccuracies contained in this report as a result of omissions, misinterpretations or fraudulent acts of the persons involved.
- The quantities of identified designated substances noted herein are estimated quantities for reporting purposes, and this report is limited in that regard. In the event that designated substances are scheduled to be removed in the future, it is solely the responsibility of the "contractor" to confirm the exact quantities of designated substances to be removed, prior to their removal.



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## DESIGNATED SUBSTANCES AND CONTROLLED PRODUCTS SURVEY - AIRPORT NEW TERMINAL - 1200 AIRPORT BOULEVARD, OSHAWA, ONTARIO

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- This report is of a summary nature and is not intended to stand alone without reference to the instructions given to Golder by the Client, communications between Golder and the Client, and to any other reports prepared by Golder for the Client relative to the specific site described in the report. In order to properly understand the suggestions, recommendations and opinions expressed in this report, reference must be made to the whole of the report. Golder cannot be responsible for use of portions of the report without reference to the entire report.
- Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance of the Client in the design of the specific project. The extent and detail of investigations, including the number of locations investigated, necessary to determine all of the relevant conditions which may affect construction costs would normally be greater than has been carried out for design purposes. Contractors bidding on, or undertaking the work, should rely on their own investigations, as well as their own interpretations of the factual data presented in the report, as to how concealed conditions may affect their work, including but not limited to proposed construction techniques, schedule, safety and equipment capabilities.
- Special risks occur whenever engineering or related disciplines are applied to identify Site conditions and even a comprehensive investigation, sampling and testing program may fail to detect all or certain Site conditions. The conditions that Golder interprets to exist between and beyond investigation and sampling points may differ from those that actually exist.
- Details of future renovation are not known at the time of submission of Golder's report. Golder should be retained to review any design, project plans and documents prior to construction, to confirm that they are consistent with the intent of Golder's report. During construction, Golder should be retained to perform sufficient and timely observations of encountered conditions to confirm and document that the subsurface conditions do not materially differ from those interpreted conditions considered in the preparation of Golder's report and to confirm and document that construction activities do not adversely affect the suggestions, recommendations and opinions contained in Golder's report. Adequate field review, observation and testing during construction are necessary for Golder to be able to provide letters of assurance, in accordance with the requirements of many regulatory authorities. In cases where this recommendation is not followed, Golder's responsibility is limited to interpreting accurately the information encountered at the locations investigated, at the time of their initial determination or measurement during the preparation of the Report.

## 7.0 CLOSURE

If you have any questions or require any further information, please feel free to contact the undersigned at (905) 723-2727. Thank you for the opportunity to be of service. We look forward to working with you again.



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**DESIGNATED SUBSTANCES AND CONTROLLED PRODUCTS  
SURVEY - AIRPORT NEW TERMINAL - 1200 AIRPORT  
BOULEVARD, OSHAWA, ONTARIO**

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## Report Signature Page

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# **APPENDIX A**

## **Spreadsheet of Findings - Asbestos**

APPENDIX A - SPREADSHEET OF FINDINGS - ASBESTOS-CONTAINING MATERIALS  
 The Corporation of the City of Oshawa - Oshawa Airport - New Terminal - 1200 Airport Boulevard, Oshawa, Ontario  
 Designated Substances Survey



Location	Level	Material & Description	Est. Qty*	Units	Condition	Friable Yes/No	Accessibility	Sample #	% Asbestos and Type	Photographs	Recommended Actions/Comments
Perimeter of Exterior Windows & Doors	Ground Floor & 2nd Floor	Various Caulking Applications	450	Linear Feet	Good	No	High	01 A-C	None Detected	 <p>Photograph 1</p>	No action required other than general dust suppression.

Inputted by: GM  
 Checked by: RS *[Signature]*

**Notes:**  
 This spreadsheet should be read in conjunction with the report. \*The quantities as reported are estimates only and may not accurately reflect the exact quantities at the Site. Contractors retained to complete asbestos abatement activities should independently confirm the reported quantities. \*\* Material was determined to have an asbestos content, although not in sufficient quantity (i.e. less than 0.5% by dry weight) to be considered an ACM under O. Reg. 278/05.



# **APPENDIX B**

## **Laboratory Analytical Results - Asbestos**

## CERTIFICATE OF ANALYSIS

**Client:** Golder Associates Ltd  
100 Scotia Court  
Whitby, ON L1N 8Y6

**Report Date:** 7/30/2012  
**Report No.:** 280793  
**Project:** Airport Main Terminal  
**Project No.:** 12-1187-0086-1003

### BULK SAMPLE ANALYSIS SUMMARY

**Lab No.:** 4735798      **Description / Location:** Grey Caulk  
**Client No.:** 01-A      North East Wall

<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	None Detected	None Detected	100

**Lab No.:** 4735799      **Description / Location:** Grey Caulk  
**Client No.:** 01-B      North East Wall-Around Door

<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	None Detected	None Detected	100

**Lab No.:** 4735800      **Description / Location:** Silver Caulk  
**Client No.:** 01-C      North East Wall-Around Window

<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	None Detected	None Detected	100

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

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

**Analytical Method:**      EPA 600/R-93/116, by Polarized Light Microscopy

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

**Analysis Performed By:**      L. Solebello

**Approved By:**      

**Date:**      7/30/2012

Frank E. Ehrenfeld, III  
Laboratory Director

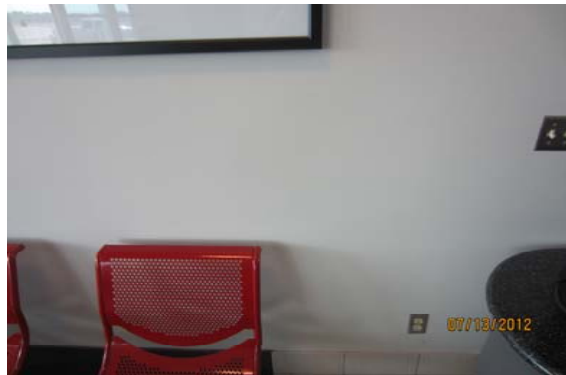




# **APPENDIX C**

## **Spreadsheet of Findings - Lead**

APPENDIX C - SPREADSHEET OF FINDINGS - LEAD  
 The Corporation of the City of Oshawa - Airport - New Terminal - 1200 Airport Boulevard, Oshawa, Ontario  
 Bulk Lead Sampling Results  
 Designated Substances Survey



Area	Location / Surface	Colour & Description	Qty	Units	Condition	Accessibility	Sample #	% Lead	Photographs	Recommended Actions
Various Locations Throughout	Drywall Walls	White Paint	750	Square Feet	Good	High	LP-01	<0.0053% (by dry weight)	 Photograph 1	Lead was not detected in the sample, therefore this paint is considered to be lead free. No recommended actions relative to control of exposure to lead apply to this paint.
First Floor - South East Offices	Drywall Walls	Light Purple Paint	1,400	Square Feet	Good	High	LP-02	<0.0067% (by dry weight)	 Photograph 2	Lead was not detected in the sample, therefore this paint is considered to be lead free. No recommended actions relative to control of exposure to lead apply to this paint.
Second Floor - West Offices	Drywall Walls	Yellow Paint	2,150	Square Feet	Good	High	LP-03	<0.0057% (by dry weight)	 Photograph 3	Lead was not detected in the sample, therefore this paint is considered to be lead free. No recommended actions relative to control of exposure to lead apply to this paint.

Note: This spreadsheet should be read in conjunction with the report.

\*Contractors retained to complete renovation/demolition activities should independently confirm the reported quantities.

Condition:

- 1. good
- 2. damaged

Inputted by: GM  
 Checked by: RS

Accessibility:

- High: Accessible to Anyone
- Mod: Accessible With a Ladder
- Low: Enclosed in Building Materials



# **APPENDIX D**

## **Laboratory Analytical Results - Lead**

## CERTIFICATE OF ANALYSIS

<b>Client:</b>	Golder Associates Ltd 100 Scotia Court Whitby, ON L1N 8Y6	<b>Report Date:</b>	7/30/2012
		<b>Report Number:</b>	280738
		<b>Project:</b>	Oshawa-AirportMainTerminal
		<b>Project No.:</b>	12-1187-0086-1003

### LEAD PAINT SAMPLE ANALYSIS SUMMARY

<u>Lab No.</u>	<u>Client No.</u>	<u>Location / Description</u>	<u>Concentration Lead By Weight (%)</u>
4729221	LP-1	White Paint On Drywall 1st Floor; Southeast Offices	<0.0053
4729222	LP-2	Lt. Purple Paint On Drywall 1st Floor; Maintenance Room	<0.0067***
4729223	LP-3	Yellow Paint On Drywall 2nd Floor; West Offices	<0.0057***

**Accreditations:**

### NATIONAL LEAD LABORATORY ACCREDITATION PROGRAM (NLLAP)

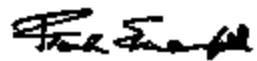
AIHA-LAP, LLC No. 100188

NYSDOH-ELAP No. 11021

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

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

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**Date Analyzed:** 7/30/2012  
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# **APPENDIX E**

## **Regulations, Guidelines and Standards**



## **REGULATIONS, GUIDELINES AND STANDARDS**

### **Occupational Health and Safety Act**

The Occupational Health and Safety Act (the “Act”) prescribes designated substances that may be present within buildings. The intent of the Act is to identify the presence of building materials and products that may contain designated substances. Section 30 of the Act requires that, prior to beginning a construction project (including building renovation or demolition); a document summarizing the presence of these materials must be available to contractors and subcontractors requesting tenders.

Ontario Regulation 490/09 - Designated Substances, as amended (“O. Reg. 490/09”), regulates all designated substances in Ontario, with the exception of asbestos in building materials, which is prescribed under Ontario Regulation 278/05 - Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations, as amended (“O. Reg. 278/05”).

### **Asbestos-Containing Materials**

O. Reg. 278/05 prescribes specific procedures for the identification of ACM and protocols for their removal. Under this regulation, if ACM are suspected to be present or ought reasonably to be suspected, locations of the materials must be documented. Prior to a renovation project, a document detailing the presence of all ACM must be available to contractors and subcontractors requesting tenders. All ACM must be removed or managed appropriately prior to any disturbance caused by the renovation process in accordance with provincial regulations.

Ontario Regulation 347/90 - General Waste Management, as amended (“O. Reg. 347/90”), made under the *Environmental Protection Act*, prescribes requirements for general waste management including ACM. The regulation defines “asbestos waste” as “solid or liquid waste that results from the removal of asbestos-containing construction or insulation materials or from the manufacture of asbestos-containing products and contains asbestos in more than a trivial amount or proportion”. This regulation requires the disposal of asbestos waste in a double sealed container, properly labelled and free of cuts, tears or punctures. The waste must be disposed of in a licensed waste facility which has been properly notified of the presence of asbestos waste.

### **Lead**

Lead was used as a pigment and drying agent in alkyd oil-based paint. The Surface Coating Materials Regulations (“SOR/2005-109”) made under the *Canada Consumer Product Safety Act* restricts the lead content of paints and other liquid coatings on new furniture, household products, children’s products, industrial surfaces and exterior and interior surfaces to 90 mg/kg by weight. The Canadian Paint and Coatings Association (“CPCA”), the national trade association for Canada’s paint manufacturers recommended that the Canadian paint industry voluntarily stop using any lead compounds in consumer paints by the end of 1990. Over the years, the amount of lead in paint has continued to decrease, due to the co-operative efforts of government and industry.

O. Reg. 490/09 prescribes requirements relating to protocols for lead-containing materials in the workplace, where lead is present, produced, used, handled or stored and at which the worker is likely to inhale, ingest, or absorb lead. However, O. Reg. 490/09 does not apply to construction projects. Nevertheless, the constructor and employers on construction projects have a duty to take all reasonable precautions to ensure that no worker is unacceptably exposed to airborne lead.



If operations that will likely produce airborne lead dust or fumes (e.g. during welding, torch cutting, sanding and sand blasting) are to occur during building renovation or construction, it is recommended that the disturbance of lead paint be carried out in accordance with procedures outlined in the Ontario Ministry of Labour (“MOL”) Guideline Lead on Construction Projects dated September 2004 (updated April 2011).

The MOL currently does not include criteria for classification of lead-containing paint, and allows for no minimum concentrations of lead in paint to be acceptable as non-lead containing. Therefore in these circumstances, Golder considers all paints with any detectable presence of lead as lead-containing. The accepted laboratory testing methods for determination of lead in paint is either flame atomic absorption spectroscopy (“FAAS”) or inductively coupled argon plasma-atomic emission spectroscopy (“ICAP-AES”).

## **Mercury**

Mercury is regulated under O. Reg. 490/09., which prescribes occupational exposure limits (OELs) and other requirements for engineering controls, work practices and hygiene practices and facilities for workers who may become exposed to mercury.

## **Silica**

Silica is a naturally occurring mineral and may be found in common aggregates in concrete mortar, brick and ceiling tiles. Silica is likely present in the concrete and mortar used to construct the Site. The health risks associated with exposure to silica is due primarily to the inhalation of respirable crystalline silica, particularly in the form of dust associated with the abrading or cutting of silica containing materials.

Silica is regulated under O. Reg. 490/09. This regulation prescribes OELs and requirements surrounding engineering controls, work practices and hygiene practices and facilities to protect workers who may be potentially exposed to crystalline silica. As prescribed under O. Reg. 490/09, an employer shall take all reasonable precautions to prevent worker exposure to silica. Procedures for workers involved in construction/demolition activities occurring on a Site where silica is disturbed are outlined in the MOL Guideline - Silica on Construction Projects dated September 2004 (updated April 2011).

## **Polychlorinated Biphenyls**

PCBs were used as a dielectric fluid in electrical equipment such as transformers, light ballasts and capacitors. The use of PCBs in fluorescent lamp ballast capacitors was common up to 1980. The PCB Regulations (“SOR/2008-273”) prohibits and restricts the use of PCBs pertaining to the manufacture, export, import, sale and or processing of PCBs and PCB-containing products.

SOR/2008-273 prescribes requirements pertaining to the handling, storage and disposal of PCBs and PCB-containing equipment. Recent revisions to the federal regulation have provided end-of-use deadlines for liquids containing PCBs, as well as PCBs in specified equipment. The first such deadline was December 31, 2009, by which time all equipment containing PCBs at concentrations greater than 500 mg/kg, and equipment within 100 meters of specified sensitive locations and containing PCBs at concentrations greater than 50 mg/kg, must have been phased out of use. These deadlines exclude PCB-containing light ballasts, and pole-mounted transformers.



## Ozone-Depleting Substances

The Federal Halocarbon Regulations (“SOR/2003-289”), was enacted to ensure uniformity with respect to the release, recovery and recycling of ODS and their halocarbon alternatives in refrigeration and air conditioning. The regulation also requires that permits be obtained to import or export used, recovered, recycled and reclaimed ODS. Equipment containing ODS should be removed by a licensed contractor and handled in accordance with the *Code of Practice for the Reduction of CFC Emissions from Refrigeration and Air Conditioning Systems*, updated in 2008, and Ontario Regulation 463/10 - Ozone Depleting Substances and other Halocarbons (“O. Reg. 463/10”). ODS are often present in refrigerators and freezers, vending machines (refrigerated) and in water fountains/water coolers as well the air conditioning system.

## Controlled Products and Hazardous Chemicals

In the province of Ontario, controlled products and chemicals are regulated under the Workplace Hazardous Materials Information System Regulation (“O. Reg. 860/90”), made under the Act. This regulation sets out the prescriptive requirements surrounding: designation of a hazardous material/controlled product, assessment of biological or chemical agents, exemptions, worker education, label requirements, and Material Safety Data Sheets (“MSDS”).

## Identification and Transportation of Hazardous Waste

O. Reg. 347/90 prescribes waste characterization, handling and disposal requirements for generators of hazardous waste. The transportation of hazardous wastes is governed under the *Transportation of Dangerous Goods Act* (and Regulations) prescribe requirements for storage, handling, and transportation of such waste.



# **APPENDIX F**

## **Methodology**



## **METHODOLOGY**

The surveyor visually investigated the Site for suspected friable and non-friable ACM, lead-containing paint, mercury in thermostats and pressure sensing devices, PCBs in light ballasts, and ODS in refrigerants (i.e. air-conditioning units, water coolers, etc.). The remaining designated substances were not expected to be present at this Site due to the use of the building and were not noted as part of the survey.

### **Asbestos-Containing Materials**

Readily available information was gathered regarding the building including age, type of structure, historical documents including previous reports, presence of renovated areas or additions, and any details regarding the building mechanical systems.

Three bulk samples were collected of a material suspected of containing ACM, for confirmation purposes. Homogeneous material sampling was utilized during the course of the investigation. The representative samples were submitted to International Asbestos Testing Laboratories ("IATL"), for analysis to determine asbestos type and percentage content by polarized light microscopy, in accordance with the US Environmental Protection Agency (USEPA) Method EPA/600/R-93/116, as prescribed under O. Reg. 278/05. None of the samples contained a detectable presence of asbestos.

### **Lead**

Systematic sampling and visual identification of suspected lead-containing painted surfaces were completed as part of the survey. Samples of suspect lead-containing paints were collected and submitted to IATL. Testing for lead-containing paints was conducted following the American Society for Testing and Materials (ASTM) Method D3335-85A. This method is derived from the USEPA SW 846 Method 3050B where each sample is digested, diluted and analyzed by FAAS.

An inventory was made of the other known or suspected lead-containing materials (i.e. batteries for emergency lights, solder on pipes, lead pipes, etc.) based on visual observations.

### **Mercury**

A review of potential mercury-containing equipment installed at the Site was completed as part of the survey, such that any mercury-containing switches, thermostats (switch bulbs) and pressure-sensing devices were noted, if observed.

Elemental mercury may be present in thermostats and trace amounts of mercury vapour may be present in metal halide light bulbs and fluorescent light tubes. If elemental mercury from a thermostat is spilled, the beads and droplets can accumulate and emit colourless and odourless vapours. These vapours may present a health risk to building occupants. Light bulbs and tubes, if broken, may pose an occupational hazard to unprotected workers.

### **Silica**

Silica is presumed to be present in building materials constructed from raw aggregates such as concrete mortar, brick, plaster and ceiling tiles. Silica is likely present in the concrete and aggregate used to construct the Site. As such, no sampling was conducted to confirm the presence of silica in such building materials.



## **Polychlorinated Biphenyls**

The Site was visually assessed for the presence of PCBs in fluorescent light ballasts and transformers, if observed. No other equipment suspected of containing PCBs was observed during the investigation. The presence of PCBs in the ballasts was assessed based on the manufacturer's label located on the light ballast. Where necessary, label information from the ballasts such as the manufacturer, model numbers, serial numbers, and date codes was collected and compared to the criteria found in the Environment Canada Report EPS 2/CC/2 (revised) August 1991 - Identification of Lamp Ballasts Containing PCBs. No PCB sampling was conducted during the Site visit.

## **Ozone-depleting Substances**

A review of thermostats, refrigeration and air conditioning units was completed to verify the presence of ozone depleting substances such as refrigerants R-11, R-12 and R-22, where observed. The presence of CFCs is determined by gathering label information such as the manufacturer, model numbers, serial numbers and date codes.

## **Controlled Products and Chemical Inventory**

Through visual identification, on-Site records review (where provided to Golder during the investigation, i.e., WHMIS/MSDS information, etc.), and interviews with on-Site personnel, Golder noted the various chemicals stored and managed at the Site. Golder also noted the transport and waste routine and details for those chemicals, if that information was made available during the investigation.

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