

Health Canada
51 Chardon Driveway
Building #17, Tunney's Pasture
Ottawa ON K1A 0K9

January 15, 2019

Attention: Mark Strachan

Subject: Project-Specific Designated Substances Survey
Partial Roofing Systems Replacements

Radiation Protection Building, 775 Brookfield Road, Ottawa, Ontario

DST File No.: GV-OT-035393

1.0 INTRODUCTION

DST Consulting Engineers Inc. (DST) was retained by Health Canada to prepare a project-specific Designated Substance Report (DSR) for the Partial Roofing Systems Replacements project, scheduled to be completed at the Radiation Protection Building (RPB), 775 Brookfield Road, Ottawa, Ontario.

The Designated Substances Report is required under the *Ontario Occupational Health and Safety Act* in order to identify designated substances that may be present within the project areas. The *Canada Labour Code* also stipulates under *Part II, Section 124* that every employer shall ensure that the health and safety at work of every person employed by the employer is protected. By having a DSR conducted, the Project Manager will be able to inform his or her employees, contractors, and tenants of any designated substances that may be present and possibly disturbed throughout the duration of the project.

DST staff completed a visual inspection of building materials for the presence of suspected designated substances and hazardous materials in the work area on December 28, 2018.

2.0 SCOPE OF WORK

The survey implemented by DST included the 11 designated substances listed in Section 30 of the *Occupational Health and Safety Act, R.S.O. 1990, Chapter 0.1*. Designated Substances, as identified under the Ontario Occupational Health and Safety Act, are as follows:

- Acrylonitrile,
- Arsenic,
- Asbestos,
- Benzene,
- Coke Oven Emissions,
- Ethylene Oxide,
- Isocyanates,
- Lead,
- Mercury,
- Silica, and
- Vinyl Chloride.

Other Hazardous Materials that are not classified as Designated Substances, but were included as part of the survey and considered pertinent due to applicable regulations, best practice guidelines and/or potential risks to human health and/or the environment, are:

- Polychlorinated Biphenyls (PCBs),
- Halocarbons,
- Mould, and
- Other hazardous materials, as deemed pertinent.

3.0 METHODOLOGY

The purpose of the survey program was to identify designated substances and hazardous materials that may be disturbed during future work operations. The survey was limited to areas and materials that could potentially be disturbed or impacted by the renovation project, as per project drawings provided to DST and on-site discussions with the Health Canada site representative. The survey did not include a full building designated substances survey. The survey was limited to materials anticipated to be disturbed as part of the project. The survey was non-destructive in nature.

Materials suspected of containing designated substances were visually identified, based on the surveyor's knowledge of the historical composition of building products. Visual identification of materials suspected to contain asbestos was supported by the collection and analysis of a limited number of representative samples, where applicable. Materials suspected of containing designated substances other than asbestos were identified by appearance, age, and knowledge of historical applications.

In Ontario, a material is defined as an Asbestos-Containing Material (ACM) if the material has a minimum asbestos content of 0.5 per cent (%) by dry weight, as per *Ontario Regulation (O. Reg.) 278/05 Asbestos on Construction Projects and in Buildings and Repair Operations* enabled under the *Occupational Health and Safety Act (R.S.O. 1990, Chapter 0.1)*, as amended. ACMs can be divided into two categories: friable and non-friable material. A friable ACM is a material that can be crumbled, powdered, or pulverized by hand pressure and can readily release fibres when disturbed. Common applications of friable ACMs are sprayed or trowelled surfacing materials (e.g. sprayed fireproofing and textured coatings) as well as mechanical and thermal insulation. Non-friable materials are materials that will generally release fibres only when cut or shaped. Common non-friable ACMs include vinyl floor products, caulking applications, asbestos textile products and asbestos cement products (transite). Some of these products may become friable with time or when disturbed.

Bulk samples of suspected ACMs collected by DST were analyzed for their asbestos content at Paracel Laboratories. The bulk asbestos samples were analyzed using Polarised Light Microscopy (PLM). This analytical method complies with the United States Environmental Protection Agency (U.S. EPA) Method 600/R-93/116 dated July 1993, which is the regulatory approved protocol for bulk asbestos analysis in Ontario. The laboratories followed a "positive-stop" analysis methodology and stopped analyzing a sample set if any one of the series of samples proved to be positive for the presence of asbestos. Therefore, additional samples

collected by DST in order to satisfy the bulk sampling requirements of *O.Reg. 278/05, as amended*, were not analyzed if a sample layer in a sample layer series was identified as asbestos-containing.

Bulk asbestos analytical results are included in Appendix A.

4.0 FINDINGS

The following sections outline the complete findings of all accessible designated substances and hazardous building materials that were assessed within the project area.

4.1. Asbestos

This section presents the findings of bulk asbestos building material samples collected from and applicable to the project area, based on visual observations at the time of the site survey.

Bulk sampling and laboratory analysis has determined that the following materials do not contain regulated amounts of asbestos:

- Roofing material layers based upon samples 35393-RPB-01A-C, which were collected from collected from roofs 201, 302, and 101, respectively, and
- Grey caulking of roof edge flashing based upon samples 35393-RPB-02A-C, which were collected from roofs 302 and 201.

DST also visually confirmed that the roof drain insulation on the underside of the subject roofs were not included with asbestos.

4.2. Silica

Based on the historical composition of building materials, silica is assumed to be present in:

- Roofing materials layers;
- Brick and mortar; and
- Concrete and cement.

4.3. Other Designated Substances and Hazardous Materials

The following Designated Substances and Hazardous Materials were neither observed, nor suspected of being present, in forms or quantities expected to have an impact on future work operations associated with the project:

- Acrylonitrile,
- Arsenic,
- Benzene,
- Coke Oven Emissions,
- Ethylene Oxide,
- Isocyanates,
- Lead,

- Vinyl Chloride,
- Mercury,
- Halocarbons,
- PCBs,
- Mould, and
- Other Hazardous materials (as deemed pertinent).

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the site investigation, sampling and analysis, the following Designated Substances and Hazardous Materials are present in forms and quantities expected to have an impact on future work operations associated with the project:

- Silica.

DST's recommendations for each material, which are based upon both regulatory compliance and best practice guidelines, are included in the following sections below.

5.1. Silica

The Occupational Health and Safety Branch of the Ontario MoL has published *Guideline: Silica on Construction Projects*. This document classifies all silica disturbances as Type 1, Type 2 or Type 3 work, and assigns different levels of respiratory protection and work procedures for each classification. In the absence of specific legislation for silica on construction projects, this guideline would serve as a reasonable, peer reviewed standard for work procedures.

The TWael for airborne silica is prescribed by Ontario Regulation 490/09 *Designated Substances*, as amended. Work procedures and personal protective equipment must be used to ensure that workers are not exposed to airborne silica levels that exceed this TWael.

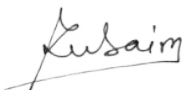
As a general rule, it is preferable to use more stringent dust suppression techniques and engineering controls as opposed to relying on respiratory protection to control worker exposure. Respiratory protection should only be relied on as a last resort when dust suppression techniques and engineering controls fail to control worker exposure to silica.

6.0 CLOSURE

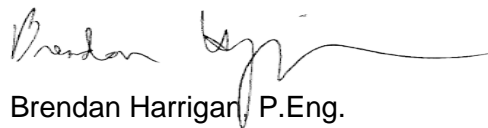
A Limitations of Report section, which forms an integral part of this report, is attached.

We trust that the information contained herein meets your needs. Should you have any questions or comments, please do not hesitate to contact us.

DST CONSULTING ENGINEERS INC.



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LIMITATIONS OF REPORT

This report is intended for client use only. Any use of this document by a third party, or any reliance on or decisions made based on the findings described in this report, are the sole responsibility of such third parties, and DST Consulting Engineers Inc. accepts no responsibility for damages, suffered by any third party as a result of decisions made or actions conducted based on this report. No other warranties are implied or expressed.

The data, conclusions and recommendations which are presented in this report, and the quality thereof, are based on a scope of work authorized by the client. The sampling program included asbestos bulk sampling in select representative areas for laboratory analysis. Note, however, that no scope of work, no matter how exhaustive, can guarantee to identify all contaminants. This report therefore cannot warranty that all building conditions are represented by those identified at specific locations.

Recommendations, when included, are made in good faith and are based on several successful experiences. If either the condition of the building or the health of the occupants changes in the future with respect to potential indoor air quality issues, the case should be reviewed and appropriate measures taken.

Mould growth may occur anywhere within a building at any time, should conditions be favorable. It is therefore essential to maintain buildings, surfaces, appliances and furnishings under conditions which are not favorable to mould incubation and growth (warm, dry, and clean).

Note also that standards, guidelines and practices related to environmental investigations may change with time. Those which were applied at the time of this investigation may be obsolete or unacceptable at a later date.

Any comments given in this report on potential remediation problems and possible methods are intended only for the guidance of the designer. The scope of work may not be sufficient to determine all of the factors that may affect construction, clean-up methods and/or costs. Contractors bidding on this project or undertaking clean-ups should, therefore, make their own interpretation of the factual information presented and draw their own conclusions as to how the conditions may affect their work.

Any results from an analytical laboratory or other consultant, sub-contractor reported herein have been carried out by others, and DST Consulting Engineers Inc. cannot warranty their accuracy. Similarly, DST cannot warranty the accuracy of information supplied by the client.

APPENDIX A

Laboratory Certificate of Analysis – Bulk Asbestos

Certificate of Analysis

DST Consulting Engineers Inc. (Ottawa)

203-2150 Thurston Dr.
Ottawa, ON K1G 5T9
Attn: Zubair Hossain

Client PO:

Project: GV OT 035393

Custody:

Report Date: 4-Jan-2019

Order Date: 28-Dec-2018

Order #: 1853012

This Certificate of Analysis contains analytical data applicable to the following samples as submitted :

| Parcel ID | Client ID |
|------------|-----------|
| 1853012-01 | 01A |
| 1853012-02 | 01B |
| 1853012-03 | 01C |
| 1853012-04 | 02A |
| 1853012-05 | 02B |
| 1853012-06 | 02C |

Approved By:



Heather S.H. McGregor, BSc

Laboratory Director - Microbiology

Certificate of Analysis
 Client: DST Consulting Engineers Inc. (Ottawa)
 Client PO:

Report Date: 04-Jan-2019
 Order Date: 28-Dec-2018
 Project Description: GV OT 035393

Asbestos, PLM Visual Estimation **MDL - 0.5%**

| Parcel ID | Sample Date | Colour | Description | Asbestos Detected | Material Identification | % Content |
|------------|-------------|--------|-------------|-------------------|-------------------------------------|-----------|
| 1853012-01 | 28-Dec-18 | Black | Membrane | No | Client ID: 01A Non-Fibers | 100 |
| 1853012-02 | 28-Dec-18 | Black | Membrane | No | Client ID: 01B Non-Fibers | 100 |
| 1853012-03 | 28-Dec-18 | Black | Membrane | No | Client ID: 01C Non-Fibers | 100 |
| 1853012-04 | 28-Dec-18 | Brown | Caulking | No | Client ID: 02A Non-Fibers | 100 |
| 1853012-05 | 28-Dec-18 | Brown | Caulking | No | Client ID: 02B Non-Fibers | 100 |
| 1853012-06 | 28-Dec-18 | Brown | Caulking | No | Client ID: 02C Non-Fibers | 100 |

Analysis Summary Table

| Analysis | Method Reference/Description | Lab Location | NVLAP Lab Code * | Analysis Date |
|---------------------------------|------------------------------|-----------------|------------------|---------------|
| Asbestos, PLM Visual Estimation | by EPA 600/R-93/116 | Ottawa West Lal | 200812-0 | 3-Jan-19 |

* Reference to the NVLAP term does not permit the user of this report to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Work Order Revisions | Comments

None



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Chain of Custody
(Lab Use Only)

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| | | |
|---|--------------------------------------|---|
| Client Name: DST Consulting Engineers Inc | Project Reference: GVOT 035393 | Turnaround Time: <input type="checkbox"/> Immediate <input type="checkbox"/> 1 Day <input type="checkbox"/> 4 Hour <input type="checkbox"/> 2 Day <input type="checkbox"/> 8 Hour <input type="checkbox"/> 3 Day <input checked="" type="checkbox"/> Regular |
| Contact Name: Zubair Hossain | Quote #: 16-117 | |
| Address: 2150 Thurston Drive Ottawa ON K1G 5T9 | PO #: | |
| Telephone: 1 877 300 4800 | Email Address: zhossain@dstgroup.com | |
| | | Date Required: |

ASBESTOS & MOLD ANALYSIS

Matrix: Air Bulk Tape Lift Swab Other Regulatory Guideline: ON QC AB SK Other:

Analysis: Microscopic Mold Culturable Mold Bacteria GRAM PCM Asbestos PLM Asbestos Chatfield Asbestos TEM Asbestos

| Paracel Order Number: 1853012 | | Asbestos - Bulk | | | | |
|-------------------------------|---------------|-----------------|-------------------|--|--|-------------------------------------|
| Sample ID | Sampling Date | Air Volume (L) | Analysis Required | Identify Distinct Building Materials to Be Analyzed * see below | Combine Identified Materials? **see below | Positive Stop? |
| 1 | 01 A-C | 2018-12-28 | NA | PLM | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | 02 A-C | ↓ | ↓ | ↓ | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3 | | | | | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 | | | | | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | | | | | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 | | | | | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | | | | | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 | | | | | <input type="checkbox"/> | <input type="checkbox"/> |
| 9 | | | | | <input type="checkbox"/> | <input type="checkbox"/> |
| 10 | | | | | <input type="checkbox"/> | <input type="checkbox"/> |
| 11 | | | | | <input type="checkbox"/> | <input type="checkbox"/> |
| 12 | | | | | <input type="checkbox"/> | <input type="checkbox"/> |

* If left blank, Paracel will analyze all materials identified during analysis ** If left blank, Paracel will analyze all materials as individual samples (at additional cost) per EPA 600/R-93/116

Comments: No positive stop for 01 A-C

Method of Delivery:

| | | | |
|---|---|-------------------------------------|---------------------------------|
| Relinquished By (Sign): <i>Zubair Hossain</i> | Received at Depot: <i>[Signature]</i> | Received at Lab: <i>[Signature]</i> | Verified By: <i>[Signature]</i> |
| Relinquished By (Print): Zubair Hossain | Date/Time: Dec 28/18 5:40 PM (After-Hours) | Date/Time: 12/31/18 9:30 am | Date/Time: 12/31/18 9:36 am |