INDOOR ENVIRONMENTAL
SPECIALISTS

Designated Substance Survey

Maintenance Compound

100 Laird Avenue

Amherstburg, Ontario

Parks Canada
Attention: Salvatore Abbruscato
26 Queen Street
Niagara on The Lake, ON
L0S 1J0

November 23, 2016

1.0 EXECUTIVE SUMMARY

Indoor Environmental Specialists Inc. (IES) was retained by Mr. Salvatore Abbruscato of Parks Canada to perform a Designated Substance Survey of the North wall of the Maintenance Compound located at 100 Laird Avenue in Amherstburg, Ontario. The assessment was conducted on November 15, 2016.

The assessment consisted of bulk sampling of suspect asbestos and lead-containing materials present that will be disturbed by the renovation scope of work. The property was occupied at the time of the assessment. It is noted that the assessment was limited to the North wall of the Maintenance Compound

This document provides an executive summary, summary of findings, sampling methodology, findings, legislation, drawings, recommendations and limitations.

2.0 SUMMARY OF FINDINGS

Asbestos-containing materials (ACM) were present as follows:

- No asbestos-containing materials were identified in the assessed areas.

The laboratory analytical findings for asbestos are attached to this report and found under Attachment 1. Findings are also discussed in Section 4.0 of this report.

Lead-containing materials were present as follows:

- Lead was confirmed present in select paints/surface coatings in the assessed areas;
- Lead is likely present in emergency light batteries in the assessed areas; and
- Lead may be present in plumbing materials such as solder and in other metals in the assessed areas.

The laboratory analytical findings for lead are attached to this report and found under Attachment 2. Findings are also discussed in Section 4.0 of this report.

Mercury-containing materials were present as follows:

- Mercury vapour is likely present in fluorescent type lamps throughout the building. Mercury may also be present as a preservative in interior paints; and
- Mercury is present thermostat ampules in various locations throughout the building.

Silica: Crystalline silica is present in concrete, mortar, brick, masonry, ceramics, granite, slate, stone, asphalt, etc., where present in the assessed areas.

3.0 SAMPLING METHODOLOGY

3.1 Asbestos

Asbestos samples were collected in accordance with Table 1 of Ontario Regulation 278/05.

Each bulk sample was placed in its own uniquely identified plastic bag and immediately sealed. The sample was immediately recorded on a chain of custody sheet. Samples collected were couriered to Paracel Laboratories Ltd. for the analysis of asbestos. A copy of the laboratory reports can be found under Attachment 1.

Samples collected were sent to the laboratory and analyzed as per method EPA/600/R-93/116 – PLM. A minimum of three (3) homogeneous samples were collected of the same materials and uniquely identified with an identifying mark ending in "A", "B", or "C", etc. The laboratory was instructed to analyze the sample marked "A" first. Where the sample tested positive for asbestos, the laboratory was instructed not to analyze the balance of the three (or more) samples as the material sampled would be considered positive for the presence of asbestos.

The table found below lists the number of samples to be collected in accordance with Ontario Regulation 278/05.

Item	Type of material	Size of area of homogeneous material	Minimum number of bulk material samples to be collected
1.	Surfacing material, including without limitation material that is applied to surfaces by spraying, by troweling or otherwise, such as acoustical plaster on ceilings and fireproofing materials on structural members	Less than 90 square metres	3
		90 or more square metres, but less than 450 square metres	5
		450 or more square metres	7
2.	Thermal insulation, except as described in item 3	Any size	3
3.	Thermal insulation patch	Less than 2 linear metres or 0.5 square metres	1
4.	Other material	Any size	3

O. Reg. 278/05, Table 1.

The following items were not included in the survey:

Materials	Reason for exclusion from survey
Components or wiring within motors, HVAC equipment or lights Electrical wiring and switches Mechanical packing and gaskets Underground services or piping Process pipe gaskets Electrical fixtures	These materials are not typically accessible without demolition and therefore cannot be quantified or sampled.

3.2 Lead

Lead samples were collected of paint colours identified in the assessed areas.

Lead samples were immediately recorded on a chain of custody sheet and subsequently submitted to Paracel Laboratories, an NVLAP accredited laboratory, for analysis. The analysis was performed in accordance with Test Method MOE E3470, ICP-OES.

4.0 FINDINGS

4.1 Asbestos

4.1.1 Mechanical Insulations

All accessible mechanical insulations observed were comprised of fiberglass or uninsulated in the assessed areas of the facility.

4.1.2 Plaster

Plaster finishes were not observed in the assessed areas of the facility.

4.1.3 Texture Coating

Texture coat materials were not observed in the assessed areas of the facility.

4.1.4 Drywall Joint Compound

Three (3) samples of drywall joint compound present on drywall finishes throughout the assessed areas of the facility were collected and analyzed for asbestos content (samples 0001 A-C). The drywall joint compound has been analytically determined to be non-asbestos.

4.1.5 Acoustic Ceiling Tile

Acoustical ceiling tiles were not observed in the assessed areas of the facility.

4.1.6 Vinyl Floor Tile

Vinyl floor tiles were not observed in the assessed areas of the facility.

4.1.7 Vinyl Sheet Flooring

Vinyl sheet flooring materials were not observed in the assessed areas of the facility.

4.1.8 Transite Cement

Transite materials were not observed in the assessed areas of the facility.

4.1.9 Other

No other materials suspected of containing asbestos were observed in the assessed areas of the facility.

Roofing materials were not sampled as IES was advised the roofing materials were installed within the last decade.

No vermiculite was observed in the locations inspected.

Photographs referencing sampled materials are presented in Attachment 4.

Asbestos sample results can be referenced under Attachment 1. The Certificate of Analysis prepared by Paracel Laboratories is attached to this report

4.2 Lead

A total of one (1) paint sample was collected from the assessed areas and sent to Paracel Laboratories for analysis. The following table summarizes the analytical results for paints sampled and their locations:

Sample Number	Colour and Substrate	Sample Location	Lead (%)
PL-01	White Paint on Drywall	Garage Bay - Location 3	0.0025

All paints in the assessed areas were found to be in reasonable condition and not peeling, flaking or delaminating.

All paints of the same colour in the assessed areas must be considered to have the same lead content as the paints analyzed.

Although not tested it is assumed that plumbing solder, emergency batteries, and some metal materials also contain lead.

Lead sample results can be referenced under Attachment 2. The Certificate of Analysis prepared by Paracel Laboratories is attached to this report.

4.3 Mercury

Fluorescent lamp tubes, and rechargeable batteries (used in emergency lighting) will often contain mercury. Mercury may also be present as a preservative in interior paints. Unless sampled these items should be assumed to contain mercury.

4.4 Silica

Silica is commonly found in concrete, mortar, brick, masonry, ceramics, granite, slate, stone, asphalt, etc., where present in the assessed areas. It is assumed that concrete block walls and foundation, mortar, and like materials will contain crystalline silica.

4.5 Acrylonitrile

No locations were observed that use a product likely to contain acrylonitrile compounds in a regulated form.

4.6 Arsenic

No locations were observed where arsenic in regulated form was confirmed to be present, produced, processed, used, handled or stored.

4.7 Benzene

No locations were observed where benzene was confirmed to be present.

4.8 Coke Oven Emissions

No locations were observed where metallurgical coke ovens were present.

4.9 Ethylene Oxide

No locations were observed where ethylene oxide was confirmed to be present.

4.10 Isocyanates

No locations were observed where activities using or generating isocyanates in a regulated form were confirmed to be present.

4.11 Vinyl Chloride

No locations were observed where vinyl chloride was confirmed to be present, produced, processed, used, handled or stored.

5.0 LEGISLATION

The most common designated substances encountered in a building are asbestos, lead, mercury and silica.

Under Ontario Regulation 278/05, asbestos containing material (ACMs) is defined as material that contains 0.5% or more asbestos content by dry weight. An exposure value for asbestos in air can be referenced under Ontario Regulation 490/09. An employer / contractor working with asbestos-containing materials has the responsibility to take all necessary measures and procedures by means of engineering controls, work practices and hygiene facilities and practices to ensure that a worker's airborne exposure to asbestos is reduced to the lowest practical level and, in any event, does not exceed the legislative time weighted average. Ontario Regulation 278/05 also states an exposure value for asbestos in air upon completion of a Type 3 asbestos abatement.

The definition of lead based paint by weight is not defined under Ontario Regulation 490/09. It must be noted that there are legislative exposure values for lead in air which are found under Ontario Regulation 490/09. An employer / contractor working with paint containing lead has the responsibility to take all necessary measures and procedures by means of engineering controls, work practices and hygiene facilities and practices to ensure that a worker's airborne exposure to lead is reduced to the lowest practical level and, in any event, does not exceed the legislative time weighted average. The Ontario Ministry of Labour has published a guideline titled Lead on Construction Projects. The publication contains guidance on how to perform work where materials are present that contain lead. IES recommends that this document be referenced prior to performing work where material may be worked on or disturbed that contains lead of any concentration.

The definition of mercury and silica-containing materials by weight is not provided in Regulation 490/09. Like lead, there are legislative exposure values for silica and mercury in air which are found under Ontario Regulation 490/09. An employer / contractor working with mercury and silica have the responsibility to take all necessary measures and procedures by means of engineering controls, work practices and hygiene facilities and practices to ensure that a worker's airborne

exposure to mercury and silica is reduced to the lowest practical level and, in any event, does not exceed the legislative time weighted average.

6.0 DRAWINGS

Drawings referencing survey and sample locations are presented in Attachment 3.

7.0 RECOMMENDATIONS

The following is a summary of our recommendations:

1. Provide a copy of this report to contractors bidding on, or performing work on, this facility.

2. Where asbestos-containing materials are identified during construction activities and are not completely abated from the facility, prepare an Asbestos Management Program (AMP).

3. Designated Substances shall be transported and disposed of following all applicable Regulations and Guidelines.

4. Follow all appropriate safe work practices when handling, disposing of or disturbing any designated substances.

7.1 Asbestos

Remove any asbestos-containing materials identified during the course of construction, utilizing the appropriate asbestos abatement precautions, prior to continuing construction activities.

For further details on the requirements and procedures regarding asbestos abatement, please refer to Ontario Regulation 278/05.

7.2 Lead

For further details on the requirements and procedures regarding lead removal, please refer to Ontario Regulation 490/09, Ontario Regulation 213/91 and the Ministry of Labour prepared – Lead on Construction Projects Guideline.

7.3 Mercury

For further details on the requirements and procedures regarding removal of mercury-containing equipment or components, please refer to Ontario Regulation 490/09 and Ontario Regulation 213/91.

7.4 Silica

For further details on the requirements and procedures regarding the disturbance of silica-containing dust, please refer to Ontario Regulation 490/09, Ontario Regulation 213/91 and the Ministry of Labour prepared – Silica on Construction Projects Guideline.

8.0 LIMITATIONS

The field observations and analysis are considered sufficient in detail and scope to form a reasonable basis for the findings presented in this report. IES warrants that the findings and conclusions contained herein have been made in accordance with generally accepted evaluation methods at the time of the performance of the survey. It is possible that conditions may exist which could not be reasonably identified within the scope of the investigation or which were not apparent during the site investigation. IES believes the that the information collected during the survey is reliable. No other warranties or expressed or implied.

This survey did not include occupant articles within the facility and did not include assessment of possible contaminants in the soil, groundwater or any underground drums, vessel, storage tanks, etc. There may be tunnels, chases or other areas present that were not made known to IES.

8.1 Asbestos

Due to the nature of building construction, some inherent limitations exist as to the possible thoroughness of the assessment. For example, it was not possible to test all materials on a foot-by-foot basis. Visually similar materials were referenced to specific sample locations.

The assessment was limited to the materials sampled and did not include demolition of cement floors or other demolition to examine concealed or non-accessible conditions.

There is a possibility that asbestos-containing materials (as well as other designated substances or hazardous materials) may exist which could not be reasonably identified within the scope of the assessment or which were not apparent during the site visit.

8.2 Lead

Due to the nature of building construction, some inherent limitations exist as to the possible thoroughness of the assessment. For example, it was not possible to test all materials on a foot-by-foot basis. Solder containing lead that may be present in plumbing or other metals was not tested. Batteries, such as those used for emergency lighting were not tested and are assumed to contain lead. Visually

similar materials were referenced to specific sample locations. There is a possibility that dried paint film and other materials containing lead (as well as other designated or other hazardous substances) may exist which could not be reasonably identified within the scope of the assessment or which were not apparent during the site visit.

8.3 Mercury

The survey did not include sample collection of suspect mercury-containing materials, as it was not part of the scope of work to disassemble devices that may contain mercury.

8.4 Silica

The survey did not include sample collection of suspect silica-containing materials as this was not part of the scope of work.

9.0 CLOSING

Should there be any questions regarding the contents of this report, please contact us at your convenience.

Sincerely,

Indoor Environmental Specialists Inc.

Chris Croft, CAPM, MCPM
Operations Manager
O: (519) 256-8388 C: (519) 365-1291
ccroft@indoorenvironmental.ca

ATTACHMENTS

Attachment 1: Asbestos Results - Certificate of Analysis
Attachment 2: Lead Results - Certificate of Analysis
Attachment 3: Drawings
Attachment 4: Photo Appendix

Attachment 1
Certificate of Analysis – Asbestos Laboratory Analysis

PARACEL LABORATORIES LTD.

TRUSTED.
RESPONSIVE.
RELIABLE.

15 - 6800 Kitimat Rd
Mississauga, ON, L5N 5M1
1-800-749-1947
www.paracellabs.com

Certificate of Analysis

Indoor Environmental Specialists Inc.

PO BOX 23004
Chatham, ON N7L 0B1
Attn: Chris Croft

Client PO: C2666
Project: C2666
Custody:

Report Date: 18-Nov-2016
Order Date: 16-Nov-2016

Order #: 1647232

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

Paracel ID	Client ID
1647232-01	0001A DJC
1647232-02	0001B DJC
1647232-03	0001C DJC

Approved By:

Emma Diaz

Senior Analyst

PARACEL LABORATORIES LTD.

Order #: 1647232

Certificate of Analysis

Client: Indoor Environmental Specialists Inc.

Client PO: C2666

Report Date: 18-Nov-2016

Order Date: 16-Nov-2016

Project Description: C2666

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

Paracel I.D.	*Sample Date*	*Layers Analyzed*	*Colour*	*Description*	*Asbestos Detected:*	*Material Identification*	*% Content*
1647232-01	15-Nov-16	sample homogenized	White	Drywall Joint Compound	No	Client ID: 0001A DJC	
						Non-Fibers	100
1647232-02	15-Nov-16	sample homogenized	White	Drywall Joint Compound	No	Client ID: 0001B DJC	
						Non-Fibers	100
1647232-03	15-Nov-16	sample homogenized	White	Drywall Joint Compound	No	Client ID: 0001C DJC	
						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	1 - Mississauga	200863-0	17-Nov-16

** 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

Attachment 2
Certificate of Analysis – Lead Laboratory Analysis

PARACEL LABORATORIES LTD.
TRUSTED. RESPONSIVE. RELIABLE.

300 - 2319 St. Laurent Blvd
Ottawa, ON, K1G 4J8
1-800-749-1947
www.paracellabs.com

Certificate of Analysis

Indoor Environmental Specialists Inc.

PO BOX 23004
Chatham, ON N7L 0B1
Attn: Chris Croft

Client PO: C2666
Project: C2666
Custody:

Report Date: 18-Nov-2016
Order Date: 16-Nov-2016

Order #: 1647229

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

Paracel ID	Client ID
1647229-01	PL-01 White Paint

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis
Client: Indoor Environmental Specialists Inc.
Client PO: C2666

Report Date: 18-Nov-2016
Order Date: 16-Nov-2016
Project Description: C2666

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Metals, ICP-OES	based on MOE E3470, ICP-OES	17-Nov-16	17-Nov-16

Sample Data Revisions

None

Work Order Revisions/Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

PARACEL LABORATORIES LTD.

Order #: 1647229

Certificate of Analysis
Client: Indoor Environmental Specialists Inc.
Client PO: C2666

Report Date: 18-Nov-2016
Order Date: 16-Nov-2016
Project Description: C2666

Sample Results

Lead

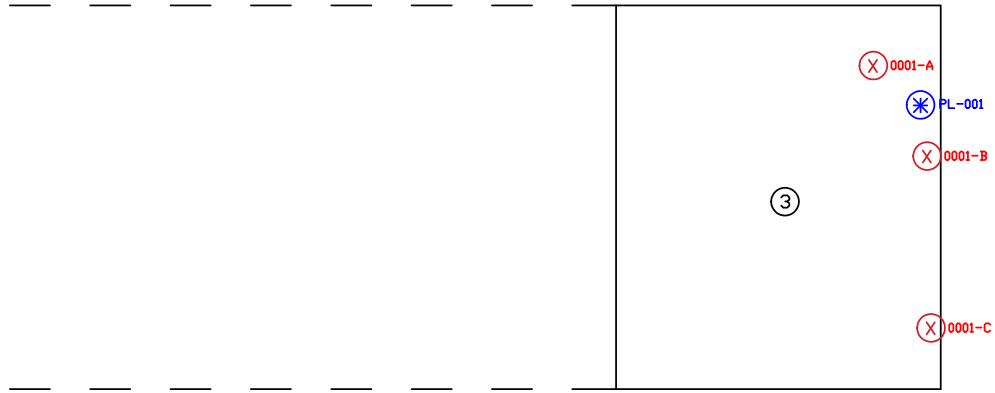
Matrix: Paint
Sample Date: 15-Nov-16

Paracel ID	Client ID	Units	MDL	Result
1647229-01	PL-01 White Paint	% by Wt.	0.0020	0.0025

Laboratory Internal QA/QC

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Matrix Blank									
Lead	**ND**	**0.0020**	**% by Wt.**						
Matrix Duplicate									
Lead	**0.00992**	**0.0020**	**% by Wt.**	**0.00946**			**4.8**	**30**	
Matrix Spike									
Lead	253		ug/L	47.3	82.4	70-130			

Attachment 3
Drawings



W

INDOOR ENVIRONMENTAL SPECIALISTS

LEGEND

- # Location Number
- X Asbestos Bulk Sample
- Lead Bulk Sample

No.	Revision/Issue	Date

Project Name and Address
Designated Substance Survey

Parks Canada
100 Laird Ave.
Amherstburg, ON

Project	Drawing
C2666	1 of 1
Date: 11/23/2016	
Scale: NTS	

1. Exterior
2. Roof

Attachment 4
Photo Appendix

Photo 1 – Non-asbestos roofing materials.

Photo 2 – Non-asbestos drywall joint compound.