

Industrial Hygiene and Environmental Consulting

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DESIGNATED SUBSTANCES & HAZARDOUS MATERIALS SURVEY

Butler's Barracks - Museum

SUBMITTED TO: Parks Canada

ISSUED: October 12, 2016

OESN PROJECT #: 00090.004

PROJECT SUMMARY SHEET

Report Title: Designated Substances and Hazardous Materials Survey

Project Location: Butler's Barracks - Museum
440 King Street
Niagara-on-the-Lake, Ontario

Report Submission Date: October 12 2016

Submitted to: Parks Canada
26 Queen Street
Niagara-on-the-Lake, Ontario
LOS 1J0

Authored by: Ontario Environmental & Safety Network Ltd.
(OESN)

OESN Field Consultants: T. McPherson
S. Husband

OESN Project Manager: Jeff Drummond

Laboratories: Paracel Laboratories Ltd.
Niagara-on-the-Lake, Ontario, Canada
Canadian Association for Laboratory Accreditation Inc.
(CALA) – Membership number 1262

CEI Labs
Cary, North Carolina, USA
National Voluntary Laboratory Accreditation Program
(NVLAP) – Membership number 101768-0

Analysis Methods: EPA 600 / R93 / 116 (asbestos)
EPA 600 / M4-82 / 020 (asbestos)
EPA 620 Digestion-ICP-MS (metals & TCLP)
EPA 7471A - CVAA, digestion (mercury)

Chemical Agent(s) Considered: Asbestos, Arsenic, Lead, Mercury, Silica

Other Hazardous Agents Considered: Biological Contaminants

Executive Summary

On Tuesday October 4, 2016 a survey of the museum at Butler's Barracks located in Niagara-on-the-Lake was conducted to identify select designated substances and hazards in building materials.

Survey included inspection, collection and testing of materials suspected of containing designated substances.

The assessment determined lead, mercury and mould growth are present.

Recommendations provided are in accordance with legislative requirements.

About the author

This assessment was prepared by Ontario Environmental & Safety Network Ltd. (OESN).

OESN has been in business providing industrial hygiene, hazardous material assessment and occupational health and safety services since 1996.

Site work was conducted by Trish McPherson and Shaun Husband who both have over nine years of experience assessing buildings for designated substances and hazardous materials.

The project was managed by Jeff Drummond who has 20 years of conducting designated substances assessments and consulting experience.

The technical content of the report was reviewed by Kristi Beck, a Certified Industrial Hygienist.

All work conducted was done to the best of our abilities and based on our knowledge, experience and the requirements of international and local legislation and industry best practice.

Please contact our office at 1-888-271-2111 with respect to questions or discussion regarding the content of this report.

Regards,




Trish McPherson
Field Consultant



Shaun Husband
Field Consultant



Jeff Drummond, B.A.
Project Manager



Kristi Beck MHSc., CIH
Quality Assurance

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1.0 INTRODUCTION

1.1 OVERVIEW

On Tuesday October 4, 2016, an assessment of the interior and exterior of the Butler’s Barracks Museum was conducted. The purpose of the assessment was to identify select designated substances and hazardous materials through visual observation, bulk sampling and testing. The assessment was conducted in advance of plans to renovate the building.

1.2 BACKGROUND

Plans are to renovate the Butler’s Barracks Museum. Renovation may lead to disturbance of building materials made with hazardous chemicals such as asbestos, lead, mercury and silica. The Canada Labour Code requires that employees are to be kept free from exposure to chemical agents. If there is a likelihood that the health or safety of an employee in a work place is or may be endangered by exposure to a hazardous substance, the employer shall appoint a qualified person to carry out an investigation. This report complies with the requirements to conduct a hazard investigation for the purposes of construction.

The report also complies with provincial legislation for a list of chemical agent information to be provided by owner to bidders of construction. The Occupational Health and Safety Act (The Act) for the Province of Ontario defines designated substances as biological, chemical or physical agents or combination thereof to which the exposure of a worker is prohibited, regulated, restricted, limited or controlled.

Section 30(1) of The Act prescribes duties for owners to determine if these designated substances are present at a site prior to commencement of a construction project where disturbance is likely.

Industry interprets this requirement to include for the provision of a scope of work that assesses all structural and finishing materials (including equipment) that was used in the construction of a building.

1.3 SCOPE OF WORK

Based on client plans to renovate the building, the following scope of work was developed and carried out to produce a comprehensive designated substance report.

1. A survey inspection of all interior and exterior structural and finishing materials of the building.
2. Collect bulk samples of materials suspected to contain designated substances.
3. Quantification and condition assessment of building materials suspected to contain asbestos minerals.
4. Chain of custody control for all samples submitted.
5. Materials with known hazardous content such as silica-containing concrete, mercury-containing thermostats and fluorescent tubes and PCB ballasts were documented.

6. Reporting methods included recording assessment observations on forms, collecting photographs of materials sampled and plotting sample locations on building plan drawings.

Excluded from the scope of work was inspection and testing for acrylonitrile, benzene, coke oven emissions, ethylene oxide, isocyanates and vinyl chloride because these substances are generally associated with industrial sites and processes.

1.4 ASSESSMENT METHODOLOGY

The assessment is carried out systematically to include all accessible areas. Inspection begins with the lowest level and works towards the top level. Observations for suspect materials are recorded on a form designed specifically to meet the project requirements and obligations.

2.0 SURVEY FINDINGS

2.1 BUILDING DESCRIPTION

The Butler’s Barracks Museum is a two-storey building, with an attic space built in 1817. Historically the building was used as soldier barracks but currently is used as a museum and storage for museum artifacts. The building is constructed from log and brick.

Types of building finishes observed at the time of inspection and considered for the report include:

Floor: Hardwood flooring.

Walls: Walls consist of log with compound material between the logs. Plaster walls divide one end of the large room from the other and is present on both floors.

Ceilings: Base and skim coat plaster is present on wood lathe and exists in a small portion on the main floor and is located throughout the second floor.

Thermal: The exposed sprinkler piping throughout the building is not insulated.

Exterior: Window glazing was identified along the glass panes of the exterior windows. Interior window glazing and caulking were not observed. Black tar paper was observed underneath the cedar shake roof.

Bulk samples collected for asbestos testing include compound on interior log walls, plaster wall and ceiling, exterior window glazing and black tar paper under cedar shake roofing. Three different coloured paint finishes were collected and tested for arsenic, lead and mercury content.

2.2 OBSERVATION FINDINGS

Designated Substances and Hazardous materials are assumed to be present in the following building items.

2.2.1 MERCURY

Eighteen (18) fluorescent light tubes, containing mercury are located in the first floor.

2.2.2 POLYCHLORINATED BIPHENYL (PCBs)

Ballasts found within fluorescent light fixture was identified during the assessment. Lighting ballasts have the potential for containing polychlorinated Biphenyls (PCBs).

2.2.3 CRYSTALLINE SILICA

Brick building materials were not sampled for the presence of crystalline silica. It is assumed that original brick materials are silica-containing.

2.2.4 BIOLOGICAL CONTAMINANTS

Biological contaminants such as fungal staining (i.e. mould) were observed on the wood throughout the exterior of the building.

3.0 TEST RESULTS

3.1 ASBESTOS

The regulated limit for establishing asbestos content in materials in the Province of Ontario is 0.5% asbestos by dry weight¹. Test results for materials suspected of containing asbestos minerals are listed in Table 1.

Table 1: Asbestos Test Results

Sample Number	Material Number	Material Description	Regulated Limit	Result % by dry weight
Flooring Materials				
-	-	-	-	-
Wall Materials				
00090.004-W01-W03	HW-01	Compound on wall	0.5%	None Detected

¹ Ontario Regulation 278/05 Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations

Sample Number	Material Number	Material Description	Regulated Limit	Result % by dry weight
00090.004-W04-W06	HW-02	Plaster wall	0.5%	None Detected
Ceiling Materials				
00090.004-C01-C03	HC-01	Plaster Ceiling	0.5%	None Detected
Manufactured Materials				
00090.004-M01-M03	HM-01	Exterior window glazing	0.5%	None Detected
Roofing Materials				
00090.004-M04-M06	HR-01	Roofing paper (under cedar shake roof)	0.5%	None Detected

Refer to appendices for photos, laboratory analytical results and drawings outlining asbestos-containing material sample locations.

3.2 ARSENIC, LEAD AND MERCURY IN PAINT FINISHES

Surface coatings with results **above analytical detection limits** identified during this assessment are reported as “positive” for the designated substance. Test results for paints suspected of containing arsenic, lead and mercury are listed in Table 2.

Table 2: Test Results for Arsenic, Lead or Mercury.

Sample Number	Paint Finish Description	Interpretation of Analytical Result		
		Arsenic	Lead	Mercury
00090.004-P01	Light Grey Paint	<MDL	POSITIVE	POSITIVE
00090.004-P02	Medium Grey Paint	<MDL	POSITIVE	POSITIVE
00090.004-P03	White Paint	<MDL	POSITIVE	<MDL

Note: MDL = Method Detection Limit

Refer to appendices for photos, laboratory analytical results and drawings outlining arsenic, lead and mercury-containing paint finish sample locations.

4.0 CONCLUSIONS

In preparation for renovation activities, designated substances and hazardous substances were identified within Butler’s Barracks Museum. They include:

- Lead
- Mercury

- Silica (assumed)
- Poly Chlorinated Biphenyls (suspect)

The information presented in this designated substance and hazardous materials survey is based on observations and analytical testing of bulk samples collected. It is possible that building materials not originally observed and subsequently not identified in this report may become exposed during renovation. Any materials not listed in this report and suspect to contain designated substances should be assumed until sampling and analysis is conducted.

5.0 RECOMMENDATIONS

Based on assessment findings, OESN provides the following recommendations:

1. Provide this report to all staff and vendors (contractors) prior to any building maintenance or alteration activities.
2. If planned renovations include the disturbance of any designated substances and or hazardous materials identified, the contractor is required to follow procedures prescribed in applicable legislation.
3. Any materials not listed in this report and suspected to contain designated substances should be assumed positive until testing is conducted.
4. A written scope of work for the safe handling and disposal of designated substances and hazardous materials should be developed prior to project commencement.


Appendix A: Photo Log: Materials Tested for Asbestos

Wall Materials

	<p>Sample Identification 00090.004-W01 00090.004-W02 00090.004-W03</p> <p>Sample Code HW-01</p>
	<p>Sample Location of Material First Floor</p>
	<p>Sample Description Compound on Wall</p>
	<p>Quantity of Material -</p>
	<p>Condition of Material -</p>
<p>Analytical Result: None Detected</p>	

	<p>Sample Identification 00090.004-W04 00090.004-W05 00090.004-W06</p> <p>Sample Code HW-02</p>
	<p>Sample Location of Material Second Floor</p>
	<p>Sample Description Plaster Wall</p>
	<p>Quantity of Material -</p>
	<p>Condition of Material -</p>
<p>Analytical Result: None Detected</p>	


Ceiling Materials

	Sample Identification 00090.004-C01 00090.004-C02 00090.004-C03 Sample Code HC-01
	Sample Location of Material Second Floor
	Sample Description Plaster Ceiling
	Quantity of Material -
	Condition of Material -
Analytical Result: None Detected	

Manufactured Materials


	Sample Identification 00090.004-M01 00090.004-M02 00090.004-M03
	Sample Code HM-01
	Sample Location of Material Exterior
	Sample Description Exterior Window Glazing
	Quantity of Material -
Analytical Result: None Detected	Condition of Material -

Roofing Materials

	Sample Identification 00090.004-R01 00090.004-R02 00090.004-R03 Sample Code HR-01
	Sample Location of Material Exterior
	Sample Description Roofing paper under cedar shake roof
	Quantity of Material -
	Condition of Material -
Analytical Result: None Detected	

Appendix B: Photo Log: Paint Finishes

PAINT FINISHES (LEAD, MERCURY, ARSENIC)

	Sample Identification Light Grey Paint 00090.004-P01
	Arsenic Content <50 µg/g
	Mercury Content 4 µg/g
	Lead Content 397 µg/g

	Sample Identification Medium Grey Paint 00090.004-P02
	Arsenic Content <50 µg/g
	Mercury Content 3 µg/g
	Lead Content 442 µg/g

SURFACE COATINGS (LEAD, MERCURY, ARSENIC) - Continued

	Sample Identification White Paint 00090.004-P03
	Arsenic Content <50 µg/g
	Mercury Content <2 µg/g
	Lead Content 5 µg/g

Appendix C: Asbestos Analytical Results

BULK SAMPLING METHODOLOGY

Bulk material samples are randomly collected during the assessment in strategic locations. Samples of materials suspected for containing asbestos minerals are collected by a knowledgeable, competent worker who is trained and experienced in asbestos bulk sampling. Safety measures are applied in accordance with OESN's Standard Operating Procedure (SOP).

Samples are representative of each homogeneous material (uniform in colour and texture) and the quantity of samples are collected in accordance with provincial regulation.

Table 1: Bulk Material Samples of O. Reg. 278/05 (as amended to 479/10).

Item	Type of Material	Size of homogeneous area	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 any size	1
4.	Other material	Any size	3

Samples are tested using test method EPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials. June 1993. O. Reg. 278/05.

Sample locations are plotted on drawings designed to match the Chain of Custody produced on site.

The report of "suspect" materials is based on the field consultant's experience and knowledge regarding the historical use and applications of these chemicals in products. If observations do not confirm the presence of designated substances or hazardous materials, bulk samples of the material are collected and analyzed for the appropriate chemical or biological substance.

INTERPRETATION OF RESULTS

All bulk samples were analyzed using Polarized Light Microscopy (PLM) Method EPA 600/R93/116 and EPA 600/M4-82/020. The limit of quantitation for the test method is <1% asbestos by weight as determined by visual estimation. Where low asbestos concentrations are reported, a second type of quantification technique, a point count, can be conducted. A 1,000 point count has a reporting limit of <0.1% asbestos.

Asbestos is present within the sample when the test result indicates a percentage of <1 to 100. A result reported as “<1% asbestos” indicates that trace amounts of asbestos were observed but could not be quantified by the test method. When this occurs, additional analysis can be requested to achieve a lower limit of quantitation.

A result reported as “None Detected” indicates that no traces of asbestos were observed in the sample. For most materials, a “None Detected” result can be interpreted as 0% asbestos. Due to the limitations of EPA 600 test method, non friable organically bound materials such as vinyl floor tiles can be difficult to analyze using PLM. For these materials, EPA recommends that a “None Detected” result be followed with analysis by Transmission Electron Microscopy (TEM) to confirm that asbestos is not present within the material.

The province of Ontario considers any material testing equal or greater than 0.5% by dry weight as asbestos.



October 6, 2016

Ontario Environmental & Safety Network, LTD.
RR #2 1783 Highway 20C
Allanburg, ON L0S 1A0

CLIENT PROJECT: 00090.004
CEI LAB CODE: B16-8330

Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on October 5, 2016. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600 Method.

Sample results containing >1% asbestos are considered asbestos-containing materials (ACMs) per EPA regulatory requirements. The detection limit for the EPA 600 Method is <1% asbestos by weight as determined by visual estimation.

Thank you for your business and we look forward to continuing good relations. If you have any questions, please feel free to call our office at 919-481-1413.

Kind Regards,

A handwritten signature in black ink, appearing to read "Tianbao Bai".

Tianbao Bai, Ph.D., CIH
Laboratory Director





ASBESTOS ANALYTICAL REPORT
By: Polarized Light Microscopy

Prepared for

Ontario Environmental & Safety Network, LTD.

CLIENT PROJECT: 00090.004

CEI LAB CODE: B16-8330

TEST METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORT DATE: 10/06/16

TOTAL SAMPLES ANALYZED: 6

SAMPLES >1% ASBESTOS:

TEL: 866-481-1412

www.ceilabs.com



Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: 00090.004

CEI LAB CODE: B16-8330

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
00090.004-W01		B211695	Gray	Compound On Wood Wall	None Detected
00090.004-W02		B211696	Gray	Compound On Wood Wall	None Detected
00090.004-W03		B211697	Gray	Compound On Wood Wall	None Detected
00090.004-W04		B211698	Gray,White	Plaster Wall	None Detected
00090.004-W05		B211699	Gray,White	Plaster Wall	None Detected
00090.004-W06		B211700	Gray,White	Plaster Wall	None Detected



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Ontario Environmental & Safety Network, LTD.
 RR #2 1783 Highway 20C
 Allanburg, ON L0S 1A0

CEI Lab Code: B16-8330
Date Received: 10-05-16
Date Analyzed: 10-06-16
Date Reported: 10-06-16

Project: 00090.004

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous	Cellulose	Non-Fibrous		
00090.004- W01 B211695	Compound On Wood Wall	Heterogeneous Gray Fibrous Bound	<1%	Cellulose	60% 30% 10%	Silicates Calc Carb Binder	None Detected
00090.004- W02 B211696	Compound On Wood Wall	Heterogeneous Gray Fibrous Bound	<1%	Cellulose	60% 30% 10%	Silicates Calc Carb Binder	None Detected
00090.004- W03 B211697	Compound On Wood Wall	Heterogeneous Gray Fibrous Bound	<1%	Cellulose	60% 30% 10%	Silicates Calc Carb Binder	None Detected
00090.004- W04 B211698	Plaster Wall	Heterogeneous Gray,White Fibrous Bound	<1%	Cellulose	60% 30% 10%	Silicates Calc Carb Binder	None Detected
00090.004- W05 B211699	Plaster Wall	Heterogeneous Gray,White Fibrous Bound	<1%	Cellulose	60% 30% 10%	Silicates Calc Carb Binder	None Detected
00090.004- W06 B211700	Plaster Wall	Heterogeneous Gray,White Fibrous Bound	<1%	Cellulose	60% 30% 10%	Silicates Calc Carb Binder	None Detected



LEGEND: Non-Anth = Non-Asbestiform Anthophyllite
 Non-Trem = Non-Asbestiform Tremolite
 Calc Carb = Calcium Carbonate

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

LIMIT OF DETECTION: <1% by visual estimation

REGULATORY LIMIT: >1% by weight

Due to the limitations of the EPA 600 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation.

This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by CEI Labs, Inc. CEI Labs makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.

ANALYST: Sarah Talley
Sarah Talley

APPROVED BY: Tianbao Bai
Tianbao Bai, Ph.D., CIH
Laboratory Director



Chain of Custody Record

COC 1 of 1

Laboratory: <u>CEL</u>				Analysis																												
Sample Date: <u>Oct 4, 2016</u>		Job Number: <u>00090.004</u>																														
Quotation#:				<table border="1"> <tr> <td>PLM Bulk</td> <td>PLM Point Count</td> <td>PLM Gravimetric</td> <td>TEM Bulk</td> <td></td> <td></td> <td rowspan="4">Results By:</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>				PLM Bulk	PLM Point Count	PLM Gravimetric	TEM Bulk			Results By:																		
PLM Bulk	PLM Point Count	PLM Gravimetric	TEM Bulk							Results By:																						
Job Reference: <u>Parks Canada - Butler's Benedict OSS - Museum</u>																																
Contact Name: <u>Lisa Tappay</u>																																
Contact Email: <u>ltappay@oesn.net</u>																																
HM #	Sample #	Sample ID	Location	PLM Bulk	PLM Point Count	PLM Gravimetric	TEM Bulk																									
<u>Hw01</u>	<u>00090-004-w01</u>	<u>Compound on wood wall</u>	<u>Main level</u>	<u>X</u>																												
<u>Hw01</u>	<u>-w02</u>	<u>↓</u>	<u>↓</u>	<u>X</u>						<input type="checkbox"/> 4 hour																						
<u>Hw01</u>	<u>-w03</u>	<u>↓</u>	<u>↓</u>	<u>X</u>						<input checked="" type="checkbox"/> 24 hour																						
<u>Hw02</u>	<u>-w04</u>	<u>plaster wall</u>	<u>2nd level</u>	<u>X</u>						<input type="checkbox"/> 2 B Days																						
<u>Hw02</u>	<u>-w05</u>	<u>↓</u>	<u>↓</u>	<u>X</u>						<input type="checkbox"/> 3 B Days																						
<u>Hw02</u>	<u>-w06</u>	<u>↓</u>	<u>↓</u>	<u>X</u>						<input type="checkbox"/> 5 B Days																						
										<input type="checkbox"/> Other:																						
Comments:				Method of Delivery:		<input checked="" type="checkbox"/> Positive stop on analyses identified above with '*'		Total # samples shipped:		<u>6</u>																						
Relinquished By (Print & Sign): <u>T. McPherson</u>		Received by Driver/Depot:		Received at Lab: <u>AL</u>		Verified By:																										
Date/Time: <u>Oct 4, 2016</u>		Date/Time:		Date/Time: <u>10/5/16 9:10</u>		Date/Time:																										



Ontario Environmental & Safety Network Ltd.



October 6, 2016

Ontario Environmental & Safety Network, LTD.
RR #2 1783 Highway 20C
Allanburg, ON L0S 1A0

CLIENT PROJECT: 00090.004
CEI LAB CODE: B16-8329

Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on October 5, 2016. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600 Method.

Sample results containing >1% asbestos are considered asbestos-containing materials (ACMs) per EPA regulatory requirements. The detection limit for the EPA 600 Method is <1% asbestos by weight as determined by visual estimation.

Thank you for your business and we look forward to continuing good relations. If you have any questions, please feel free to call our office at 919-481-1413.

Kind Regards,

A handwritten signature in black ink, appearing to read "Tianbao Bai".

Tianbao Bai, Ph.D., CIH
Laboratory Director





ASBESTOS ANALYTICAL REPORT
By: Polarized Light Microscopy

Prepared for

Ontario Environmental & Safety Network, LTD.

CLIENT PROJECT: 00090.004

CEI LAB CODE: B16-8329

TEST METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORT DATE: 10/06/16

TOTAL SAMPLES ANALYZED: 3

SAMPLES >1% ASBESTOS:

TEL: 866-481-1412

www.ceilabs.com



Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: 00090.004

CEI LAB CODE: B16-8329

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
00090-004-C01	Layer 1	B211692	Off-white	Plaster Skim Coat	None Detected
	Layer 2	B211692	Gray	Plaster Base Coat	None Detected
00090-004-C02	Layer 1	B211693	Off-white	Plaster Skim Coat	None Detected
	Layer 2	B211693	Gray	Plaster Base Coat	None Detected
00090-004-C03	Layer 1	B211694	Off-white	Plaster Skim Coat	None Detected
	Layer 2	B211694	Gray	Plaster Base Coat	None Detected



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Ontario Environmental & Safety Network, LTD.
 RR #2 1783 Highway 20C
 Allanburg, ON L0S 1A0

CEI Lab Code: B16-8329
Date Received: 10-05-16
Date Analyzed: 10-06-16
Date Reported: 10-06-16

Project: 00090.004

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
00090-004-C01 Layer 1 B211692	Plaster Skim Coat	Heterogeneous			85%	Binder	None Detected
		Off-white			15%	Silicates	
		Non-fibrous					
		Bound					
Layer 2 B211692	Plaster Base Coat	Heterogeneous	<1%	Cellulose	40%	Binder	None Detected
		Gray	<1%	Hair	60%	Silicates	
		Fibrous					
		Bound					
00090-004-C02 Layer 1 B211693	Plaster Skim Coat	Heterogeneous			85%	Binder	None Detected
		Off-white			15%	Silicates	
		Non-fibrous					
		Bound					
Layer 2 B211693	Plaster Base Coat	Heterogeneous	<1%	Cellulose	40%	Binder	None Detected
		Gray	<1%	Hair	60%	Silicates	
		Fibrous					
		Bound					
00090-004-C03 Layer 1 B211694	Plaster Skim Coat	Heterogeneous			85%	Binder	None Detected
		Off-white			15%	Silicates	
		Non-fibrous					
		Bound					
Layer 2 B211694	Plaster Base Coat	Heterogeneous	<1%	Cellulose	40%	Binder	None Detected
		Gray	<1%	Hair	60%	Silicates	
		Fibrous					
		Bound					



LEGEND: Non-Anth = Non-Asbestiform Anthophyllite
Non-Trem = Non-Asbestiform Tremolite
Calc Carb = Calcium Carbonate

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

LIMIT OF DETECTION: <1% by visual estimation

REGULATORY LIMIT: >1% by weight

Due to the limitations of the EPA 600 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation.

This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by CEI Labs, Inc. CEI Labs makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.

ANALYST: Daniel Liguori
Daniel Liguori

APPROVED BY: Tianbao Bai
Tianbao Bai, Ph.D., CIH
Laboratory Director



BIG-8329 (3)
B211692-B211694

Chain of Custody Record

COC | of |

Laboratory: CEI

Sample Date: Oct 4, 2016 Job Number: 00090.004

Quotation#:

Job Reference: Parke Canada - Butler's Bnacks DSS - Museum

Contact Name: Lisa Tappay

Contact Email: ltappay@oesn.net

Analysis

HM #	Sample #	Sample ID	Location	PLM Bulk	PLM Point Count	PLM Gravimetric	TEM Bulk				Results By:
HCO1	00090-004-001	plaster ceiling	2nd level	X							<input type="checkbox"/> 4 hour <input checked="" type="checkbox"/> 24 hour <input type="checkbox"/> 2 B Days <input type="checkbox"/> 3 B Days <input type="checkbox"/> 5 B Days <input type="checkbox"/> Other:
HCO1	↓ -002	↓	↓	X							
HCO1	↓ -003	↓	↓	X							

Comments:

Method of Delivery:

* Positive stop on analyses identified above with '*'

Total # samples shipped:

3

Relinquished By (Print & Sign):
T. McPherson

Received by Driver/Depot:

Received at Lab:
AL

Verified By:

Date/Time: Oct 4, 2016

Date/Time:

Date/Time: 10/5/16 9:10

Date/Time:



Ontario Environmental & Safety Network Ltd.



October 6, 2016

Ontario Environmental & Safety Network, LTD.
RR #2 1783 Highway 20C
Allanburg, ON L0S 1A0

CLIENT PROJECT: 00090.004
CEI LAB CODE: B16-8328

Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on October 5, 2016. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600 Method.

Sample results containing >1% asbestos are considered asbestos-containing materials (ACMs) per EPA regulatory requirements. The detection limit for the EPA 600 Method is <1% asbestos by weight as determined by visual estimation.

Thank you for your business and we look forward to continuing good relations. If you have any questions, please feel free to call our office at 919-481-1413.

Kind Regards,

A handwritten signature in black ink, appearing to read "Tianbao Bai".

Tianbao Bai, Ph.D., CIH
Laboratory Director





ASBESTOS ANALYTICAL REPORT
By: Polarized Light Microscopy

Prepared for

Ontario Environmental & Safety Network, LTD.

CLIENT PROJECT: 00090.004

CEI LAB CODE: B16-8328

TEST METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORT DATE: 10/06/16

TOTAL SAMPLES ANALYZED: 3

SAMPLES >1% ASBESTOS:

TEL: 866-481-1412

www.ceilabs.com



Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: 00090.004

CEI LAB CODE: B16-8328

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
00090.004-M01		B211689	Gray	Window Glazing	None Detected
00090.004-M02		B211690	Gray	Window Glazing	None Detected
00090.004-M03		B211691	Gray	Window Glazing	None Detected



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Ontario Environmental & Safety Network, LTD.
 RR #2 1783 Highway 20C
 Allanburg, ON L0S 1A0

CEI Lab Code: B16-8328
Date Received: 10-05-16
Date Analyzed: 10-06-16
Date Reported: 10-06-16

Project: 00090.004

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
00090.004-M01 B211689	Window Glazing	Heterogeneous	<1%	Cellulose	80%	Binder	None Detected
		Gray			10%	Paint	
		Non-fibrous			10%	Silicates	
		Bound					
00090.004-M02 B211690	Window Glazing	Heterogeneous	<1%	Cellulose	80%	Binder	None Detected
		Gray			10%	Paint	
		Non-fibrous			10%	Silicates	
		Bound					
00090.004-M03 B211691	Window Glazing	Heterogeneous	<1%	Cellulose	80%	Binder	None Detected
		Gray			10%	Paint	
		Non-fibrous			10%	Silicates	
		Bound					



LEGEND: Non-Anth = Non-Asbestiform Anthophyllite
 Non-Trem = Non-Asbestiform Tremolite
 Calc Carb = Calcium Carbonate

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

LIMIT OF DETECTION: <1% by visual estimation

REGULATORY LIMIT: >1% by weight

Due to the limitations of the EPA 600 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation.

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ANALYST: Mikaela Batta
Mikaela Batta

APPROVED BY: Tianbao Bai
Tianbao Bai, Ph.D., CIH
Laboratory Director



Laboratory: CEI				Chain of Custody Record COC 1 of 1						
Sample Date: Oct. 4, 2016		Job Number: 00090-004								
Quotation#:				Analysis						
Job Reference: Parkes Canada - Butcher's Brackets PSS - Museum				PLM Bulk	PLM Point Count	PLM Gravimetric	TEM Bulk			Results By:
Contact Name: Lisa Teppicy										
Contact Email: lteppicy@odm.net										
HM #	Sample #	Sample ID	Location							
HM01	00090-004-M01	Exterior Window Glazing	Exterior	X						<input type="checkbox"/> 4 hour
HM02	↓ -M02	↓	↓	X						<input checked="" type="checkbox"/> 24 hour
HM03	↓ -M03	↓	↓	X						<input type="checkbox"/> 2 B Days
										<input type="checkbox"/> 3 B Days
										<input type="checkbox"/> 5 B Days
										<input type="checkbox"/> Other:
Comments:				Method of Delivery:		* Positive stop on analyses identified above with **			Total # samples shipped:	3
Relinquished By (Print & Sign): T. Maphison		Received by Driver/Depot:		Received at Lab: AL			Verified By:			
Date/Time: Oct 4, 2016		Date/Time:		Date/Time: 10/5/16 9:10			Date/Time:			



Ontario Environmental & Safety Network Ltd.



October 6, 2016

Ontario Environmental & Safety Network, LTD.
RR #2 1783 Highway 20C
Allanburg, ON L0S 1A0

CLIENT PROJECT: 00090.004
CEI LAB CODE: B16-8327

Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on October 5, 2016. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600 Method.

Sample results containing >1% asbestos are considered asbestos-containing materials (ACMs) per EPA regulatory requirements. The detection limit for the EPA 600 Method is <1% asbestos by weight as determined by visual estimation.

Thank you for your business and we look forward to continuing good relations. If you have any questions, please feel free to call our office at 919-481-1413.

Kind Regards,

A handwritten signature in black ink, appearing to read "Tianbao Bai".

Tianbao Bai, Ph.D., CIH
Laboratory Director





ASBESTOS ANALYTICAL REPORT
By: Polarized Light Microscopy

Prepared for

Ontario Environmental & Safety Network, LTD.

CLIENT PROJECT: 00090.004

CEI LAB CODE: B16-8327

TEST METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORT DATE: 10/06/16

TOTAL SAMPLES ANALYZED: 3

SAMPLES >1% ASBESTOS:

TEL: 866-481-1412

www.ceilabs.com



Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: 00090.004

CEI LAB CODE: B16-8327

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
00090.04-R01		B211686	Black	Roofing Paper	None Detected
00090.04-R02		B211687	Black	Roofing Paper	None Detected
00090.04-R03		B211688	Black	Roofing Paper	None Detected



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Ontario Environmental & Safety Network, LTD.
 RR #2 1783 Highway 20C
 Allanburg, ON L0S 1A0

CEI Lab Code: B16-8327
Date Received: 10-05-16
Date Analyzed: 10-06-16
Date Reported: 10-06-16

Project: 00090.004

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
00090.04-R01 B211686	Roofing Paper	Heterogeneous	5%	Cellulose	60%	Tar	None Detected
		Black	15%	Fiberglass	20%	Silicates	
		Fibrous					
		Bound					
00090.04-R02 B211687	Roofing Paper	Heterogeneous	5%	Cellulose	60%	Tar	None Detected
		Black	15%	Fiberglass	20%	Silicates	
		Fibrous					
		Bound					
00090.04-R03 B211688	Roofing Paper	Heterogeneous	5%	Cellulose	60%	Tar	None Detected
		Black	15%	Fiberglass	20%	Silicates	
		Fibrous					
		Bound					



LEGEND: Non-Anth = Non-Asbestiform Anthophyllite
 Non-Trem = Non-Asbestiform Tremolite
 Calc Carb = Calcium Carbonate

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

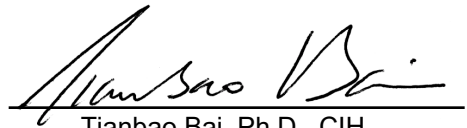
LIMIT OF DETECTION: <1% by visual estimation


REGULATORY LIMIT: >1% by weight

Due to the limitations of the EPA 600 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation.

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ANALYST: 
Mikaela Batta

APPROVED BY: 
Tianbao Bai, Ph.D., CIH
Laboratory Director


Gary A. Swanson



Chain of Custody Record

COC 1 of 1

Laboratory: CEI								
Sample Date: Oct 4, 2016		Job Number: 00090.004						
Quotation#:				Analysis				
Job Reference: Parkes Canada: Butler's Barnacks OSS - Museum				PLM Bulk	PLM Point Count	PLM Gravimetric	TEM Bulk	Results By:
Contact Name: Lisa Tappay								
Contact Email: ltappay@oesn.net								
HM #	Sample #	Sample ID	Location	PLM Bulk	PLM Point Count	PLM Gravimetric	TEM Bulk	Results By:
HR-01	00090.004-R01	Roofing paper - under cedar	Exterior	X				<input type="checkbox"/> 4 hour <input checked="" type="checkbox"/> 24 hour <input type="checkbox"/> 2 B Days <input type="checkbox"/> 3 B Days <input type="checkbox"/> 5 B Days <input type="checkbox"/> Other:
HR-01	-R02	↓	↓	X				
HR-01	-R03	↓	↓	X				
Comments:				Method of Delivery:		*Positive stop on analyses identified above with '**'		Total # samples shipped: 3
Relinquished By (Print & Sign): T. McPherson		Received by Driver/Depot:		Received at Lab: AL		Verified By:		
Date/Time: Oct 4, 2016		Date/Time:		Date/Time: 10/5/16 9:00		Date/Time:		



Ontario Environmental & Safety Network Ltd.

Appendix D: Paint Finishes Analytical Results

SAMPLING METHODOLOGY PAINT COATINGS (Lead, Mercury, Arsenic)

Three (3) bulk paint samples were collected. Each sample container is labeled with a sticker detailing the information (e.g. sample number, name, color description, room location) specific for that sample.

All samples are recorded on a Chain of Custody and sent to an accredited laboratory for analysis of Arsenic, Lead and Mercury.

For the determination of metals (arsenic, lead) in paint coatings U.S. Environmental Protection Agency test method EPA 6020 – Digestion, ICP-MS was applied.

For the determination of mercury in paint coatings U.S. Environmental Protection Agency test method EPA 7471A – CVAA, digestion was applied.

Sample locations are plotted on the drawings designed to match the Chain of Custody produced on site.

INTERPRETATION OF RESULTS

Regulated provincial limits for defining whether a surface coating is lead, arsenic or mercury “containing” do not currently exist; industry best practice dictates that consideration needs to be given to surface coatings containing any level of these contaminants for worker health and safety. The Ontario Ministry of Labour does not consider whether a surface coating is “lead-based” or “lead-containing” within the Occupational Health & Safety Act & Regulations; instead the focus is on whether workers may be exposed to lead or another designated substance, whatever the source.¹

United States Legislation References

Within the United States, the Housing and Urban Development and the Consumer Products Safety Commission (CPSC) have designated levels of lead in paint below which they consider the paint to be non-lead containing.² These include:

	Definition
Lead-based	≥ 5000 ppm by weight
Lead-containing	> 90 ppm by weight

The U.S. OSHA has stated that they do not recognize these levels as safe under most workplace situations; and that for the purposes of occupational health, these levels may easily present an exposure hazard.³

Canadian Legislation References

The Federal Surface Coating Materials Regulations⁴ prescribes maximum concentrations for total lead and total mercury present in consumer paints and other surface coatings, applicable to the advertising, sale and importation of these materials as well as furniture and other articles for children; and is intended to protect consumers. These limits are:

	Limit
Lead	90 mg/kg
Mercury	10 mg/kg

¹ Ontario Regulation 490/09 Designated Substances under Occupational Health and Safety Act, R.S.O. 1990, c. O.1 (as amended).

² U.S. Department of Housing & Urban Development. Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing. Office of Healthy Homes and Lead Hazard Control, 2nd ed. July 2012.

³ Occupational Safety and Health Administration. Standard Interpretations, Standard number 1926.62. https://www.osha.gov/pls/oshaweb/owasrch.search_form?p_doc_type=INTERPRETATIONS&p_toc_level=3&p_key_value=1926.62&p_status=CURRENT

⁴ Surface Coating Materials Regulations SOR/2005-109 (June 2011) under Canada Consumer Product Safety Act and pursuant to Section 5 of the Hazardous Products Act (R.S., c.24 (3rd Suppl), s.1).

In the absence of Ontario Ministry of Labour regulatory direction on the definition of a “lead-containing” or “mercury-containing” material, the Federal Surface Coating Materials Regulations limits have been routinely used in Canada as practical values which, when exceeded, worker exposure precautions were recommended. However, in the interest of protecting worker health and safety, industrial hygiene best practice dictates that any coating identified with lead, arsenic or mercury above analytical detection limits should be considered lead-, arsenic- or mercury-containing.

Certificate of Analysis

Ontario Environmental & Safety Network Ltd. (St.)

184 Scott Street, Unit 8 & 9
St. Catharines, ON L2N 1H1
Attn: Lisa Tappay

Client PO: 00090.004
Project: Butlers Barracks-Museum DSA
Custody: 32853

Report Date: 11-Oct-2016
Order Date: 4-Oct-2016

Order #: 1641204

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

Parcel ID	Client ID
1641204-01	P01- Light Grey
1641204-02	P02- Medium Grey
1641204-03	P03- White

Approved By:



Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis
Client: Ontario Environmental & Safety Network Ltd. (St.)
Client PO: 00090.004

Report Date: 11-Oct-2016

Order Date: 4-Oct-2016

Project Description: Butlers Barracks-Museum DSA

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Mercury by CVAA	EPA 7471B - CVAA, digestion	11-Oct-16	11-Oct-16
Metals, ICP-MS	EPA 6020 - Digestion - ICP-MS	11-Oct-16	11-Oct-16

Certificate of Analysis

Report Date: 11-Oct-2016

Client: Ontario Environmental & Safety Network Ltd. (St.)

Order Date: 4-Oct-2016

Client PO: 00090.004

Project Description: Butlers Barracks-Museum DSA

Client ID:	P01- Light Grey	P02- Medium Grey	P03- White	-
Sample Date:	04-Oct-16	04-Oct-16	04-Oct-16	-
Sample ID:	1641204-01	1641204-02	1641204-03	-
MDL/Units	Paint	Paint	Paint	-

Metals

Arsenic	50 ug/g	<50	<50	<50	-
Lead	5 ug/g	397	442	5	-
Mercury	2 ug/g	4	3	<2	-

Certificate of Analysis
 Client: Ontario Environmental & Safety Network Ltd. (St.)
 Client PO: 00090.004

Report Date: 11-Oct-2016

Order Date: 4-Oct-2016

Project Description: Butlers Barracks-Museum DSA

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Arsenic	ND	50	ug/g						
Lead	ND	5	ug/g						
Mercury	ND	2	ug/g						

Certificate of Analysis
 Client: Ontario Environmental & Safety Network Ltd. (St.)
 Client PO: 00090.004

Report Date: 11-Oct-2016

Order Date: 4-Oct-2016

Project Description: Butlers Barracks-Museum DSA

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Arsenic	ND	50	ug/g	ND			0.0	50	
Lead	336	5	ug/g	397			16.7	50	
Mercury	3	2	ug/g	4			25.1	30	

Certificate of Analysis
 Client: Ontario Environmental & Safety Network Ltd. (St.)
 Client PO: 00090.004

Report Date: 11-Oct-2016

Order Date: 4-Oct-2016

Project Description: Butlers Barracks-Museum DSA

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Arsenic	50.7		ug/L	ND	101	70-130			
Lead	66.0		ug/L	15.9	100	70-130			
Mercury	4	2	ug/g	4	54.4	70-130			QM-07

Certificate of Analysis
Client: Ontario Environmental & Safety Network Ltd. (St.)
Client PO: 00090.004

Report Date: 11-Oct-2016

Order Date: 4-Oct-2016

Project Description: Butlers Barracks-Museum DSA

Qualifier Notes:

QC Qualifiers :

QM-07 : The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC.

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.

Client Name: OESN	Project Reference: Butler's Bunkers - Museum OSA	Turnaround Time: <input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> 2 Day <input checked="" type="checkbox"/> Regular Date Required: _____
Contact Name: Lisa Toppay	Quote #: 00090.004	
Address: 184 Scott St. Unit 819 St. Catharines, ON L2N 1H1	PO #: Email Address: ltoppay@oesn.net	

Criteria: O. Reg. 153/04 (As Amended) Table RSC Filing O. Reg. 558/00 PWQO CCME SUB (Storm) SUB (Sanitary) Municipality: _____ Other: _____

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analyses

Paracel Order Number: 1641204		Matrix	Air Volume	# of Containers	Sample Taken		Lead	Mercury	Arsenic	Required Analyses									
Sample ID/Location Name					Date	Time													
1	P01 - Light Gray	P	-	1	04/10/16	-	X	X	X										
2	P02 - Medium Gray	P	-	1	↓	-	X	X	X										
3	P03 - White	P	-	1	↓	-	X	X	X										
4																			
5																			
6																			
7																			
8																			
9																			
10																			

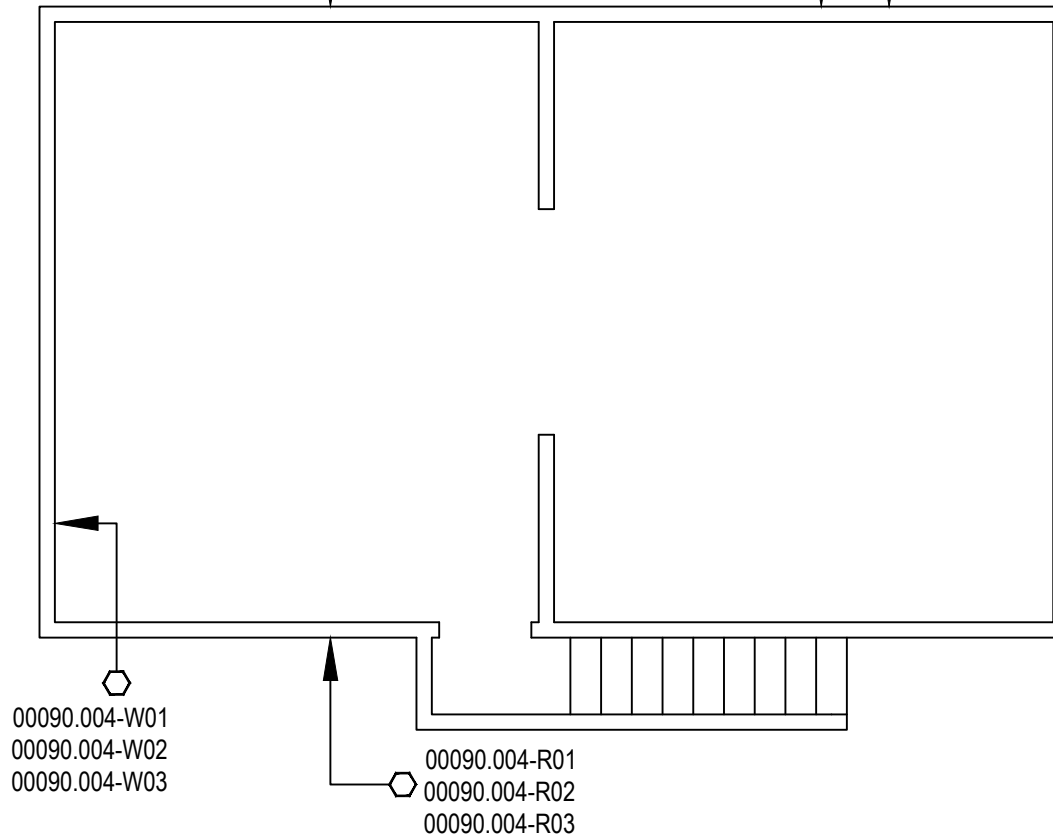
Comments:			Method of Delivery:		
Relinquished By (Sign):	Received by Driver/Depot: B. Homence	Received at Lab: SUPERIOR AIRMAI	Verified By: Rachel Subject		
Relinquished By (Print): T. McPherson	Date/Time: 10/4/16	Date/Time: Oct 5, 2016 10:35	Date/Time: Oct 5/16		
Date/Time: Oct 4, 2016	Temperature: _____ °C	Temperature: _____ °C	pH Verified <input checked="" type="checkbox"/> By: N/A 11:17		

Appendix E: Drawings

00090.004-M01
 00090.004-M02
 00090.004-M03

00090.004-P01

00090.004-P02



FIRST FLOOR

LEGEND

00090.004-R01 ASBESTOS SAMPLE NUMBER

○ NON ASBESTOS-CONTAINING SAMPLE

● ASBESTOS-CONTAINING SAMPLE

00090.004-P01 PAINT SAMPLE NUMBER

ASBESTOS-CONTAINING MATERIALS

NOTE:

Materials sampled in these areas were analytically determined not to contain asbestos minerals

PAINT RESULTS TABLE

	PAINT DESCRIPTION	ARSENIC ug/g	LEAD ug/g	MERCURY ug/g
01	LIGHT GREY	N1	397	4
02	MEDIUM GREY	N1	442	3
03	WHITE	N1	5	N1

NOTE:

N1: Below Method of Detection Limit (MDL)



184 Scott Street
 Units 8 & 9
 St. Catharines, ON
 L2N 1H1
 Toll free: 1888-271-2111
 Phone: 905-988-1554
www.oesn.net/

TITLE: DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS SURVEY

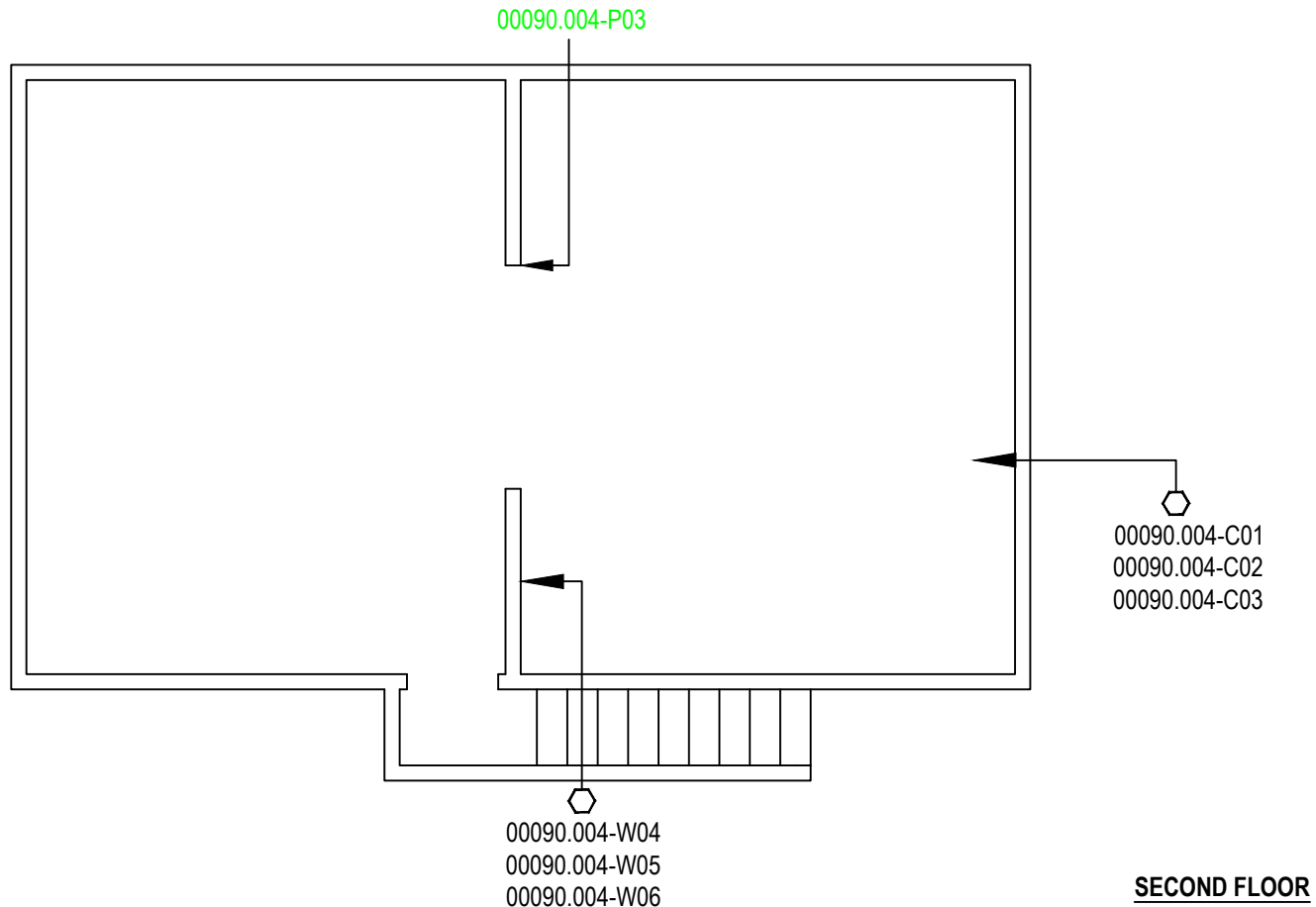
CUSTOMER: PARKS CANADA

LOCATION: BUTLER'S BARRACKS MUSEUM
 440 KING STREET, NIAGARA-ON-THE-LAKE, ON L0S 1J0



REV. 0 SCALE: N. T. S. DRAWN BY: T. CORTES

CHECKED BY: T. McPHERSON DATE: OCTOBER 2016

OESN JOB No: 00090.004 DWG #: PC-BBM-DSS-2016-01



LEGEND




- 00090.004-R01 ASBESTOS SAMPLE NUMBER
-  NON ASBESTOS-CONTAINING SAMPLE
-  ASBESTOS-CONTAINING SAMPLE
- 00090.004-P01 PAINT SAMPLE NUMBER

ASBESTOS-CONTAINING MATERIALS

NOTE:

Materials sampled in these areas were analytically determined not to contain asbestos minerals

PAINT RESULTS TABLE

	PAINT DESCRIPTION	ARSENIC ug/g	LEAD ug/g	MERCURY ug/g
	LIGHT GREY	N1	397	4
	MEDIUM GREY	N1	442	3
	WHITE	N1	5	N1

NOTE:

N1: Below Method of Detection Limit (MDL)



184 Scott Street
Units 8 & 9
St. Catharines, ON
L2N 1H1
Toll free: 1888-271-2111
Phone: 905-988-1554
www.oesn.net/

TITLE: DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS SURVEY

CUSTOMER: PARKS CANADA

LOCATION: BUTLER'S BARRACKS MUSEUM
440 KING STREET, NIAGARA-ON-THE-LAKE, ON L0S 1J0

REV. 0 SCALE: N. T. S. DRAWN BY: T. CORTES

CHECKED BY: T. McPHERSON DATE: OCTOBER 2016

OESN JOB No: 00090.004 DWG #: PC-BBM-DSS-2016-02

Appendix F: References

REFERENCES

This designated substance assessment was prepared referencing laws and guidelines cited below.

1. Ontario Occupational Health & Safety Act, R.S.O. 1990 c.01.
2. Ontario Regulation for Construction Projects 213/91 as amended.
3. Ontario Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations 278/05 as amended.
4. Ontario Regulation for Designated Substances 490/09 as amended.
5. U.S. Department of Housing & Urban Development. Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing. Office of Healthy Homes and Lead Hazard Control, 2nd ed. July 2012.
6. Occupational Safety and Health Administration. Standard Interpretations, Standard number 1926.62.
7. Surface Coating Materials Regulations SOR/2005-109 (June 2011) under Canada Consumer Product Safety Act and pursuant to Section 5 of the Hazardous Products Act (R.S., c.24 (3rd Suppl), s.1).
8. R.R.O. 1990, Regulation 347 General – Waste Management under Environmental Protection Act (as amended).
9. Ontario Ministry of the Environment and Climate Change. Registration Guidance Manual for Generators of Liquid Industrial and Hazardous Waste (January 2016).

Appendix G: Limitations

Results are submitted pursuant to OESN's current terms and conditions of sale, including the company's standard warrant and limitation of liability provisions; and no responsibility is assumed for the manner in which the results are used or interpreted.

The findings and conclusions presented in this report were based, in part, on visual observations of the building. Our conclusions cannot and are not extended to include those portions of the building which were not reasonably available, in OESN's opinion, for direct observation.

Where testing was performed, it was carried out in accordance with the scope of our contract. Due to a possible lack of information, OESN reserves the right to modify any part of the assessment regarding the materials within the building. It should be noted that this report was not exhaustive for every possible contaminant and therefore other compounds or materials may be present in the site environment.

This report is for the sole use of the party to whom it is addressed unless expressly stated otherwise in the report or contract. Any use which a third party makes of the report, in whole or in part, or any reliance thereon, or decisions made based on any information or conclusions in the report, is the sole responsibility of such third party.

OESN accepts no responsibility whatsoever for damages or loss of any nature suffered by any such third party as a result of actions taken or not taken or decisions made in reliance on the report.

Please feel free to contact our office if there are any questions regarding the content of this report, 1 888 271 2111.