
National Capital Commission
Design & Construction Division
40 Elgin Street, Suite 202
Ottawa, ON K1P 1C7

July 6, 2017

Attention: Sébastien Thiboutot
Architectural Technologist / Technologue en architecture

RE: Lead Paint Sampling
MKE Kingswood –Boathouse
Gatineau Park, QC

DST File No. BE-OT-020619

Further to your request, DST Consulting Engineers Inc. (DST) has prepared a Lead Paint Sampling Report for the Boathouse at Mackenzie King Estate (MKE) (Kingswood) in Gatineau, Québec.

The program was designed in support of upcoming renovation work proposed for this building. Paint chip and painted materials sampling was performed to characterize lead content, and classify waste with respect to lead leachate for disposal purposes.

DST also referenced a past report which provides previous lead paint analysis results for paints at the Boathouse.¹

1.0 METHODOLOGY

The field program for this survey was completed by DST on February 17, 2015.

In Québec, the Commission de la santé et de la sécurité du travail du Québec (CSST) has published the document entitled *Guide de prévention L'exposition au plomb* which provides health information and controls measures for lead.

For consistency with NCC Ontario properties, the Ontario Ministry of Labour (MoL) guideline for control of lead exposures on construction projects would also serve as a reasonable, peer reviewed standard for work procedures. Although the MoL has published this guideline, it does not include criteria for the classification of lead-paint. Instead, it uses presumed airborne lead concentrations for specific tasks as criteria for classifying work. However, in regulations set by the U.S. Department of Housing and Urban Development (HUD), Lead-Based Paint is classified as any paint application containing at least 1.0 milligrams of lead per square centimetre of surface area (1.0 mg/cm²), or at least 0.5% lead content by weight (5,000 ppm). This criteria was widely, although not universally, used in Canada. In Canada, the Federal Canada

¹ Hazardous Building Materials Survey, Mackenzie King Estate Select Outbuildings, Gatineau, Québec, prepared by DST Consulting Engineers Inc., July 28, 2011.

Consumer Product Safety Act has lowered the allowable concentration of lead in paints for new consumer products to 0.009% lead content by weight (90 ppm). Disturbance of paints having lead content below 90 ppm are less likely to release significant concentrations of airborne lead during disturbance and therefore are not likely considered harmful.

Four (4) representative samples of paint, and four (4) representative samples of painted building materials were collected and analyzed for lead content, and lead leachate respectively at Paracel. The samples were analyzed using MOE E3470, ICP-OES methodology, and lead leachate toxicity using EPA 6020 - ICP-MS, digestion and EPA 1311 Toxicity characteristic leaching procedure (TCLP) Extraction Procedure. Paracel is accredited to the ISO/IEC 17025 standard by both Standards Council of Canada (SCC) and the Canadian Association for Laboratory Accreditation Inc. (CALA).

The analytical results for lead are included in Appendix A.

2.0 FINDINGS

The analytical results for current and past Paint Chip samples are summarized in Table 1. Lead concentrations are reported in parts per million (ppm).

Sample I.D.	Paint Sample Description	Lead (ppm)
BH-PC-01 (DST, 2011)	Boat House, Yellow exterior siding paint	98
BH-PC-02 (DST, 2011)	Boat House, White exterior trim paint	63
BH-PC-03 (DST, 2011)	Boat House Grey exterior boardwalk paint	1,140
LP-01 (DST, 2015)	Boat House, Yellow exterior siding paint, Waterfront	77
LP-02 (DST, 2015)	Boat House, White exterior trim, Waterfront	109
LP-03 (DST, 2015)	Boat House, Yellow exterior siding paint, Northeast	<20
LP-04 (DST, 2015)	Boat House, White exterior trim, Northeast	<20

Boathouse

The exterior yellow siding (wood cladding) paint of the Boathouse contains lead in the range of <20 – 98 ppm. This range is less than HUD criteria for lead-based paint, while the upper end of this range is marginally above the 90 ppm limit for new consumer products established by the Federal Canada Consumer Product Safety Act.

The exterior white trim paint of the Boathouse contains lead in the range of <20 – 109 ppm. This range is less than HUD criteria for lead-based paint, while the upper end of this range is marginally above the 90 ppm limit for new consumer products established by the Federal Canada Consumer Product Safety Act.

The grey exterior boardwalk paint contains lead at a concentration less than HUD criteria for lead-based paint, but above the 90 ppm limit for new consumer products established by the Federal Canada Consumer Product Safety Act.

Samples of yellow painted siding (wood cladding) (L-01), and wooden white trim (L-02) were collected and submitted for TCLP analysis. The TCLP analytical results for the painted wooden elements of <0.05 mg/L and 0.11 mg/L respectively indicate that these materials are not considered toxic for disposal with regards to lead.

3.0 CONCLUSIONS AND RECOMMENDATIONS

Although lead is regulated in Québec, there is no specific construction regulation for this material. However, the Occupational Health and Safety Branch of the Ontario Ministry of Labour has published *Guideline: Lead on Construction Projects*. This document classifies all lead disturbance as either Type 1, Type 2a, Type 2b or Type 3 work, and assigns different levels of respiratory protection and work procedures for each classification. Also, the CSST document entitle *Guide de prévention L'exposition au plomb* provides health information and controls measures for lead.

Boathouse

The exterior yellow siding (wood cladding) and white trim paints contain lead in a range at which the upper end of the range is marginally above the 90 ppm limit for new consumer products established by the Federal Canada Consumer Product Safety Act.

The NCC indicates that painted exterior cladding and trim is to be removed intact. Paint stripping operations are not proposed at this time. Given the intended removal methodology (i.e. intact) and relatively low lead in paint concentrations for exterior yellow siding (wood cladding) and white trim it is not anticipated that specialized lead paint abatement procedures would be required for these materials.

DST does recommend that dust and debris control procedures, which are typical of any well executed demolition project, be implemented when performing the above mentioned removals. These procedures would include the use of drop sheets and the prompt clean-up of waste.

The TCLP analytical results for the exterior yellow siding (wood cladding) and white trim indicate that these materials are not considered toxic for disposal with regards to lead.

Lead paint abatement procedures appropriate to the scope of work are recommended for disturbance of the grey exterior boardwalk paint.

4.0 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.



Matthew DesRoches, M.Sc. (A), CIH, ROH
Associate/Project Manager
mdesroches@dstgroup.com

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 bulk sampling in select representative areas for laboratory analysis. There is a practical limitation on the number of samples that can be collected in the building. This requires the investigator to extrapolate observations and analytical results between sample locations. The uncertainty, and inherent risk, associated with this necessity increases with the distance between sampling locations. Note, however, that no scope of work, no matter how exhaustive, can identify all potential contaminants. This report therefore cannot warranty that all conditions on or off the site are represented by those identified at specific locations.

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 subcontractor 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 REPORT
LEAD SAMPLES

Certificate of Analysis

DST Consulting Engineers Inc. (Ottawa)

203-2150 Thurston Dr.
Ottawa, ON K1G 5T9
Attn: Matt Desroches

Phone: (613) 748-1415
Fax: (613) 748-1356

Client PO:
Project: BE OT 020619
Custody: 9552

Report Date: 20-Feb-2015
Order Date: 17-Feb-2015

Order #: 1508054

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

Paracel ID	Client ID
1508054-01	LP-01
1508054-02	LP-02
1508054-03	LP-03
1508054-04	LP-04

Approved By:



Mark Foto, M.Sc. For Dale Robertson, BSc
Laboratory Director

Any use of these results implies your agreement that our total liability in connection with this work, however arising shall be limited to the amount paid by you for this work, and that our employees or agents shall not under circumstances be liable to you in connection with this work

Certificate of Analysis

Report Date: 20-Feb-2015

Order Date: 17-Feb-2015

Client: **DST Consulting Engineers Inc. (Ottawa)**

Client PO:

Project Description: BE OT 020619

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Metals, ICP-OES	based on MOE E3470, ICP-OES	19-Feb-15	19-Feb-15

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.

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NIAGARA
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Niagara-on-the-Lake, ON L0S 1J0

KINGSTON
1058 Gardiners Rd.
Kingston, ON K7P 1R7

Certificate of Analysis

Report Date: 20-Feb-2015

Order Date: 17-Feb-2015

 Client: **DST Consulting Engineers Inc. (Ottawa)**

Client PO:

Project Description: BE OT 020619

Sample Results

Lead				Matrix: Paint	
				Sample Date: 17-Feb-15	
Parcel ID	Client ID	Units	MDL	Result	
1508054-01	LP-01	ug/g	20	77	
1508054-02	LP-02	ug/g	20	109	
1508054-03	LP-03	ug/g	20	<20	
1508054-04	LP-04	ug/g	20	<20	

Laboratory Internal QA/QC

Analvte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Matrix Blank									
Lead	ND	20	ug/g						
Matrix Duplicate									
Lead	126	20	ug/g	101			22.4	30	
Matrix Spike									
Lead	573		ug/L	315	103	70-130			

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Page 1 of 1

Client Name: DST	Project Reference: BEOTO20619	TAT: <input checked="" type="checkbox"/> Regular [] 3 Day <input type="checkbox"/> 2 Day [] 1 Day Date Required: _____
Contact Name: MATT DESROCHES	Quote #	
Address: 2150 TRUNSTON DR. JOB OTMVAOV	PO #	
Telephone: 613 324 0724	Email Address: mdesroches@dsgroup.com	

Criteria: [] O. Reg. 153/04 Table [] O. Reg. 153/11 (Current) 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

Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken		LEAD IN PAINT	LEAD LEACHATE	Required Analyses												
				Date	Time															
1 LP-01	P	NA	1	FEB 17/15	AM	X														
2 LP-02																				
3 LP-03																				
4 LP-04																				
5 L-01							X													
6 L-02																				
7 L-03																				
8 L-04																				
9																				
10																				

Comments: PLEASE ANALYZE WHOLE SAMPLE (i.e. PAINT + SUBSTRATE) FOR LEACHATE Method of Delivery: Walk-in

Relinquished By (Print & Sign): MATT DESROCHES	Received by Driver/Depot:	Received at Lab: [Signature]	Verified By: [Signature]
Date/Time: FEB 17/15 13:40	Temperature: _____ °C	Date/Time: FEB 17/15 1:41P	Date/Time: FEB 17/15 2:19
		Temperature: _____ °C	pH Verified By: N/A

Certificate of Analysis

DST Consulting Engineers Inc. (Ottawa)

203-2150 Thurston Dr.
Ottawa, ON K1G 5T9
Attn: Matt Desroches

Phone: (613) 748-1415
Fax: (613) 748-1356

Client PO:
Project: BE OT 020619
Custody: 9552

Report Date: 20-Feb-2015
Order Date: 17-Feb-2015

Order #: 1508055

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

Parcel ID	Client ID
1508055-01	L-01
1508055-02	L-02
1508055-03	L-03
1508055-04	L-04

Approved By:



Mark Foto, M.Sc. For Dale Robertson, BSc
Laboratory Director

Any use of these results implies your agreement that our total liability in connection with this work, however arising shall be limited to the amount paid by you for this work, and that our employees or agents shall not under circumstances be liable to you in connection with this work

Certificate of Analysis

Client: **DST Consulting Engineers Inc. (Ottawa)**

Report Date: 20-Feb-2015

Order Date: 17-Feb-2015

Client PO:

Project Description: BE OT 020619

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Metals, ICP-MS	EPA 6020 - ICP-MS, digestion	20-Feb-15	20-Feb-15
Solids, %	Gravimetric, calculation	17-Feb-15	17-Feb-15
TCLP Extraction , Metals/SVOCs	EPA 1311 TCLP Extraction Procedure	17-Feb-15	18-Feb-15

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KINGSTON
1058 Gardiners Rd.
Kingston, ON K7P 1R7

Certificate of Analysis

Report Date: 20-Feb-2015

Order Date: 17-Feb-2015

 Client: **DST Consulting Engineers Inc. (Ottawa)**

Project Description: BE OT 020619

Client PO:

Client ID:	L-01	L-02	L-03	L-04
Sample Date:	17-Feb-15	17-Feb-15	17-Feb-15	17-Feb-15
Sample ID:	1508055-01	1508055-02	1508055-03	1508055-04
MDL/Units	Other	Other	Other	Other

Physical Characteristics

% Solids	0.1 % by Wt.	100	100	100	100
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EPA 1311 - TCLP Leachate Inorganics

Lead	0.05 mg/L	<0.05	0.11	0.08	119
Initial pH	0.05 pH Units dry	5.80	4.59	6.15	4.88
Final pH	0.05 pH Units dry	4.97	4.77	4.83	4.90

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Certificate of Analysis

Client: **DST Consulting Engineers Inc. (Ottawa)**

Report Date: 20-Feb-2015

Client PO:

Project Description: BE OT 020619

Order Date: 17-Feb-2015

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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EPA 1311 - TCLP Leachate Inorganics

Lead	ND	0.05	mg/L						
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Certificate of Analysis

Client: **DST Consulting Engineers Inc. (Ottawa)**

Report Date: 20-Feb-2015

Client PO:

Project Description: BE OT 020619

Order Date: 17-Feb-2015

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics									
Lead	3.67	0.05	mg/L	3.71			1.2	32	
Physical Characteristics									
% Solids	65.9	0.1	% by Wt.	70.7			7.1	25	

Certificate of Analysis

Client: **DST Consulting Engineers Inc. (Ottawa)**

Report Date: 20-Feb-2015

Client PO:

Project Description: BE OT 020619

Order Date: 17-Feb-2015

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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EPA 1311 - TCLP Leachate Inorganics

Lead	417		ug/L	371	91.6	77-126			
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Certificate of Analysis

Client: **DST Consulting Engineers Inc. (Ottawa)**

Report Date: 20-Feb-2015

Client PO:

Project Description: BE OT 020619

Order Date: 17-Feb-2015

Qualifier Notes:

None

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.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

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Client Name: DST Project Reference: BEOTO20619
 Contact Name: MATT DESROCHES Quote #
 Address: 2150 TRUNSTON DR. JOB PO #
OTTAWA ON Email Address: m.desroches@dsgroup.com
 Telephone: 613 324 0724 Date Required: _____

Criteria: | O. Reg. 153/04 Table ___ | O. Reg. 153/11 (Current) 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

Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken		LEAD IN PAINT	LEAD LEACHATE	Required Analyses													
				Date	Time																
158054 - paint																					
158055 - leachate																					
LP-01	P	NA	1	Feb 17/15	AM	X															
LP-02																					
LP-03																					
LP-04																					
L-01							X														
L-02																					
L-03																					
L-04																					

Comments: PLEASE ANALYZE WHOLE SAMPLE (i.e. PAINT + SUBSTRATE) FOR LEACHATE Method of Delivery: Walk-in

Relinquished By (Print & Sign): MATT DESROCHES Received by Driver/Depot: _____ Received at Lab: [Signature] Verified By: [Signature]
 Date/Time: Feb 17/15 13:40 Temperature: _____ °C Date/Time: FEB 17/15 Date/Time: FEB 17/15 2:19 pH Verified | By: NA