



**Stantec Consulting Ltd.**  
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**Stantec**

August 9, 2013  
 File: 121811205

Ms. Marcia Johannesen, M.A.Sc.,

Senior Environmental Specialist,  
 Environmental Services  
 Public Works and Government Services Canada  
 1045 Main Street, Unit 100  
 Moncton, NB E1C 1H1

Dear Ms. Johannesen:

**Reference: Lead-Based Paint Sampling – AAFC Crops and Livestock Research Centre (Buildings 7 and 18), 440 University Avenue, Charlottetown, PE**

At your request, Stantec Consulting Ltd. (Stantec) collected samples of suspected lead-based paint from the above captioned site on May 13, 2013. The following presents a summary of the work conducted and findings of the assessment completed.

**OBJECTIVE**

The purpose of this assessment was to confirm the findings of earlier reports in order to determine whether special handling and/or disposal procedures are required related to the planned demolition of several buildings located on the AAFC property. Previous reports had identified potentially lead leachate toxic paint on the exterior of two buildings (Building #7 and Building #18) at the AAFC Crops and Livestock Research Centre. However, based on a review of the reports, it was apparent that only paint chips were analyzed for leachate toxicity and no substrate. Since the majority of exterior paint surfaces were in good condition and the provincial (PEI) disposal guideline recommends sampling both the paint and substrate to determine lead leachate concentrations, it was recommended that additional sampling be conducted to collect both the substrate and the covering paint from these two buildings.

**REGULATIONS AND GUIDELINES**

A summary of the regulations, guidelines and other reference documents used for this assessment is provided in Table 1. This information was used to evaluate results and make recommendations.

**Table 1 Summary of Regulations and Guidelines for Lead Paint**

Potential Hazardous Material	Regulations, Guidelines, Codes of Practice and Other Reference Documentation
Lead Paint	<ul style="list-style-type: none"> <li>• <i>Federal Hazardous Products Act.</i></li> <li>• <i>Prince Edward Island Department of Environment, Labour and Justice (PEIELJ) Policy for the Disposal of C&amp;D Material Suspected of Lead Paint Contamination ( May 2006).</i></li> <li>• <i>Ontario Health and Safety Branch Ministry of Labour - Guideline: Lead on Construction Projects (September 2004).</i></li> </ul>

**Reference: Lead-Paint Sampling – AAFC Crops and Livestock Research Centre, Charlottetown, PE**

## **LEAD PAINT**

### **Background**

Health Canada and the United States Environmental Protection Agency (USEPA) have identified lead levels in paint chips exceeding 5,000 mg/kg or 1 mg/cm<sup>2</sup> as indicative of lead-based paint and requiring precautions for sensitive individuals, particularly if the paint is peeling or in otherwise poor condition.

Lead is an inorganic contaminant that has been associated with (among others) paints and other protective coatings. Lead can leach from its base material into soil and groundwater creating environmental impacts. The Prince Edward Island Department of Environment, Labour and Justice (PEIELJ) has established guidelines which restrict certain materials which could potentially leach/migrate into the ground and create an adverse environmental effect from municipal landfills and construction and demolition debris disposal sites (C&D Sites).

### **Removal Procedures**

There are no specific Prince Edward Island procedures or guidelines for working with leaded materials during construction projects for lead paint removals. As a result we recommend adopting the relevant *Ontario Guideline for Lead on Construction Projects* (April 2011). Corrective action or remedial work on materials that may contain lead should be undertaken in a manner so as to avoid generating fine particulate matter or fumes. Airborne lead dust or fumes should not exceed the Ontario Ministry of Labour Time Weighted Average Exposure Value of 0.05 mg/m<sup>3</sup> during the removal of paints and products containing any concentration of lead.

The Federal Hazardous Products Act, has identified a lead concentration of 90 mg/kg for paints and other surfacing materials, manufactured material/products and imported goods. Any materials with lead concentrations below 90 mg/kg do not require any special handling or precautions. However workers who wish to use respiratory protection at any lead concentration, should be provided with an appropriate respirator.

Any materials with lead concentrations above 90 mg/kg should be handled in accordance with the *Ontario Guideline for Lead on Construction Projects*.

### **Disposal**

The PEIELJ Draft document entitled *Policy for the Disposal of C&D Material Suspected of Lead Paint Contamination* dated May 2006, indicates that in order to dispose of any material that is known (or suspected) to contain lead paint concentrations exceeding 1,000 mg/kg, a leachate extraction test must be completed on a representative sample of the paint and substrate (i.e. if paint is well adhered to substrate) to determine its leachable lead concentrations. Table 2 provides a summary of the disposal options for lead paint and lead painted materials in Prince Edward Island.

**Reference: Lead-Paint Sampling – AAFC Crops and Livestock Research Centre, Charlottetown, PE**

**Table 2 Summary of Disposal Options for Lead Paint and Lead Painted Materials**

Lead Paint and Leachate Results	Disposal Requirements
Lead concentration is below 90 mg/kg	<b>Option 1:</b> No lead issues are identified; special removal or disposal procedures are not required.
Results of leachate extraction are below 5 mg/L for lead and lead concentrations are below 1,000 mg/kg.	<b>Option 2:</b> These painted materials may be disposed of at a C&D Site approved by the PEIELJ provided permission is obtained from the facility or at a Regional Solid Waste Landfill.
Results of leachate extraction are below 5 mg/L for lead and lead paint concentrations are equal to or above 1,000 mg/kg.	<b>Option 3:</b> The paint is not leachate toxic and may be disposed of at the East Prince Waste Management Facility provided permission is obtained from the facility (Special Waste Permit).
Results of leachate extraction exceed 5 mg/L for lead.	The paint in question is considered leachate toxic and therefore must be disposed of through the services of an approved hazardous waste disposal company. Disposal at a Construction and Demolition (C&D) Site or the East Prince Waste Management Facility is not permitted.
Notes: 1. If leachate extraction has not been completed on the samples, it may be required at the discretion of the landfill or C&D Site to prove that the materials are not leachable toxic. 2. Regardless of test results, no lead painted objects that are flaking, chipping or peeling should be disposed of at a C&D Site. 3. There are currently no facilities in Prince Edward Island capable of accepting "lead leachate toxic" materials; thus out-of-province disposal is required for these materials.	

**Paint Sampling Results**

The suspect lead paint samples were collected by carefully removing paint and substrate by cutting a representative sample of each surface by hand, as required. The samples were stored in clean laboratory supplied bottles and were transported by courier to the Maxxam Analytics (Maxxam) laboratory in Bedford, Nova Scotia, for analysis according to the ICP/MS procedure based on the ATL SOP 00059 (EPA 6020A) method of lead in paint analysis. Samples were also submitted for leachate analysis using the Atlantic TCLP procedure of lead in paint at Maxxam.

Two exterior paint samples were collected from each of the subject buildings (Buildings # 7 and #18) and were submitted to Maxxam for lead analysis. Results are presented in Table 3 and the laboratory analytical report has been provided in **Attachment 1**.

**Reference: Lead-Paint Sampling – AAFC Crops and Livestock Research Centre, Charlottetown, PE**

**Table 3 Summary Lead Paint Assessment and Results**

Sample ID	Sample Description	Sample Location	Lead Concentration (mg/kg)	Lead Leachate Concentration (mg/L)
SA #7-1	White paint on wood substrate	Exterior wood trim (soffit)	4,200	4.5
SA #7-2	White paint on concrete substrate	Exterior architectural design masonry block walls	8	< 0.005
SA #18-1	White paint on wood substrate	Exterior wood trim (underside of entrance canopy)	<b>6,800</b>	<b><u>15.0</u></b>
SA #18-2	White paint on wood substrate	Exterior wood shingle on walls	<b>24,000</b>	<b><u>35.0</u></b>

**bold** samples indicate that lead in paint sample exceeds at least one of the following:  
**bold** - lead containing paint has a lead concentration >1,000 mg/kg  
**bold** - lead-based paint has a lead concentration >5,000 mg/kg  
**bold** - lead leachate toxic paint has a lead concentration >5 mg/L

The white paint and wood substrate sample (SA # 7-1) collected from exterior of Building No. 7 exceeds the PEIELJ disposal guidelines for a C&D Site and must (i.e. paint and wood substrate) be disposed of at the East Prince Waste Management Facility. The white paint and masonry block substrate sample (SA # 7-2) collected from exterior of Building No. 7 meets the PEIELJ disposal guidelines for a C&D Site and therefore may be disposed of at any registered C&D Site.

Based on the results of paint sampling previously completed on the building, any white paint that becomes separated from its substrate on the exterior of Building 7 (i.e., loose paint chips and flakes), should be handled through the services of a hazardous waste disposal contractor and disposed of at an approved out-of-province facility that accepts hazardous waste.

The white paint and wood substrate samples (SA # 18-1 and SA #18-2) collected from exterior of Building No. 18 are considered lead leachable toxic and therefore must be disposed of through the services of an approved hazardous waste disposal contractor. As noted above, there are currently no facilities in Prince Edward Island capable of accepting "lead leachate toxic" materials; thus out-of-province disposal is required for these materials.

**Reference: Lead-Paint Sampling – AAFC Crops and Livestock Research Centre, Charlottetown, PE**

## **CLOSURE**

This report has been prepared for the sole benefit of Public Works and Government Services Canada (PWGSC). The report may not be relied upon by any other person or entity without the express written consent of PWGSC and Stantec. All parties are subject to the same limit of liability as agreed to in the contract under which the work was completed.

Any use which a third party makes of this report or any reliance on decisions made based on it, are the responsibility of such third parties. Stantec accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted engineering and scientific practices at the time the work was performed. The conclusions presented herein represent the best technical judgement of Stantec based on the information obtained from the specific sampling locations. Minimal destructive testing or demolition of building elements (e.g., walls, ceilings) was undertaken during this assessment. Where accessible, areas within ceiling cavities and behind walls were visually assessed to evaluate the potential presence of hazardous materials.

In addition, analysis has been carried out for a limited number of chemical parameters, and it should not be inferred that other chemical species are not present. Due to the nature of the investigation and the limited data available, Stantec cannot warrant against undiscovered environmental liabilities or hazardous materials.

If any conditions become apparent that differ significantly from our understanding of conditions as presented in this report, we request that this information be brought to our attention so that we may re-assess the conclusions presented herein.

This report was prepared by Paul Paulin, P.Eng. and reviewed by Clayton Barclay, P.Eng., PhD.

## **STANTEC CONSULTING LTD.**



Clayton Barclay  
Project Manager

## **ATTACHMENT**

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# Attachment 1

Laboratory Certificate

Your P.O. #: 16300R-20  
Your Project #: 121811200.200  
Site Location: AAFC CROPS & LIVESTOCK  
Your C.O.C. #: ES750113

**Attention: Stephanie Griffin**  
Stantec Consulting Ltd  
Charlottetown - Standing Offer  
165 Maple Hills Ave  
Charlottetown, PE  
C1C1N9

**Report Date: 2013/08/02**

## CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B3C0693**

**Received: 2013/07/24, 12:21**

Sample Matrix: Paint  
# Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Metals Leach TCLP/CGSB extraction	4	2013/07/31	2013/08/01	ATL SOP-00058	Based on EPA6020A
Metals Paint Acid Extr. ICPMS	4	2013/07/31	2013/08/01	ATL SOP 00058	Based on EPA6020A
TCLP Inorganic extraction - pH	4	N/A	2013/07/31	ATL SOP-00035	Based on EPA1311
TCLP Inorganic extraction - Weight	4	N/A	2013/07/31	ATL SOP-00035	Based on EPA1311

### Remarks:

Reporting results to two significant figures at the RDL is to permit statistical evaluation and is not intended to be an indication of analytical precision.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

### Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Marie (McNair) Muise, Project Manager  
Email: MMuise@maxxam.ca  
Phone# (902) 420-0203 Ext:253

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Page 1 of 6

Maxxam Job #: B3C0693  
 Report Date: 2013/08/02

Stantec Consulting Ltd  
 Client Project #: 121811200.200  
 Site Location: AAFC CROPS & LIVESTOCK  
 Your P.O. #: 16300R-20  
 Sampler Initials: RM

### ATLANTIC TCLP LEACHATE + LEAD (PAINT)

Maxxam ID		SJ8354	SJ8355	SJ8355	SJ8356	SJ8357		
Sampling Date		2013/07/23	2013/07/23	2013/07/23	2013/07/23	2013/07/23		
COC Number		ES750113	ES750113	ES750113	ES750113	ES750113		
	<b>Units</b>	<b>SA #7-1</b>	<b>SA #7-2</b>	<b>SA #7-2 Lab-Dup</b>	<b>SA #18-1</b>	<b>SA #18-2</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Inorganics</b>								
Sample Weight (as received)	g	10	50	50	20	10	N/A	3299466
Initial pH	N/A	5.3	11		5.5	5.3		3299494
Final pH	N/A	5.0	7.4	7.5	5.0	5.0		3299494
<b>Metals</b>								
Leachable Lead (Pb)	ug/L	4500	<5	<5	15000	35000	5	3299058

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B3C0693  
 Report Date: 2013/08/02

Stantec Consulting Ltd  
 Client Project #: 121811200.200  
 Site Location: AAFC CROPS & LIVESTOCK  
 Your P.O. #: 16300R-20  
 Sampler Initials: RM

### ELEMENTS BY ATOMIC SPECTROSCOPY (PAINT)

Maxxam ID		SJ8354	SJ8355	SJ8355	SJ8355	SJ8356	SJ8357		
Sampling Date		2013/07/23	2013/07/23	2013/07/23	2013/07/23	2013/07/23	2013/07/23		
COC Number		ES750113	ES750113	ES750113	ES750113	ES750113	ES750113		
	<b>Units</b>	<b>SA #7-1</b>	<b>SA #7-2</b>	<b>SA #7-2 Lab-Dup</b>	<b>SA #7-2 Lab-Dup 2</b>	<b>SA #18-1</b>	<b>SA #18-2</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Metals</b>									
Acid Extractable Lead (Pb)	mg/kg	4200	8	6	6	6800	24000	5	3298772

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B3C0693  
Report Date: 2013/08/02

Stantec Consulting Ltd  
Client Project #: 121811200.200  
Site Location: AAFC CROPS & LIVESTOCK  
Your P.O. #: 16300R-20  
Sampler Initials: RM

Package 1	22.3°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

**GENERAL COMMENTS**

**Results relate only to the items tested.**

Stantec Consulting Ltd  
 Attention: Stephanie Griffin  
 Client Project #: 121811200.200  
 P.O. #: 16300R-20  
 Site Location: AAFC CROPS & LIVESTOCK

Quality Assurance Report  
 Maxxam Job Number: DB3C0693

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
3298772 DLB	Matrix Spike						
	[SJ8355-01]	Acid Extractable Lead (Pb)	2013/08/01		95	%	75 - 125
	Spiked Blank	Acid Extractable Lead (Pb)	2013/08/01		96	%	75 - 125
	Method Blank	Acid Extractable Lead (Pb)	2013/08/01	<5		mg/kg	
	RPD [SJ8355-01]	Acid Extractable Lead (Pb)	2013/08/01	NC		%	35
3299058 DLB	Spiked Blank	Leachable Lead (Pb)	2013/08/01		101	%	80 - 120
	Method Blank	Leachable Lead (Pb)	2013/08/01	<5		ug/L	
	RPD [SJ8355-01]	Leachable Lead (Pb)	2013/08/01	NC		%	35
3299466 LJA	RPD [SJ8355-01]	Sample Weight (as received)	2013/07/31	0		%	N/A

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

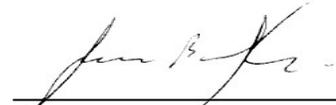
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

## Validation Signature Page

**Maxxam Job #: B3C0693**

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The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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Jim King, Scientific Specialist

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.