

November 8, 2013

**XCG File No.: 1-336-150-02**

Ms. Maegan Harrison  
Environmental Services  
Public Works and Government Services Canada  
4900 Yonge Street, 11th Floor  
Toronto, Ontario M2N 6A6

**Re: Lead-Containing Coatings at Burlington Lift Bridge, Burlington, Ontario**

Dear Ms. Harrison:

XCG Consultants Ltd. (XCG) is pleased to submit this letter report describing the results of sampling potentially lead-containing coatings at the Burlington Lift Bridge, Burlington, Ontario.

**1. BACKGROUND**

Public Works and Government Services Canada (PWGSC) is proposing to undertake replacement of the bridge deck grating at the Burlington Lift Bridge, Burlington, Ontario.

Based on the previously identified presence of designated substances, and the presence of lead-based paint in the work area, PWGSC Environmental Services required the services of an environmental consultant to provide the following:

- Review the previous lead assessment and preliminary project information to determine the presence of lead within the areas affected by the grating replacement project; and
- Collect samples of paint that may be disturbed as part of the grating replacement project.

The proposed work area is identified on the site photographs. Please refer to the photos included in Appendix A for the surveyed areas.

**2. REVIEW OF HISTORIC DSHMs**

Part of XCG's assignment was the review of four existing reports for the structure:

- Pinchin. 2005. Lead Management Plan. Burlington Lift Bridge.
- Genivar. March 2011. Burlington Lift Bridge, PWGSC Engineering Asset Properties. Asbestos and Lead Reassessment Report.
- Genivar. February 2012. Burlington Lift Bridge, PWGSC Engineering Asset Properties. Asbestos and Lead Reassessment Report.
- Genivar. December 2012. Burlington Lift Bridge, PWGSC Engineering Asset Properties. Asbestos and Lead Reassessment Report.



These surveys identified that lead-containing paints were present on bridge surfaces. XCG reviewed the above-referenced reports and determined that the proposed work area associated with the deck replacement project may not have been sufficiently investigated.

As such, XCG recommended that additional sampling would be required to determine if lead-containing coatings are present in the proposed work area.

### **3. METHODOLOGY**

The survey included a visual inspection of accessible areas that will be affected by the proposed renovation activities. It is XCG's understanding that a single deck grate is currently proposed to be replaced; however, PWGSC wishes to be prepared to replace other deck grates if required.

The sampling of suspected lead-containing paints was carried out by Ms. Natalia Baranova of XCG on September 19 and 20, 2013. The paint coating samples were collected in accordance with recognized sampling techniques and in accordance with XCG's standard operating procedures, and health and safety requirements.

### **4. LABORATORY ANALYSIS**

Paint samples were collected and submitted for analysis of lead using the American Society for Testing and Materials (ASTM) D3335-85A "Standard Method to Test for Low Concentrations of Lead in Paint by Atomic Absorption Spectrophotometry." The lead analysis was completed by the International Asbestos Testing Laboratory (IATL) in Mt. Laurel, New Jersey, USA.

### **5. FINDINGS**

Surface coatings such as paint are considered lead-containing if they have lead concentrations above the permissible concentration of 90 parts per million (ppm) (0.009 percent by weight) as specified in the Federal Hazardous Products Act – Surface Coating Material Regulation (2005), as amended.

The analytical results for the samples collected from the proposed work area are summarized in Table 1. Approximate sampling locations are shown on Photo 1 in Appendix A. Laboratory certificates of analysis for the samples collected have been included in Appendix B.

It was determined that the deck grating is welded onto the sub-deck beams. The grating, last replaced in 2000, is not painted with the exception of the white and yellow lane markings. No reports relating to the deck replacement in 2000 were available for review. The underside of the beams was recoated in 2010-2011 as part of the bridge repainting project that took two winters to complete. The underside of the bridge was pressure washed to remove existing lead-containing paint and was repainted orange. Through recent inspections the tops of the beams were identified to be painted green. Certain areas were noted to be rusting and painted rust flakes were observed in several locations on the tops of the sub-deck beams. The grating replacement project is expected to involve removal of some of the top of beam coating to prepare the beam surfaces for welding.



During the survey, a total of three paint samples were collected from the proposed work area of Burlington Lift Bridge. The samples included composite paint samples from the both the north and south ends of the bridge. An additional sample of the rust flakes with green paint was collected from the north end of the bridge. The north sample was collected from the approximate area of the proposed single grate replacement. Approximate sampling locations and additional site photos are attached. The summarized analytical results for the samples collected from the proposed work area are provided below in Table 1. The laboratory certificates of analysis are attached at the end of this letter.

**Table 1 Analytical Lead Results, Burlington Lift Bridge**

Sample ID	Sample Description	Sample Location	Condition Classification	Lead Concentration by % weight
Bridge North	Green	North end of the bridge on grating	Fair to Good	<b>0.028</b>
Bridge South	Green	South end of the bridge on grating	Fair to Good	<b>0.069*</b>
Bridge North Rust	Green with Rust	North end of the bridge on top of beam	Poor	<b>0.023**</b>
<b>Notes:</b> 1. <b>Bold</b> - Lead concentration exceeds of the Surface Coating Regulation standard of 90 ppm (0.009% by Weight). 2. * - Insufficient sample provided to perform QC re-analysis (<200 mg). 3. ** - Matrix/substrate interference possible.				

Based on the findings of the survey and laboratory analytical results, all three of the paint samples collected were found to have lead concentrations above the permissible concentration of 90 ppm (0.009 percent by weight) as specified in the Federal Hazardous Products Act – Surface Coating Material Regulation (2005), as amended.

XCG made every effort to collect sufficient paint samples for analysis. Samples were collected from the roadway during bridge lifts to avoid additional traffic shut-downs. Factors such as short bridge lifts, difficulty in collecting the paint from the beam through the grating and wind blowing away the scraped sample had to be addressed. In the case of the Bridge South sample, an insufficient quantity of sample was provided to perform quality control (QC) reanalysis.

## **6. RECOMMENDATIONS**

Based on the findings of the survey and laboratory analytical results, all of the sampled surface coatings were identified as lead-containing coatings as they were found to have lead concentrations above the permissible concentration of 90 ppm (0.009 percent by weight) as specified in the Federal Hazardous Products Act – Surface Coating Material Regulation (2005), as amended in October 2010.



XCG recommends that all painted surfaces be treated as lead-containing and that any demolition/renovation activities that would involve the disturbance of this paint be conducted in accordance with Ontario Regulation (O. Reg.) 490/09 and the Ontario Ministry of Labour Guideline "Lead on Construction Projects," dated April 2011. Workers are not at risk of being exposed to lead unless they are undertaking an activity that disturbs surfaces covered with lead-based paint.

## **7. LIMITATIONS**

The findings of this report are based upon visual observations and analytical results of select sampling at Burlington Lift Bridge, Burlington, Ontario. Paint samples were collected from the proposed work areas as indicated by on preliminary drawings supplied by PWGSC. This project was limited in scope to select sampling of suspected lead-containing coatings. While every effort was made to ensure that the samples collected were representative of the general sampling area, it is possible that conditions outside the specific sampling locations may differ. XCG cannot be held responsible for conditions that were not apparent during XCG's site visit.

The scope of this report is limited to the matters expressly covered. This report was prepared for the sole benefit of Public Works Government Services Canada (PWGSC) and may not be relied upon by any other person or entity without the written authorization of XCG Consultants Limited. Any use or reuse of this document (or findings, conclusions, or recommendations represented herein) by parties other than Public Works Government Services Canada (PWGSC) is at the sole risk of those parties.

Yours very truly,

XCG CONSULTANTS LTD.

A handwritten signature in black ink, appearing to read "N. Baranova", written over a light blue circular stamp.

Natalia Baranova, B.A.Sc., EIT  
Project Specialist

A handwritten signature in black ink, appearing to read "Dale White", written over a light blue circular stamp.

Dale White, Senior Technologist  
Project Manager

Attachments: Attachment A - Site Photographs  
Attachment B - Laboratory Certificate of Analysis

***ATTACHMENT A***  
***SITE PHOTOGRAPHS***



Samples:  
Bridge North  
and  
Bridge North

Proposed work  
area.



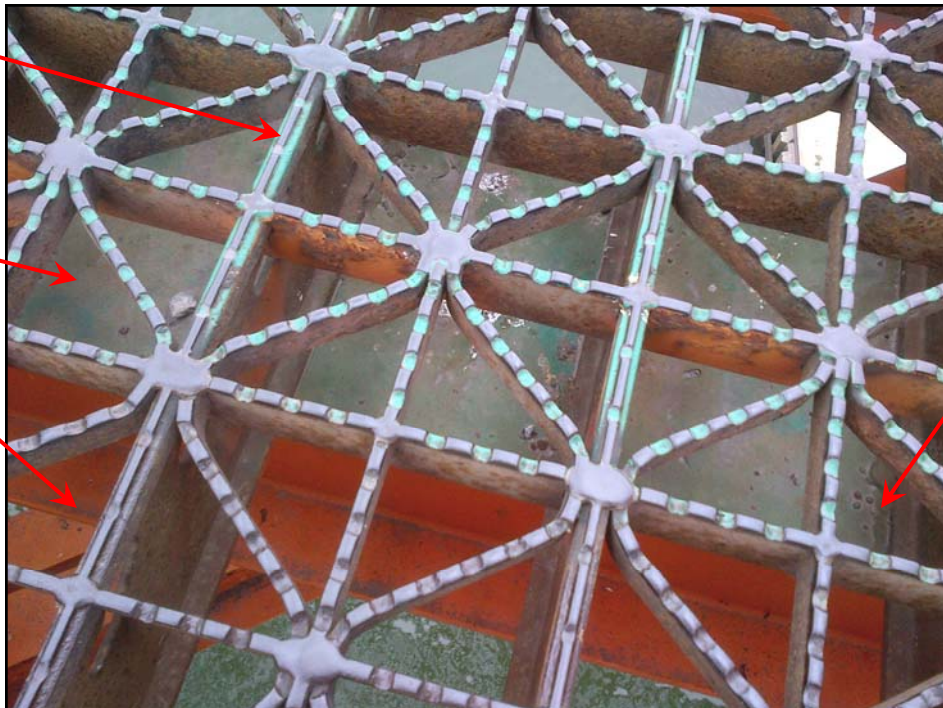
Sample:  
Bridge South

**Photo 1: View of the Burlington Lift Bridge, looking east.**

Grating (not  
painted)

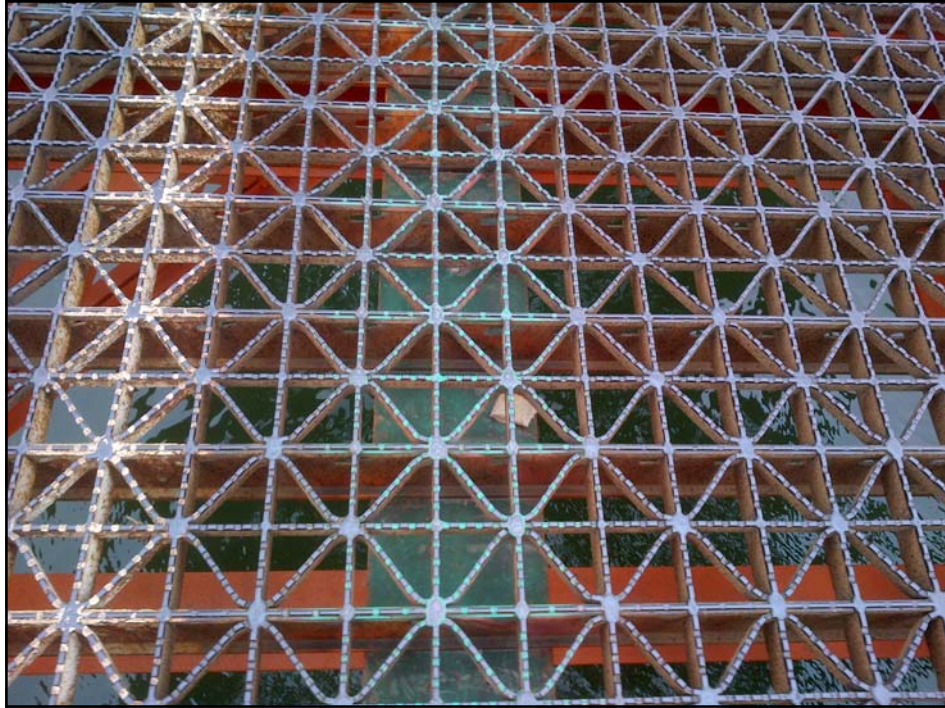
Top of Beam  
(painted &  
sampled)

Underside of  
Beam  
(repainted in  
2010/2011)



Welds

**Photo 2: Close up view of the grating and supporting beam.**



**Photo 3: Close up view of the grating and supporting beams.**



**Photo 4: Close up view of the grating and supporting beam. Paint on the top of the beam is partially covered by dirt.**

***ATTACHMENT B***  
***LABORATORY CERTIFICATE OF ANALYSIS***



## CERTIFICATE OF ANALYSIS

**Client:** XCG Consultants Ltd.  
6 Cataraqui St; Woolen Mill  
Kingston Ontario K7K 1Z7

**Report Date:** 10/9/2013  
**Report Number:** 316384  
**Project:** Burlington Lift Bridge  
**Project No.:** 1-336-150-01

### LEAD PAINT SAMPLE ANALYSIS SUMMARY

<u>Lab No.</u>	<u>Client No.</u>	<u>Location / Description</u>	<u>Concentration Lead By Weight (%)</u>
5139332	Bridge North	Green Paint	0.028
5139333	Bridge South	Green Paint	0.069*
5139334	Bridge North Rust	Green Paint Over Rust	0.023***

**Accreditations:**

#### NATIONAL LEAD LABORATORY ACCREDITATION PROGRAM (NLLAP)

AIHA-LAP, LLC No. 100188

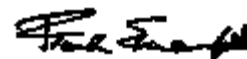
NYSDOH-ELAP No. 11021

**Analytical Methods:** ASTM D3335-85A "Standard Method To Test For Low Concentrations Of Lead In Paint By Atomic Absorption Spectrophotometry"  
EPA SW846-(3050B:7000B) "Standard Method To Test For Low Concentrations Of Lead In Soils, Sludges and Sediments By AAS"

**Comments:** Regulatory limit is 0.5% lead by weight (EPA/HUD guidelines). Recommend multiple sampling for all samples less than regulatory limit for confirmation. All results are based on the samples as received at the lab. IATL assumes that appropriate sampling methods have been used and the data upon which these results are based have been accurately supplied by the client. Method Detection Limit (MDL) per EPA Method 40CFR Part 136 Appendix B. Reporting Limit (RL) based upon Lowest Standard Determined (LSD) in accordance with AIHA-ELLAP policies. LSD=0.2 ppm MDL=0.0044% by weight. RL= 0.010% by weight (based upon 100 mg sampled). \* Insufficient sample provided to perform QC reanalysis (<200 mg) \*\* Not enough sample provided to analyze (<50 mg) \*\*\* Matrix / substrate interference possible. Sample results are not corrected for contamination by field or analytical blanks. This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA or any government agency. This report shall not be reproduced except in full, without written approval of the laboratory.

**Date Received:** 10/8/2013  
**Date Analyzed:** 10/9/2013  
**Analyst:** M. Stewart

**Approved By:**



Frank E. Ehrenfeld, III  
Laboratory Director