December 20, 2019

Canadian Coast Guard
C/O Supply Depot, Southside Road
P.O. Box 5667 St. John's, NL A1C 5X1

E-mail: Craig.Norman@dfo-mpo.gc.ca

Attention: Craig Norman
Project Technologist

Re: Lead Paint Sampling Report
CCGS Harp, St. John's, NL
Pinchin File: 268446

1.0 INTRODUCTION

Pinchin Ltd. (Pinchin) was retained by the Canadian Coast Guard (Client) to perform testing for lead in paints aboard the CCGS Harp (Vessel) while docked in St. John's, NL. Sample locations were determined at the direction of the Client. The testing was performed by Jeffrey Croft and Jeremy Waddleton on December 6th, 2019.

The purpose of the testing was to determine the lead content of various paint and surface coatings that may be disturbed by workers during maintenance or refit operations (i.e. welding, grinding, etc.) planned for the Vessel. Paint samples were collected at various locations throughout the Vessel.

2.0 METHODOLOGY AND CRITERIA

Samples of paint finishes were collected where the removal of paint was possible by scraping the painted finish to include base and covering applications. Analysis was performed in accordance with EPA Method No. 3050B/Method No. 7420; flame atomic absorption at an accredited laboratory.

For this report, all paints containing lead at a concentration above the laboratory Reportable Detection Limit (RDL) are discussed. The concentration of lead in paint and surface coatings are compared to the provincial regulation for both safe work practices and waste screening purposes.

3.0 RESULTS AND DISCUSSION

Table 1 describes the sample location, description and results for each sample collected. For analytical results, refer to Appendix I – Lead Analytical Certificate attached to this report.

Table 1 – Analytical Results

Sample	Location	Description	Result (%)
268446-P001	Main Deck, Stern	Deck – red paint	<0.0042
268446-P002	Main Deck, Stern	Gas Storage - yellow paint	<0.0058
268446-P003	Main Deck, Stern	Winch Guide – black paint	0.042
268446-P004	Main Deck, Stern	Bulwark – grey paint	<0.0069
268446-P005	Main Deck, Mid ship	Superstructure – white paint	0.061
268446-P006	Main Deck, Stern	Hull – Red paint	2.4
268446-P007	Forecastle Deck, Bow	Deck – red paint	<0.0042
268446-P008	Forecastle Deck, Bow	Rope Ladder Hatch – yellow paint	0.36
268446-P009	Forecastle Deck, Port	Bulwark – grey paint	0.060
268446-P010	Forecastle Deck, Port	Superstructure – white paint	7.4
268446-P011	Forecastle Deck, Port	Grump – black paint	0.0069

Airborne lead can be generated to hazardous levels from any amount of lead contained within a paint or surface coating, depending on the size and type of disturbance. To address this potential exposure risk to shipboard personnel, surface coatings with lead concentrations reported above the laboratory RDL are considered lead containing.

Analysis of six surface coating samples (268446-P003, 268446-P005, 268446-P006, 268446-P008, 268446-P009, and 268446-P010) collected, detected lead concentrations above the laboratory RDL and therefore are considered lead containing. Analysis of the remaining five surface coating samples collected (268446-P001, 268446-P002, 268446-P004, 268446-P007, and 268446-P011) did not identify lead concentrations above the laboratory RDL. Paint or surface coatings with less than 0.009% lead by weight (90ppm) are considered low-level lead containing coatings.

Lead containing surface coatings that are disturbed by either non-aggressive or aggressive methods (e.g. grinding, torch cutting/burning, abrasive blasting, power tools), cause potential elevated worker exposure to lead and cause the contamination of surrounding work areas. These disruption methods also potentially require more elaborate engineering controls (ventilation, containment, and dust suppression) in order to mitigate the release of lead containing dust from the work site. If low-level lead surface coatings are disturbed in a non-aggressive manner with standard dust control measures, worker inhalation protection is not required. However, typical health and safety precautions must be implemented (i.e. dust suppression techniques, prohibition of eating and drinking in the work area, washing facilities for workers, etc.). If low-level lead surface coatings are disturbed by aggressive methods, there is potential for

elevated worker exposure to lead and contamination of work areas, and more elaborate engineering controls are potentially required.

To address work procedures and safe handling of lead-containing surface coatings, Pinchin follows the recommendations of the Environmental Abatement Council of Ontario (EACO) Lead Guideline for Construction, Renovation, Maintenance or Repair. The EACO Guideline establishes a de minimis (i.e. virtually safe) level of lead in paint and surface coatings where a hazard would not likely be present if the task being completed does not create significant dust, mist or fume.

To address disposal issues, waste with lead concentrations in excess of 5,000 mg/kg (0.5%) must be subjected to a leachate extraction analysis to determine whether the leachate exceeds the regulatory limit of 5 mg/L. Should the leachate test exceed the criterion, the material would be considered a hazardous waste in which disposal at an approved hazardous waste secure facility is required (outside the Province of NL). Leachate analysis is not required for scrap metal or steel with well-adhered paint as these materials are not assumed to be disposed into a land fill as these materials are usually recycled. In the case where the substrate is steel, only the paint waste generated by the maintenance work (i.e. welding, grinding, etc.) and deteriorated surface coatings (e.g. flaking) must be submitted for lead leachate analysis. Paint 268446-P006 and paint 268446-P010 exceed the criteria for disposal with lead level exceeding 5,000mg/kg (0.5%) and therefore require lead leachate testing to determine if additional disposal measures are necessary. All paints were observed in good condition.

4.0 RECOMMENDATIONS

The disturbance of lead paint should be assessed on a case by case basis to take into consideration the method and extent of disturbance. If deemed necessary by the assessment, safe work procedures must be followed.

If elevated lead surfaces are disturbed by aggressive methods (e.g. grinding, torch cutting/burning, abrasive blasting, power tools), there may be a potential for elevated worker exposure to lead and contamination of work areas, and more elaborate engineering controls (ventilation, containment, and dust suppression) will be required. Prepare specifications for aggressive disturbance of elevated lead paint prior to initiating the work.

Lead-painted items may be a hazardous waste. Test deteriorated lead-painted materials (e.g. flaking) for leachable lead prior to disposal.

5.0 TERMS AND LIMITATIONS

This work was performed subject to the Terms and Limitations presented or referenced in the proposal for this project.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

6.0 CLOSURE

If you have any questions regarding the contents of this letter, please contact the undersigned

Sincerely,

Pinchin Ltd.

Prepared by:

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Encl.: Appendix I – Lead Analytical Certificate

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Template: Master Lead Sample Results Letter, Haz, April 16, 2019

APPENDIX I

Lead Analytical Certificate

Analysis for Lead Concentration in Paint Chips

by Flame Atomic Absorption Spectroscopy
EPA SW-846 3050B/6010C/7000B

Customer: Pinchin LeBlanc Environmental Ltd.
27 Austin St
2nd Flr
St Johns, NL A1B 4C3

Attn: Jeffrey Croft
Curtis Snelgrove

Project: CCGS Harp- Lead & Mercury Paint Sampling

Lab Order ID: 71930762
Analysis ID: 71930762_PBP
Date Received: 12/9/2019
Date Reported: 12/16/2019

Sample ID *Lab Sample ID*	Description *Lab Notes*	Mass *(g)*	Concentration *(ppm)*	Concentration *(% by weight)*
268466-P001 71930762PBP_1	Deck, Main Deck, stern, Red Paint	0.0949	< 42	**< 0.0042%**
268466-P002 71930762PBP_2	Gas Storage Tankl, Main Deck, stern, Yellow Paint	0.0690	< 58	**< 0.0058%**
268466-P003 71930762PBP_3	Towing Winch Guide, Main Deck, stern, Black Paint	0.0383	420	**0.042%**
268466-P004 71930762PBP_4	Bulwark, Main Deck, Stern, Grey Paint	0.0582	< 69	**< 0.0069%**
268466-P005 71930762PBP_5	Superstructure, Main Deck, Mid ship, White Paint	0.0605	610	**0.061%**
268466-P006 71930762PBP_6	Hull, Main Deck, Stern, Red Paint	0.0545	24000	**2.4%**
268466-P007 71930762PBP_7	Deck, Forecastle Deck, Bow, Red Paint	0.0952	< 42	**< 0.0042%**
268466-P008 71930762PBP_8	Rope Ladder Hatch, Forecastle Deck, Bow, Yellow Paint	0.0729	3600	**0.36%**
268466-P009 71930762PBP_9	Bulwark, Forecastle Deck, Port, Grey Paint	0.0582	600	**0.060%**
268466-P010 71930762PBP_10	Superstructure, Forecatle Deck, Mid ship, White Paint	0.0744	74000	**7.4%**

Unless otherwise noted blank sample correction was not performed on analytical results. Scientific Analytical Institute participates in the AIHA ELPAT program. ELPAT Laboratory ID: 173190. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. Analytical uncertainty available upon request. The quality control samples run with the samples in this report have passed all EPA required specifications unless otherwise noted. RL: (Report Limit for an undiluted 50ml sample is 4µg Total Pb).

Sara Shaut (11)
Analyst

Laboratory Director

Analysis for Lead Concentration in Paint Chips

by Flame Atomic Absorption Spectroscopy
EPA SW-846 3050B/6010C/7000B

Customer: Pinchin LeBlanc Environmental Ltd.
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Project: CCGS Harp- Lead & Mercury Paint Sampling

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Analysis ID: 71930762_PBP
Date Received: 12/9/2019
Date Reported: 12/16/2019

Sample ID *Lab Sample ID*	Description *Lab Notes*	Mass *(g)*	Concentration *(ppm)*	Concentration *(% by weight)*
268466-P011	Grump, Forecastle Deck, Port, Black Paint	0.1015	69	**0.0069%**
71930762PBP_11				

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