



RFP-CMIP21201808

## Amendment No. 2: To the Tender Documents Immersive Film Experience and Exhibit Redesign

Amendment Date: November 27, 2018

To all Proponents:

The Purpose of this Amendment is to amend the Scope of Work:

### ITEM

#### 1. Audio Visual Equipment Acquisition, Installation and Wiring

- a) In Section 1.1 under "The Project includes:" **add** "Audio Visual Equipment Acquisition, Installation and Wiring"
- b) In Section 2.4.1, **add**:
  - The Contractor shall provide the design, review, acquisition, installation, labour and supervision for the audio visual equipment required for the Project. The contractor shall verify all conditions and dimensions prior to acquisition of the audio visual equipment. Audio-visual equipment shall be commercial-grade. Acquisition of audio visual equipment shall not occur without sign-off by CMI.
- c) In Section 2.4.1, **remove** "CMI shall be responsible for AV hardware procurement".
- d) In Section 2.4.2, **add**:
  - The Contractor shall provide trained and experienced staff to install exhibits, graphics, media components, audio visual equipment and wiring to termination site;

#### 2. Budget

- a) In Section 1.2 Budget, **replace** \$485,000 with \$545,000. The revised budget includes the purchase and installation of all audio visual equipment, installation and wiring.

#### 3. Schedule Revision

- a) In Section 3.5.2, **add** "Audio visual equipment list submitted to CMI", "Audio visual equipment list approved by CMI", and "Purchase of audio visual equipment" with all dates to be determined by the successful proponent and CMI.

#### 4. Hazardous Materials

CMI is located in a heritage building on the Halifax Waterfront. There is a recurring problem of lead dust in the facility. CMI has abated for lead (as per the hazmat reports attached) however the successful contractor must be aware that lead dust is possible. The Contractor

shall be responsible for abatement if required. An allowance for clean-up has been reserved by CMI in addition to the budget of \$545,000.

**5. Submittal Documentation**

Proponents shall **revise** Section 8.10 Cost Breakdown as the following:

<b>Description</b>	<b>Price</b>
Demolition and Fit-Up	
Immersive Film Experience (audio-video production)	
Space and experience design	
Testing	
Fabrication, Delivery, and Installation	
Training and User Manuals	
Project Management	
Audio Visual Hardware including hardware purchase, hardware installation, and wiring to termination point	
Other (please explain)	
<b>Total (exclusive of 15% taxes)</b>	
Hazardous Materials Abatement Allowance	\$20,000

**QUESTIONS**

The following questions have been asked:

1. The scope of this contract does not include the acquisition, installation and programming of audiovisual equipment. Knowing this, will the chosen contractor have the opportunity to bid on this future RFP?

Please note Item 1 above.

The successful contractor of this RFP shall be responsible for the acquisition, installation and wiring up to the termination point for all audiovisual equipment. Programming of the audiovisual equipment is proprietary and shall be the responsibility of CMI or designated contractor.

2. What is the total budget of the project including the equipment and their facilities?

Project Scope: The project budget is \$545,000 CAD exclusive of 15% taxes for all items listed in the RFP and per this amendment plus a \$20,000 allowance for hazardous materials remediation.

Out of Scope: CMI has reserved an additional \$70,000 for content licencing

3. It is a question of tests in the document, are we responsible for the purchase of equipment to carry out these tests and are they part of our budget?

All aspects of beta/prototype testing and costs related to these are the responsibility of the successful proponent and must be included in the proposed budget.

**End of Document**



16 March 2016  
File: 2016.03.32

Ashley MacPherson  
Procurement and Administration Manager  
Canadian Museum of Immigration at Pier 21  
1055 Marginal Rd, Halifax, NS  
B3H 4P7

E-Mail: [amacpherson@pier21.ca](mailto:amacpherson@pier21.ca)

Ms MacPherson:

**Re: Lead Paint Dust Cleanup, Final tests**

Englobe conducted final settled dust and clearance air sampling on March 14, 2016, from areas inside the enclosure following final removal of materials and cleanup of the surfaces. The sampling methodology, Englobe summary and original test certificates were included in the Englobe letter to you.

The air samples indicated that airborne lead dust was not retrieved in either sample (ie  $<0.001 \text{ mg/m}^3$ ) and settled dust levels were below the clearance standard of  $21.5 \text{ ug}/100 \text{ cm}^2$  in all samples). Accordingly, no additional cleanup is needed and all work within the enclosure going forward can be done without any specific protection from inhalable lead dust.

We trust the enclosed report is to your satisfaction. If, however, additional information should be required, please communicate with the undersigned.

**Design1 Indoor Environmental Inspections**

A handwritten signature in black ink, appearing to be "K. Strong", written over a circular stamp or mark.

Kim W. Strong, M.Sc.  
[kim@design1environments.ca](mailto:kim@design1environments.ca)

*Design1 Indoor Environmental Inspections*

Administration: PO Box 176, Canning, NS, B0P 1H0  
Operations: Unit 20-B, 780 Windmill Rd, Dartmouth, NS, B3B 1T3  
902-599-0606 • [www.design1environments.ca](http://www.design1environments.ca)

March 15, 2016

**Ms. Ashley MacPherson**  
Procurement and Administration Manager  
Canadian Museum of Immigration at Pier 21  
201-1099 Marginal Road  
Halifax, NS  
B3H 4P7

**Subject: Lead Air and Dust (Surface) Clearance Sampling – Canadian Museum of Immigration (CMIP) at Pier 21**  
**1055 Marginal Road, Halifax, NS**  
Our ref.: 21107

Ms. MacPherson:

At your request, Englobe Corp. (Englobe) conducted lead air and surface dust sampling within the lead abatement enclosure at the above-noted site. Sampling was requested to establish current concentrations of lead in air and from the surface(s) from within the enclosure activities associated with the completion of the removal of the escalator(s) and lead abatement.

Englobe personnel collected the samples on March 14, 2016.

The air samples were collected using SKC low volume sampling pumps calibrated to 4 L/min. The pumps were fitted with 37mm, 3pc cassettes, with 0.8µm MCE filters.

Lead surface dust samples/swabs were taken from surfaces inside the enclosure. Lead dust wipe samples were collected using Ghost Wipes™, which is a cloth-like material suitable for collecting dust samples from hard surfaces that dissolves during the digestion process of the laboratory analysis. At the sample locations, the areas wiped were measured in order to calculate lead dust loading.

Lead analysis was subcontracted to AGAT Laboratories. Results are provided in Table 1 and Table 2. Laboratory certificates are attached.

For clearance purposes, air sample results were compared to half of the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) as a Time-Weighted Average (TWA) of 0.025 mg/m<sup>3</sup>.

As directed by Mr. Kim Strong of Design1, swab samples were compared to criteria set at  $21.5 \mu\text{g}/100\text{cm}^2$  for samples collected outside of the café area.

### 1. LEAD RESULTS

Lead was not detected in the sample collected.

Table 1 below provides sample locations and results.

Table 1: Lead Air Sample Results (sampled March 14, 2016)

SAMPLE NO.	SAMPLE LOCATION AND DESCRIPTION	LAB RESULT ( $\text{mg}/\text{m}^3$ )
Clearance Air 1	Ground level, north wall	<0.001
Clearance Air 2	Ground level, south wall	<0.001
Half ACGIH TLV-TWA		0.025

**Black** boxed text: concentration exceeds ACGIH TLV-TWA

These data indicate that the air in the areas sampled does not contain airborne lead dust at unacceptable levels.

Table 2: Lead (Surface Swabs) Sample Results (sampled March 14, 2016)

SAMPLE NO.	SAMPLE LOCATION AND DESCRIPTION	LAB RESULT ( $\mu\text{g}/100\text{cm}^2$ )
Clearance Swab 1	2 <sup>nd</sup> level, metal floor support beam	3
Clearance Swab 2	2 <sup>nd</sup> level, metal support beam	8
Clearance Swab 3	Duct work	13
Clearance Swab 4	Mechanical pit, metal beam	4
Clearance Swab 5	Ground level, aluminum drywall stud track	<1
Criteria		21.5

**Black** boxed text: concentration exceeds criteria

Based on the test results, the sample collected from surfaces inside the enclosure satisfies the criteria of  $21.5 \mu\text{g}/100\text{cm}^2$ . These results indicate that additional cleaning is not required.

CLIENT NAME: ENGLOBE CORP  
97 TROOP AVE  
DARTMOUTH, NS B3B2A7  
(902) 468-6486

ATTENTION TO: Ashley Zottarelli

PROJECT: 21107

AGAT WORK ORDER: 16X076422

SOIL ANALYSIS REVIEWED BY: Jason Coughtrey, Inorganics Supervisor

DATE REPORTED: Mar 15, 2016

PAGES (INCLUDING COVER): 6

VERSION\*: 1

Should you require any information regarding this analysis please contact your client services representative at (902) 468-8718

**\*NOTES**

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

Subject : Lead Air Sampling  
CMIP Pier 21, Halifax NS  
Project No.: 21107

March 15, 2016

## 2. SURVEY LIMITATIONS

This report was prepared for the exclusive use of Canadian Museum of Immigration at Pier 21, and is based on data and information obtained during site visit by Englobe and is based solely upon the condition of the subject area of the property on the date of the site visit, supplemented by information obtained and described herein. Only the above described building locations were included in the scope of the work.

The evaluation and conclusions contained in this report have been prepared based on the expertise and experience of Englobe. In evaluating the site, Englobe has relied in good faith upon representation and information furnished by individuals noted in the report with respect to existing site conditions to the extent that they have not been contradicted by data obtained by other sources. Accordingly, Englobe accepts no responsibility for any deficiency or inaccuracy in this report as a result of omissions, misstatements or misrepresentations of the person(s) interviewed. In addition, Englobe will not accept liability for loss, injury, claim or damage arising from any use or reliance on this report as a result of misrepresentation or fraudulent information.

The statements and conclusions presented in this report are professional opinions based upon data and information obtained during sampling by Englobe, visual observations made during the sampling, and on interpretation of lead laboratory analyses. The opinions in this report are given using generally accepted scientific judgment, principles, and practices; however, because of the inherent uncertainty in this process no guarantee of conclusion is intended or can be given.

## 3. CLOSING

We trust this is to your satisfaction. If, however, additional information should be required, please communicate with the undersigned.

Sincerely,  
**Englobe Corp.**



Ashley Zottarelli, P.Eng.  
Project Manager, Environmental Engineering

## Attachments

cc. Kim Strong, Design1 Indoor Environmental Inspections





# AGAT Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 16X076422  
PROJECT: 21107

11 Morris Drive, Unit 122  
Dartmouth, Nova Scotia  
CANADA B3B 1M2  
TEL (902)468-8718  
FAX (902)468-8924  
<http://www.agatlabs.com>

CLIENT NAME: ENGLOBE CORP  
SAMPLING SITE:

ATTENTION TO: Ashley Zottarelli  
SAMPLED BY:

DATE RECEIVED: 2016-03-14		DATE REPORTED: 2016-03-15	
<b>Lead in Swab - ug/100cm2</b>			
Clearance Swab Clearance Swab Clearance Swab Clearance Swab Clearance Swab			
SAMPLE DESCRIPTION: 1 2 3 4 5			
SAMPLE TYPE: Swab Swab Swab Swab Swab			
DATE SAMPLED: 3/14/2016 3/14/2016 3/14/2016 3/14/2016 3/14/2016			
G / S RDL 7438106 7438109 7438110 7438111 7438112			
Parameter	Unit		
Lead in Swab	µg/100cm2	1 3 8	4 <1

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

**Certified By:**

11 Morris Drive, Unit 122  
 Dartmouth, Nova Scotia  
 CANADA B3B 1M2  
 TEL (902)468-8718  
 FAX (902)468-8924  
 http://www.agatlabs.com

**Certificate of Analysis**  
 AGAT WORK ORDER: 16X076422  
 PROJECT: 21107

ATTENTION TO: Ashley Zottarelli  
 SAMPLED BY:



CLIENT NAME: ENGLOBE CORP  
 SAMPLING SITE:

DATE RECEIVED: 2016-03-14		DATE REPORTED: 2016-03-15	
<b>Lead on Filter Paper - mg/m3</b>			
SAMPLE DESCRIPTION: Clearance Air 1 Clearance Air 2			
Parameter	Unit	DATE SAMPLED:	Filter
	mg/m3	G / S	3/14/2016
		RDL	7438113
			0.001
			<0.001
			<0.001

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

*Jason Cozzitelli*

**Certified By:**

Results relate only to the items tested and to all the items tested

## Quality Assurance

CLIENT NAME: ENGLOBE CORP  
 PROJECT: 21107  
 SAMPLING SITE:

AGAT WORK ORDER: 16X076422  
 ATTENTION TO: Ashley Zottarelli  
 SAMPLED BY:

Soil Analysis																
RPT Date: Mar 15, 2016			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Lead in Swab - ug/100cm2																
Lead in Swab	1		<1	<1	0.0%	1	99%	70%	130%	100%	70%	130%	105%	70%	130%	
Lead on Filter Paper - mg/m3																
Lead	1		<0.001	<0.001	NA	0.001	102%	70%	130%	103%	80%	120%	108%	80%	120%	

Certified By: \_\_\_\_\_



## Method Summary

CLIENT NAME: ENGLOBE CORP

AGAT WORK ORDER: 16X076422

PROJECT: 21107

ATTENTION TO: Ashley Zottarelli

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Lead in Swab			ICP-MS
Lead	MET-121-6015 & MET-121-6112	NIOSH 7303	ICP-MS

February 12, 2014

**Canadian Museum at Pier 21**  
1055 Marginal Road  
Halifax, NS  
B3H 4P7

**Subject:** Canadian Museum of Immigration at Pier 21  
Lead Swab Sampling Summary  
Our ref: 17241

## BACKGROUND

LVM / Maritime Testing Limited (LVM) was retained by the Canadian Museum of Immigration at Pier 21 to collect lead swab samples on steel beams/columns in the work areas where lead paint was removed, as directed by Mr. Craig Chisholm of MHPM Project Managers Inc., at the Canadian Museum of Immigration at Pier 21 (CMIP) located at 1055 Marginal Road, in Halifax, NS.

## SAMPLING METHODOLOGY & RESULTS

The samples were collected over several sampling events as identified in Table 1 using a Ghost Wipe™, which is cloth-like material suitable for collecting swab samples from hard surfaces and dissolves during the digestion process of the laboratory analysis. Ghost wipes are typically used to analyze settled dust for metals content. At the sample locations, the areas wiped were measured in order to calculate lead loading. Samples were placed in individual clean plastic bottles. Samples were labeled with the sample ID and location. PPE was worn as required.

Swab samples were collected from various locations, as directed by Mr. Craig Chisholm. The columns sampled were visually observed to be bare (i.e. were no longer painted), clean, and dust was not observed to be present in the sampling locations.

Lead content analysis was subcontracted to local laboratories, suitably qualified in this analysis. It should be noted that the analysis is for *lead content*, and not *lead paint content*. Analysis for lead paint content refers to analysis of actual paint chips for lead content. During these sampling events, swab samples (not paint samples) were collected for lead content. Laboratory certificates are attached. Analytical results from the swab samples are provided in Tables 1 and 2.

Table 1: Lead Swab Results – Following “Normal Abatement Procedures”

ID	DATE COLLECTED	SAMPLE LOCATION	LAB RESULT ( $\mu\text{g}/100\text{cm}^2$ )	LAB RESULT ( $\text{mg}/\text{m}^2$ )
Sa. 1	December 19, 2013	Heritage Hall, column	238	23.8
Sa. 2	December 19, 2013	Heritage Hall, column	418	41.8
Pb1a	January 7, 2014	Lunchroom, 2 <sup>nd</sup> level, column	56.2	5.62
Pb2a	January 7, 2014	Lunchroom, 2 <sup>nd</sup> level, column	78.5	7.85
L1	January 17, 2014	Exhibition Hall, 2 <sup>nd</sup> level, column	996	99.6
L2	January 17, 2014	Exhibition Hall, 2 <sup>nd</sup> level, column	263	26.3
L3	January 23, 2014	Exhibition Hall, 2 <sup>nd</sup> level, column	19.8	1.98

There is not currently a clearance criterion for lead in swab sampling following lead paint abatement in this setting. On the columns sampled, the paint had been removed and had been cleaned to what appeared visually to be bare metal with no visual dust. It is my understanding that the contractor was required to remove the paint, which seems to have been done at the sampling locations, and that no reference post-cleaning criterion was provided.

It should be noted that lead paint abatement was ongoing at the time the samples were collected in other areas of the enclosure.

Lead was identified in all samples. Therefore, following receipt of the laboratory results from the first sampling event (samples collected on December 19, 2013), additional testing was recommended to attempt to explain why lead was identified in sample locations that visually appeared clean. This additional testing was recommended under the following conditions:

1. Collect samples following “normal” abatement procedures and when beam/column appears to be free of paint. These data would be representative of the current “post-abatement requirement” of conditions with the paint removed.
2. Collect samples following 1) above and also immediately following washing cleaned surfaces with a suitable lead dust removal detergent to remove all potential dust residues. In the absence of a final “clean” criterion, this concentration of dust could be used to represent a “best case” criterion if one is needed. Note that no such criterion was provided to the abatement contractor in advance of doing the work, however.
3. Collect samples following 1) above and following sanding of surface with fine-grit sandpaper to expose metal that had never been painted; this will determine if lead is present in exposed bare metal.

Samples were collected following the above described recommendations. Six (6) swab samples were collected in total from the two (2) columns in the 2<sup>nd</sup> level lunchroom work area, as directed by Mr. Craig

Chisholm, on January 7, 2014. Analytical results from the swab samples collected from the second sampling program (samples collected on January 7, 2014) following the above described recommendations are provided in Table 2.

Table 2: Lead Swab Sample Results – Additional Cleaning

ID	SAMPLE LOCATION	SAMPLE DESCRIPTION	LAB RESULT ( $\mu\text{g}/100\text{cm}^2$ )	LAB RESULT ( $\text{mg}/\text{m}^2$ )
Column 1 – Pb1a	Lunchroom, level 2	Following “normal” abatement procedures	56.2	5.62
Column 1 – Pb1b	Lunchroom, level 2	Following cleaning with lead dust removal detergent	21.1	2.11
Column 1 – Pb1c	Lunchroom, level 2	Following sanding to expose metal	4.14	0.414
Column 2 – Pb2a	Lunchroom, level 2	Following “normal” abatement procedures	78.5	7.85
Column 2 – Pb2b	Lunchroom, level 2	Following cleaning with lead dust removal detergent	18.5	1.85
Column 2 – Pb2c	Lunchroom, level 2	Following sanding to expose metal	6.94	0.694

These results show that as additional measures of cleaning was conducted, the lead content in the swab samples decreased. These results indicate that either paint not removable under typical removal methods remained on the beams/columns at the time of sampling (although it visually appeared to have been thoroughly removed), and dust from other abatement activities may have settled on the adequately-cleaned surface just prior to sampling (although dust was not observed during sampling). In addition, since lower levels of lead were detected following sanding to expose bare metal, this suggests that the metal itself contains a lead component.

During our sampling program, we observed the paint to have been removed from the sampled columns. Overall, the abated columns appeared clean and dust free and visually appeared to have satisfied the acceptance requirements.

#### SAFETY RECOMMENDATIONS

If work is to be conducted with the columns/beams, it must be done in accordance with the provincial *Occupational Health and Safety Regulations* and the *Canada Labour Code*. In addition, Nova Scotia Labour and Advanced Education (NSLAE) provides guidance when working with lead in the document *Working With Inorganic Lead – An Information Package*. These must be followed as a minimum.

NSLAE requires employee exposures to lead be maintained under  $50 \mu\text{g}/\text{m}^3$  of air and  $2.0 \mu\text{mol}/\text{L}$  of blood. If work occurs that may generate elevated levels of respirable lead, appropriate precautions and

personal protection equipment (PPE) must be utilized. The exact requirements for safety precautions and PPE depend on the work being undertaken.

In any case, if work is to be conducted with the columns/beams, the contractor must be notified of the findings of the lead swab sampling, prior to undertaking work with the columns/beams. The contractor must identify safety requirements appropriate to the work that is to be done, in accordance with provincial and federal safety requirements.

Specifically with respect to welding activities, NSLAE provides guidance in *Part 10 – Welding, Cutting, Burning and Soldering of the Occupational Safety General Regulations*. This must be followed. Inherent in the welding process are welding fumes, including various metals (aluminum, chromium, copper, iron, lead, manganese, nickel, thallium and zinc), carbon monoxide, ozone, etc. The American Conference of Governmental Industrial Hygienists (ACGIH) provides Threshold Limit Values (TLVs) for exposure to the various components of welding fumes. Appropriate precautions for protection against welding fumes (including lead) must be undertaken so that worker exposure does not exceed the TLVs. Appropriate precautions include the use of appropriate respiratory protection. In providing protection against welding fumes, protection against the identified lead will also be provided.

#### CLOSING

We trust this is to your satisfaction. If, however, additional information should be required, please communicate with the undersigned.

Yours very truly,



Ashley Zottarelli, P.Eng.



Kim Strong, M.Sc.





CLIENT NAME: LVM INC.  
97 TROOP AVE  
DARTMOUTH, NS B3B2A7  
(902) 468-6486

ATTENTION TO: ASHLEY ZOTTARELLI

PROJECT NO: 17241

AGAT WORK ORDER: 13X795842

SOIL ANALYSIS REVIEWED BY: Jason Coughtrey, Inorganics Supervisor

DATE REPORTED: Dec 20, 2013

PAGES (INCLUDING COVER): 3

VERSION\*: 1

Should you require any information regarding this analysis please contact your client services representative at (902) 468-8718

\*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



# AGAT Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 13X795842  
PROJECT NO: 17241

11 Morris Drive, Unit 122  
Dartmouth, Nova Scotia  
CANADA B3B 1M2  
TEL (902)468-8718  
FAX (902)468-8924  
http://www.agatlabs.com

CLIENT NAME: LVM INC.

ATTENTION TO: ASHLEY ZOTTARELLI

DATE RECEIVED: 2013-12-19		DATE REPORTED: 2013-12-20	
Lead in Swab - mg/100cm2			
SAMPLE DESCRIPTION: Sa 1 Sa 2			
SAMPLE TYPE: Swab Swab			
DATE SAMPLED: 12/19/2013 12/19/2013			
G / S RDL 5066316 5066317			
Parameter	Unit		
Lead in Swab	mg/100 cm2	0.001 0.238	0.418

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard  
5066316-5066317 10cm\*10cm

Certified By:



## Method Summary

CLIENT NAME: LVM INC.

AGAT WORK ORDER: 13X795842

PROJECT NO: 17241

ATTENTION TO: ASHLEY ZOTTARELLI

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Lead in Swab			ICP-MS

Your Project #: 17241  
 Site Location: PIER 21  
 Your C.O.C. #: B 140551

**Attention: Ashley Zottarelli**

LVM Maritime Testing  
 97 Troop Ave  
 Dartmouth, NS  
 CANADA B3B 2A7

**Report Date: 2014/01/08**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B401650**  
**Received: 2014/01/07, 10:33**  
 Sample Matrix: Swab  
 # Samples Received: 6

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Acid Extractable Metals in Swabs	6	2014/01/07	2014/01/08	ATL SOP-00058	Based on EPA6020A

\* 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.  
 Mari Kenny, Project Manager  
 Email: MKenny@maxxam.ca  
 Phone# (902)420-0203 Ext:291

=====  
 This report has been generated and distributed using a secure automated process.  
 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.

Maxxam Job #: B401650  
 Report Date: 2014/01/08

LVM Maritime Testing  
 Client Project #: 17241  
 Site Location: PIER 21  
 Sampler Initials: AT

### ELEMENTS BY ICP/MS (SWAB)

Maxxam ID		UL7284	UL7285	UL7286	UL7287	UL7288		
Sampling Date		2014/01/07	2014/01/07	2014/01/07	2014/01/07	2014/01/07		
COC Number		B 140551	B 140551	B 140551	B 140551	B 140551		
	Units	COLUMN1-PB1A	COLUMN1-PB1B	COLUMN1-PB1C	COLUMN2-PB2A	COLUMN2-PB2B	RDL	QC Batch
<b>Metals</b>								
Lead (Pb)	ug	56.2	21.1	4.14	78.5	18.5	0.125	3475114
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

Maxxam ID		UL7289		
Sampling Date		2014/01/07		
COC Number		B 140551		
	Units	COLUMN2-PB2C	RDL	QC Batch
<b>Metals</b>				
Lead (Pb)	ug	6.94	0.125	3475114
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				

Maxxam Job #: B401650  
Report Date: 2014/01/08

LVM Maritime Testing  
Client Project #: 17241  
Site Location: PIER 21  
Sampler Initials: AT

## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	15.0°C
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Samples were collected in a 10x10cm area

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

Maxxam Job #: B401650  
 Report Date: 2014/01/08

LVM Maritime Testing  
 Client Project #: 17241  
 Site Location: PIER 21  
 Sampler Initials: AT

**QUALITY ASSURANCE REPORT**

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
3475114	DLB	QC Standard	Lead (Pb)	2014/01/08		116	%	75 - 125
3475114	DLB	Spiked Blank	Lead (Pb)	2014/01/08		108	%	75 - 125
3475114	DLB	Method Blank	Lead (Pb)	2014/01/08	<0.125		ug	

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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.

Your Project #: 17241  
Your C.O.C. #: B 140495

**Attention: Ashley Zottarelli**

LVM Maritime Testing  
97 Troop Ave  
Dartmouth, NS  
CANADA B3B 2A7

**Report Date: 2014/01/21**  
**Report #: R2785817**  
**Version: 1**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B408513**  
**Received: 2014/01/17, 14:45**

Sample Matrix: Swab  
# Samples Received: 2

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Acid Extractable Metals in Swabs	2	2014/01/20	2014/01/21	ATL SOP-00058	Based on EPA6020A

\* 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.

Mari Kenny, Project Manager  
Email: MKenny@maxxam.ca  
Phone# (902)420-0203 Ext:291

=====

This report has been generated and distributed using a secure automated process.

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.





Maxxam Job #: B408513  
Report Date: 2014/01/21

LVM Maritime Testing  
Client Project #: 17241  
Sampler Initials: L.L

**ELEMENTS BY ICP/MS (SWAB)**

<b>Maxxam ID</b>		UP0200	UP0201		
<b>Sampling Date</b>		2014/01/17	2014/01/17		
<b>COC Number</b>		B 140495	B 140495		
	<b>Units</b>	<b>L1</b>	<b>L2</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Metals</b>					
Lead (Pb)	ug	996	263	0.125	3487384
RDL = Reportable Detection Limit QC Batch = Quality Control Batch					

Maxxam Job #: B408513  
Report Date: 2014/01/21

LVM Maritime Testing  
Client Project #: 17241  
Sampler Initials: L.L

## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	13.0°C
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**Results relate only to the items tested.**

Maxxam Job #: B408513  
 Report Date: 2014/01/21

LVM Maritime Testing  
 Client Project #: 17241  
 Sampler Initials: L.L

### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
3487384	DLB	QC Standard	Lead (Pb)	2014/01/21		114	%	75 - 125
3487384	DLB	Spiked Blank	Lead (Pb)	2014/01/21		105	%	75 - 125
3487384	DLB	Method Blank	Lead (Pb)	2014/01/21	<0.125		ug	

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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.

Your Project #: 17241  
Your C.O.C. #: B 078431

**Attention: Ashley Zottarelli**

LVM Maritime Testing  
97 Troop Ave  
Dartmouth, NS  
CANADA B3B 2A7

**Report Date: 2014/01/27**

**Report #: R2805957**

**Version: 1**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B411632**

**Received: 2014/01/23, 13:58**

Sample Matrix: Swab  
# Samples Received: 1

<b>Analyses</b>	<b>Quantity Extracted</b>	<b>Date</b>	<b>Date</b>	<b>Laboratory Method</b>	<b>Reference</b>
Acid Extractable Metals in Swabs	1	2014/01/24	2014/01/27	ATL SOP-00058	Based on EPA6020A

\* 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.

Mari Kenny, Project Manager

Email: MKenny@maxxam.ca

Phone# (902)420-0203 Ext:291

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Maxxam Job #: B411632  
Report Date: 2014/01/27

LVM Maritime Testing  
Client Project #: 17241  
Sampler Initials: LL

**ELEMENTS BY ICP/MS (SWAB)**

<b>Maxxam ID</b>		UQ6587		
<b>Sampling Date</b>		2014/01/23		
<b>COC Number</b>		B 078431		
	<b>Units</b>	<b>L3</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Metals</b>				
Lead (Pb)	ug	19.8	0.125	3492351
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				

Maxxam Job #: B411632  
Report Date: 2014/01/27

LVM Maritime Testing  
Client Project #: 17241  
Sampler Initials: LL

## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	16.3°C
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**Results relate only to the items tested.**

Maxxam Job #: B411632  
 Report Date: 2014/01/27

LVM Maritime Testing  
 Client Project #: 17241  
 Sampler Initials: LL

**QUALITY ASSURANCE REPORT**

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
3492351	DLB	QC Standard	Lead (Pb)	2014/01/27		102	%	75 - 125
3492351	DLB	Spiked Blank	Lead (Pb)	2014/01/27		106	%	75 - 125
3492351	DLB	Method Blank	Lead (Pb)	2014/01/27	<0.125		ug	

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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.

