

 Date:
 11-OCT-17

 PO No.:
 0000132962

 WO No.:
 L2000092

 LSD:

 Project Ref:

 Sample ID:
 HAMB 180 FS

 Sampled By:

 Date Collected:
 29-SEP-17

 Lab Sample ID:
 L2000092-1

 Matrix:
 WATER

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Metals						
Lead (Pb)-Total	0.000197		mg/L	0.01		06-OCT-1
DWQG = Health Canada Guideline Limits updated	DECEMBER	2015				
CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. Turbidity guideline based on membrane filtration. For g ummary Table of Guidelines for Canadian Drinking Wat A blank entry designates no known limit. A shaded value in the Results column exceeds CDWQC	uidelines on cor ler Quality	ventional treatmo	ent and slow sand	N.D. = less than de I or diatomaceous e	tection limit. arth filtration ple	ase see
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Approved by Hugenyi Heather McKenzie						
Account Manager						5
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 Date:
 11-OCT-17

 PO No.:
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 WO No.:
 L2000092

 LSD:

 Project Ref:

 Sample ID:
 HAMB 285 FS

 Sampled By:

 Date Collected:
 29-SEP-17

 Lab Sample ID:
 L2000092-25

 Matrix:
 WATER

Units of CDWQG Date Aesthetic **Test Description** Result Qualifier Measure MAC Objective Analyzed **Total Metals** Lead (Pb)-Total 0.00237 06-OCT-17 mg/L 0.01 CDWQG = Health Canada Guideline Limits updated **DECEMBER 2015** \* CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. If present as Nitrate then the limit is 10mg/L < or N.D. = less than detection limit. \* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality - A blank entry designates no known limit. - A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective. Melemi Approved by CL Heather McKenzie Account Manager

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Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Metals Lead (Pb)-Total	0.000183		mg/L	0.01		06-OCT-1
DWQG = Health Canada Guideline Limits updated	DECEMBER	2015				
CDWQG for Nitrate+Nitrite-N is the limit for nitrate on Turbidity guideline based on membrane filtration. Fo ummary Table of Guidelines for Canadian Drinking W A blank entry designates no known limit. A shaded value in the Results column exceeds CDW	r guidelines on cor /ater Quality	ventional treatm	ient and slow sand	N.D. = less than de or diatomaceous e	tection limit. arth filtration ple	ase see
Approved by HMCKenzie Heather McKenzie Account Manager		-				
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 LSD:

 Project Ref:

 Sample ID:
 HAMB 290 DF

 Sampled By:

 Date Collected:
 29-SEP-17

 Lab Sample ID:
 L200092-27

 Matrix:
 WATER

		Qualifier	Measure	CDWQG MAC	Objective	Date Analyzed
Total Metals Lead (Pb)-Total	0.000772	n - In	mg/L	0.01	22	06-OCT-1
DWQG = Health Canada Guideline Limits updated	DECEMBER	2015				
CDWQG for Nitrate+Nitrite-N is the limit for nitrate only Turbidity guideline based on membrane filtration. For ummary Table of Guidelines for Canadian Drinking Wa A blank entry designates no known limit. A shaded value in the Results column exceeds CDWQ	guidelines on con ater Quality	ventional treatm	ent and slow sand	I,D. = less than dei or diatomaceous e	ection limit. arth filtration ple	ase see
Approved by <u>Heather McKenzie</u> Account Manager	() ()					

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LSD:	
Project Ref:	
Sample ID:	HAMB 220 DF
Sampled By:	
Date Collected:	29-SEP-17
Lab Sample ID:	L2000092-28
Matrix:	WATER

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Metals Lead (Pb)-Total	0.000605		mg/L	0.01		06-OCT-17
CDWQG = Health Canada Guideline Limits updated	DECEMBER 2					

\* CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. If present as Nitrate then the limit is 10mg/L < or N.D. = less than detection limit. \* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality

- A blank entry designates no known limit

- A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective.

Approved by

Heather McKenzie Account Manager

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PO No.:	0000132962
WO No.:	L2000092
LSD: Project Ref: Sample ID: Sampled By:	HAMB 201 DF
Date Collected:	29-SEP-17
Lab Sample ID:	L2000092-29
Matrix:	WATER

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Metals Lead (Pb)-Total	0.00120		mg/L	0.01		06-OCT-1
CDWQG = Health Canada Guideline Limits updated	DECEMBER	2015				
Summary Table of Guidelines for Canadian Drinking Wa A blank entry designates no known limit. A shaded value in the Results column exceeds CDWQ	-	esthetic Objectiv	e.			
Heather McKenzie Account Manager		Ī				
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 Project Ref:

 Sample ID:
 HAMB 301 DF

 Sampled By:

 Date Collected:
 29-SEP-17

 Lab Sample ID:
 L2000092-30

 Matrix:
 WATER

Test Description		Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Metals Lead (Pb)-Total	× p	0.000691		mg/L	0.01		06-OCT-1
DWQG = Health Canada Guideline Limits	updated	DECEMBER	2015		16.		
CDWQG for Nitrate+Nitrite-N is the limit for Turbidity guideline based on membrane filtr ummary Table of Guidelines for Canadian E A blank entry designates no known limit. A shaded value in the Results column excer	ation. For g Drinking Wat	uidelines on cor er Quality	ventional treatmo	ent and slow sand	N.D. = less than de or diatomaceous e	tection limit. arth filtration ple	ase see
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Approved by <u>Heather McKenzie</u> Account Manager					192		
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 WO No.:
 L2000092

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 Project Ref:

 Sample ID:
 HAMB 358 DF

 Sampled By:

 Date Collected:
 29-SEP-17

 Lab Sample ID:
 L2000092-31

 Matrix:
 WATER

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Metals Lead (Pb)-Total	<0.000050		mg/L	0.01		06-OCT-1
DWQG = Health Canada Guideline Limits updated	DECEMBER	2015				
CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. Turbidity guideline based on membrane filtration. For guidelines for Canadian Drinking Wate A blank entry designates no known limit. A shaded value in the Results column exceeds CDWQG	uidelines on con er Quality	ventional treatm	ent and slow sand	V.D. = less than de or diatomaceous e	tection limit. arth filtration ple	ase see
Approved by Huttenzie Heather McKenzie Account Manager	-					
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 LSD:

 Project Ref:

 Sample ID:
 HAMB 221 DF

 Sampled By:

 Date Collected:
 29-SEP-17

 Lab Sample ID:
 L2000092-32

 Matrix:
 WATER

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Metals Lead (Pb)-Total	0.000549		mg/L	0.01		06-OCT-1
DWQG = Health Canada Guideline Limits updated	DECEMBER	2015				
CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. Turbidity guideline based on membrane filtration. For g ummary Table of Guidelines for Canadian Drinking Wat A blank entry designates no known limit. A shaded value in the Results column exceeds CDWQC	uidelines on con er Quality	ventional treatm	ent and slow sand	N.D. = less than det or diatomaceous ea	ection limit. arth filtration ple	ase see
Approved by AM Manager	_					
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 Date:
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 PO No.:
 0000132962

 WO No.:
 L2000092

 LSD:

 Project Ref:

 Sample ID:
 HAMB 138 DF

 Sampled By:

 Date Collected:
 29-SEP-17

 Lab Sample ID:
 L2000092-33

 Matrix:
 WATER

Aesthetic Date CDWQG Units of **Test Description** Qualifier Result Measure MAC Objective Analyzed **Total Metals** 06-OCT-17 Lead (Pb)-Total 0.000246 mg/L 0.01 **DECEMBER 2015** CDWQG = Health Canada Guideline Limits updated \* CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. If present as Nitrate then the limit is 10mg/L < or N.D. = less than detection limit. \* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality - A blank entry designates no known limit. - A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective. Myen Approved by Heather McKenzie Account Manager

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 WO No.:
 L2000092

 LSD:

 Project Ref:

 Sample ID:
 HAMB 144 SSDF

 Sampled By:

 Date Collected:
 29-SEP-17

 Lab Sample ID:
 L200092-34

 Matrix:
 WATER

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Metals Lead (Pb)-Total	0,000671		mg/L	0.01		06-OCT-17
CDWQG = Health Canada Guideline Limits updated	DECEMBER	2015				
<ul> <li>CDWQG for Nitrate+Nitrite-N is the limit for nitrate only.</li> <li>Turbidity guideline based on membrane filtration. For gu Summary Table of Guidelines for Canadian Drinking Wate - A blank entry designates no known limit.</li> <li>A shaded value in the Results column exceeds CDWQG</li> </ul>	uidelines on cor er Quality	ventional treatm	ent and slow sand	N.D. = less than de l or diatomaceous e	lection limit. arth filtration ple	ase see
Approved by Heather McKenzie	-					
Account Manager						
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Environmental 3



 Date:
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 PO No.:
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 WO No.:
 L2000092

 LSD:

 Project Ref:

 Sample ID:
 HAMB 149 BUB

 Sampled By:

 Date Collected:
 29-SEP-17

 Lab Sample ID:
 L2000092-35

 Matrix:
 WATER

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Metals						
Lead (Pb)-Total	0.00279		mg/L	0.01		06-OCT-1
CDWQG = Health Canada Guideline Limits updated	DECEMBER	2015			-	
* CDWQG for Nitrate+Nitrite-N is the limit for nitrate only * Turbidity guideline based on membrane filtration. For Summary Table of Guidelines for Canadian Drinking Wa • A blank entry designates no known limit. • A shaded value in the Results column exceeds CDWQ	guidelines on cor iter Quality	iventional treatm	ent and slow sand	N.D. = less than de or diatomaceous e	lection limit. arth filtration plea	se see
Approved by Huckenyi Heather McKenzie	-					
Account Manager						
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**Test Description** 

Date:	11-OCT-17
PO No.:	0000132962
WO No.:	L2000092
LSD:	
Project Ref:	
Sample ID:	HAMB 145 BUB
Sampled By:	
Date Collected:	29-SEP-17
Lab Sample ID:	L2000092-36
Matrix:	WATER

Units of

Fountain no longer in service

Aesthetic

Date

CDWQG

Measure MAC Objective Analyzed **Total Metals** Lead (Pb)-Total 0.0145 06-OCT-17 mg/L 0.01 CDWQG = Health Canada Guideline Limits updated **DECEMBER 2015** \* CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. If present as Nitrate then the limit is 10mg/L < or N.D. = less than detection limit. \* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality - A blank entry designates no known limit. - A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective. Approved by Heather McKenzie Account Manager

Result

Qualifier

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 Date:
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 WO No.:
 L2000092

 LSD:

 Project Ref:

 Sample ID:
 HAMB 293 FCDF

 Sampled By:

 Date Collected:
 29-SEP-17

 Lab Sample ID:
 L200092-37

 Matrix:
 WATER

Units of CDWQG Aesthetic Date **Test Description** Result Qualifier Measure MAC Objective Analyzed **Total Metals** Lead (Pb)-Total 0.000191 06-OCT-17 mg/L 0.01 DECEMBER 2015 CDWQG = Health Canada Guideline Limits updated \* CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. If present as Nitrate then the limit is 10mg/L < or N.D. = less than detection limit. \* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality - A blank entry designates no known limit. - A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective. Approved by Heather McKenzie Account Manager ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700

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## **Guidelines & Objectives**

#### Health Canada MAC Health Related Criteria Limits

Nitrate/Nitrite-N*	Criteria limit is 10 mg/L (1.0 mg/L if present as all Nitrite-N). High concentrations may contribute to blue baby syndrome in infants.
Lead*	A cumulative body poison, uncommon in naturally occurring hard waters.
Fluoride*	Present in fluoridated water supplies at 0.8 mg/L to reduce dental caries. Elevated levels causes fluorosis (mottling of teeth).
Total Coliforms*	Criteria is 0 CFU/100mL. Adverse health effects.
E. Coli*	Criteria is 0 CFU/100 mL, Certain E. Coli bacteria can be life threatening.

\*Health Canada Canadian Drinking Water Quality Guidelines (MAC limit)

#### **Aesthetic Objective Concentration Levels**

Alkalinity	Acid neutralizing capacity. Usually a measure of carbonate and bicarbonates and calculated and reported as calcium carbonate.
Balance	Quality control parameter ratioing cations to anions
Bicarbonate	See Alkalinity. Report as the anion HCO3-1
Carbonate	See Alkalinity. Reported at the anion CO3-2
Calcium	See Hardness. Common major cation of water chemistry.
Chloride	Common major anion of water chemistry.
Conductance	Physical test measuring water salinity (dissolved ions or solids)
Hardness	Classical measure or capacity of water to precipitate soap (chiefly calcium and magnesium ions). Causes scaling tendency in water if carbonates/bicarbonates are present (if >200 mg/L). For drinking water purposes waters with results <200 mg/L are considered acceptable, results >200 mg/L are considered poor but can be tolerated. Results >500 mg/L are unacceptable.
Hydroxide	See alkalinity
Magnesium	See hardness. Common major cation of water chemistry. Elevated levels (>125 mg/L) may exert a cathartic or diuretic action.
pH	Measure of water acidity/alkalinity. Normal range is 7.0-8.5.
Potassium	Common major cation of water chemistry.
Sodium	Common major cation of water chemistry. Measure of salinity (saltiness).
Sulphate	Common major anion of water chemistry. Elevated levels may exert a cathartic or diuretic action.
Total Dissolved Solids	A measure of water salinity
Iron	Causes staining to laundry and porcelain and astringent taste. Oxidizes to red-brown precipitate on exposure to air.
Manganese	Elevated levels may cause staining of laundry and porcelain.
Heterotrophic	
Plate Count	Criteria is 500 cfu/mL Measure of heterotrophic bacteria present.

#### **GLOSSARY OF REPORT TERMS**

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million,

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory. UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION. Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.