

Report Transmission Cover Page

Lot ID: **855377**
Control Number: A138600
Date Received: Feb 15, 2012
Date Reported: Feb 21, 2012
Report Number: 1716050

Contact & Affiliation	Address	Delivery Commitments
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		On [Lot Verification] send (COA) by Email - Multiple Reports
		On [Report Approval] send (COC, Test Report) by Email - Multiple Reports
		On [Report Approval] send (Test Report) by Email - Multiple Reports
		On [Report Approval] send (Test Report) by Email - Single Report

		On [Lot Approval and Final Test Report Approval] send (Invoice) by Email - Single Report
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		On [Lot Approval and Final Test Report Approval] send (Invoice) by Email - Single Report
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Notes To Clients:

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Sample Custody

Lot ID: **855377**
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Sample Disposal Date: **March 22, 2012**

All samples will be stored until this date unless other instructions are received. Please indicate other requirements below and return this form to the address or fax number on the top of this page.

Extend Sample Storage Until _____ (MM/DD/YY)

The following charges apply to extended sample storage:

Storage for an additional 30 days	\$ 2.50 per sample
Storage for an additional 60 days	\$ 5.00 per sample
Storage for an additional 90 days	\$ 7.50 per sample

Return Sample, collect, to the address below via:

Greyhound

DHL

Purolator

Other (specify) _____

Name _____

Company _____

Address _____

Phone _____

Fax _____

Signature _____

Analytical Report

Lot ID: **855377**
Control Number: A138600
Date Received: Feb 15, 2012
Date Reported: Feb 21, 2012
Report Number: 1716050

Reference Number: 855377-1
Sample Date: February 14, 2012
Sample Time: 10:30
Sample Location:
Sample Description: WTH 1-12 M40946.954091 / 1.0°C
Sample Matrix: Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Dissolved						
Silicon	Dissolved	mg/L	5.38	0.05		
Sulfur	Dissolved	mg/L	12.8	0.3		
Aluminum	Dissolved	mg/L	0.004	0.002	0.1	Below OG
Antimony	Dissolved	mg/L	<0.0002	0.0002	0.006	Below MAC
Arsenic	Dissolved	mg/L	0.0002	0.0002	0.01	Below MAC
Barium	Dissolved	mg/L	0.056	0.001	1	Below MAC
Beryllium	Dissolved	mg/L	<0.0001	0.0001		
Bismuth	Dissolved	mg/L	<0.0005	0.0005		
Boron	Dissolved	mg/L	0.025	0.002	5	Below MAC
Cadmium	Dissolved	mg/L	<0.00001	0.00001	0.005	Below MAC
Chromium	Dissolved	mg/L	0.0018	0.0005	0.05	Below MAC
Cobalt	Dissolved	mg/L	<0.0001	0.0001		
Copper	Dissolved	mg/L	<0.001	0.001	1	Below AO
Lead	Dissolved	mg/L	<0.0001	0.0001	0.01	Below MAC
Lithium	Dissolved	mg/L	0.037	0.001		
Molybdenum	Dissolved	mg/L	<0.001	0.001		
Nickel	Dissolved	mg/L	<0.0005	0.0005		
Selenium	Dissolved	mg/L	<0.0002	0.0002	0.01	Below MAC
Silver	Dissolved	mg/L	<0.00001	0.00001		
Strontium	Dissolved	mg/L	1.61	0.001		
Thallium	Dissolved	mg/L	<0.00005	0.00005		
Tin	Dissolved	mg/L	<0.001	0.001		
Titanium	Dissolved	mg/L	0.0009	0.0005		
Uranium	Dissolved	mg/L	<0.0005	0.0005	0.02	Below MAC
Vanadium	Dissolved	mg/L	0.0048	0.0001		
Zinc	Dissolved	mg/L	0.012	0.001	5	Below AO
Microbiological Analysis						
Total Coliforms	Membrane Filtration	CFU/100 mL	<1	1	0	Below MAC
Escherichia coli	Membrane Filtration	CFU/100 mL	<1	1	0	Below MAC
Physical and Aggregate Properties						
Solids	Total Suspended	mg/L	2	2		
Solids	Fixed Suspended	mg/L	<1	1		
Solids	Volatile Suspended	mg/L	2	1		
Routine Water						
Calcium	Dissolved	mg/L	69.4	0.2		
Magnesium	Dissolved	mg/L	20.2	0.2		

Analytical Report

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Reference Number 855377-1
Sample Date February 14, 2012
Sample Time 10:30
Sample Location
Sample Description WTH 1-12 M40946.954091 / 1.0°C
Sample Matrix Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Sodium	Dissolved	mg/L	64.3	0.4	200	Below AO
Potassium	Dissolved	mg/L	1.8	0.4		
Iron	Dissolved	mg/L	<0.01	0.01	0.3	Below AO
Manganese	Dissolved	mg/L	0.044	0.005	0.05	Below AO

Approved by: 
Darren Crichton, BSc, PChem
Operations Manager

Methodology and Notes

Lot ID: **855377**
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Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
Coliforms - Membrane Filtration	APHA	E. Coli - MF Partition Procedures, 9222 G	15-Feb-12	Exova Calgary
Coliforms - Membrane Filtration	APHA	Standard Total Coliform Membrane Filter Procedure, 9222 B	15-Feb-12	Exova Calgary
Metals ICP-MS (Dissolved) in water	APHA/USEPA	* Metals By Inductively Coupled Plasma/Mass Spectrometry, APHA 3125 B / USEPA 200.8	16-Feb-12	Exova Edmonton
Metals Trace (Dissolved) in water	APHA	* Inductively Coupled Plasma (ICP) Method, 3120 B	16-Feb-12	Exova Edmonton
Solids Suspended (Total, Fixed and Volatile)	APHA	* Fixed and Volatile Solids Ignited at 550°C, 2540 E	21-Feb-12	Exova Edmonton
Solids Suspended (Total, Fixed and Volatile)	APHA	* Total Suspended Solids Dried at 103-105°C, 2540 D	21-Feb-12	Exova Edmonton

* Reference Method Modified

References

APHA Standard Methods for the Examination of Water and Wastewater
US EPA US Environmental Protection Agency Test Methods

Guidelines

Guideline Description Health Canada GCDWQ
Guideline Source Guidelines for Canadian Drinking Water Quality, Health Canada, May 2008
Guideline Comments MAC = Maximum Acceptable Concentration
AO = Aesthetic Objective
OG = Operational Guideline for Water Treatment Plants
Refer to Health Canada GCDWQ for complete guidelines and additional drinking water information at www.hc-sc.gc.ca

Comments:

Methodology and Notes

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The comparison of test results to guideline limits is provided for information purposes only. This is not to be taken as a statement of conformance / nonconformance to any guideline, regulation or limit. The data user is responsible for all conclusions drawn with respect to the data and is advised to consult official regulatory references when evaluating compliance.

Please direct any inquiries regarding this report to our Client Services group.

Results relate only to samples as submitted.

The test report shall not be reproduced except in full, without the written approval of the laboratory.

Quality Control

Lot ID: **855377**
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Metals Dissolved

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
Silicon	mg/L	-0.0021	-0.04	0.05	yes
Sulfur	mg/L	-0.0157	-0.3	0.2	yes
Aluminum	ug/L	1.413	-2	2	yes
Antimony	ug/L	0.066	-0.2	0.2	yes
Arsenic	ug/L	0.036	-0.2	0.2	yes
Barium	ug/L	0.132	-1	1	yes
Beryllium	ug/L	-0.006	-0.0	0.1	yes
Bismuth	ug/L	0.054	-1.5	1.5	yes
Boron	ug/L	1.694	-2	2	yes
Cadmium	ug/L	0.002	-0.01	0.01	yes
Chromium	ug/L	-0.022	-0.3	0.3	yes
Cobalt	ug/L	0.004	-0.1	0.1	yes
Copper	ug/L	0.917	-1	1	yes
Lead	ug/L	0.017	-0.1	0.1	yes
Lithium	ug/L	-0.028	-1	1	yes
Molybdenum	ug/L	0.091	-1	1	yes
Nickel	ug/L	0.033	-0.5	0.5	yes
Selenium	ug/L	0.035	-0.2	0.2	yes
Silver	ug/L	0	-0.10	0.10	yes
Strontium	ug/L	0.134	-1	1	yes
Thallium	ug/L	0.001	-0.05	0.05	yes
Tin	ug/L	-0.005	-1	1	yes
Titanium	ug/L	-0.019	-0.5	0.5	yes
Uranium	ug/L	0.002	-0.5	0.5	yes
Vanadium	ug/L	0.015	-0.1	0.1	yes
Zinc	ug/L	0.562	-0	2	yes

Date Acquired: February 16, 2012

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Chromium	ug/L	6.1	5.7	10	1.1	yes

Date Acquired: February 16, 2012

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
Aluminum	ug/L	1000	887	1063	yes
Antimony	ug/L	40.3	35.3	41.9	yes
Arsenic	ug/L	40.0	38.7	45.3	yes
Barium	ug/L	201	182	212	yes
Beryllium	ug/L	19.7	17.3	22.1	yes
Bismuth	ug/L	103	93.8	111.8	yes
Boron	ug/L	397	344	434	yes
Cadmium	ug/L	2.16	1.86	2.26	yes
Chromium	ug/L	98.2	89.7	107.7	yes
Cobalt	ug/L	19.6	18.5	22.3	yes

Quality Control

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Metals Dissolved - Continued

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
Copper	ug/L	195	184	208	yes
Lead	ug/L	20.3	18.4	22.0	yes
Lithium	ug/L	203	175	223	yes
Molybdenum	ug/L	199	180	210	yes
Nickel	ug/L	98.5	90.6	108.6	yes
Selenium	ug/L	39.4	35.8	43.0	yes
Silver	ug/L	20.6	18.62	22.58	yes
Strontium	ug/L	189	174	210	yes
Thallium	ug/L	10.3	9.40	11.20	yes
Tin	ug/L	199	178	208	yes
Titanium	ug/L	98.5	88.9	108.7	yes
Uranium	ug/L	99.8	86.8	106.6	yes
Vanadium	ug/L	18.9	17.0	20.0	yes
Zinc	ug/L	197	183	219	yes
Date Acquired: February 16, 2012					
Aluminum	ug/L	51	45	55	yes
Antimony	ug/L	2.0	1.8	2.2	yes
Arsenic	ug/L	2.0	1.8	2.2	yes
Barium	ug/L	10	9	11	yes
Beryllium	ug/L	0.9	0.9	1.1	yes
Bismuth	ug/L	4.5	4.5	5.5	yes
Boron	ug/L	19	18	22	yes
Cadmium	ug/L	0.10	0.09	0.11	yes
Chromium	ug/L	4.6	4.5	5.5	yes
Cobalt	ug/L	1	0.9	1.1	yes
Copper	ug/L	10	9	11	yes
Lead	ug/L	1	0.9	1.1	yes
Lithium	ug/L	10	9	11	yes
Molybdenum	ug/L	10	9	11	yes
Nickel	ug/L	4.8	4.5	5.5	yes
Selenium	ug/L	2.0	1.8	2.2	yes
Silver	ug/L	1.04	0.90	1.10	yes
Strontium	ug/L	10	9	11	yes
Thallium	ug/L	0.52	0.45	0.55	yes
Tin	ug/L	10	9	11	yes
Titanium	ug/L	4.9	4.5	5.5	yes
Uranium	ug/L	5.0	4.5	5.5	yes
Vanadium	ug/L	1	0.9	1.1	yes
Zinc	ug/L	10	9	11	yes
Date Acquired: February 16, 2012					
Silicon	mg/L	10.0	8.70	10.50	yes
Sulfur	mg/L	147	140.5	158.5	yes

Quality Control

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Metals Dissolved - Continued

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
Date Acquired:	February 16, 2012				
Silicon	mg/L	2.07	1.80	2.20	yes
Sulfur	mg/L	10.1	9.0	11.0	yes
Date Acquired:	February 16, 2012				
Silicon	mg/L	0.20	0.18	0.22	yes
Sulfur	mg/L	2.9	2.8	3.3	yes
Date Acquired:	February 16, 2012				

Physical and Aggregate Properties

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Solids	mg/L	2	2	10	2	yes
Date Acquired:	February 21, 2012					
Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC	
Solids	mg/L	4	-6	6	yes	
Date Acquired:	February 21, 2012					
Solids	mg/L	1	-6	6	yes	
Date Acquired:	February 21, 2012					

Routine Water

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	0.018	-0.2	0.2	yes
Magnesium	mg/L	-0.0047	-0.1	0.1	yes
Sodium	mg/L	0.0626	-0.4	0.4	yes
Potassium	mg/L	0.0251	-0.4	0.4	yes
Iron	mg/L	0.004	-0.01	0.01	yes
Manganese	mg/L	0	-0.004	0.004	yes
Date Acquired:	February 16, 2012				

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Calcium	mg/L	3190	3210	10	0.6	yes
Magnesium	mg/L	480	480	10	0.7	yes
Sodium	mg/L	25000	24900	10	1.2	yes
Potassium	mg/L	680	690	10	1.2	yes
Iron	mg/L	40.2	41.3	10	0.05	yes
Date Acquired:	February 16, 2012					

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	247	225.1	274.9	yes
Magnesium	mg/L	101	92.7	101.1	yes
Sodium	mg/L	251	233.3	257.3	yes

Quality Control

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Routine Water - Continued

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
Potassium	mg/L	249	235.2	259.2	yes
Iron	mg/L	9.74	9.01	10.99	yes
Manganese	mg/L	2.40	2.240	2.540	yes
Date Acquired: February 16, 2012					
Calcium	mg/L	50.1	45.0	55.0	yes
Magnesium	mg/L	20.5	18.0	22.0	yes
Sodium	mg/L	51.6	45.0	55.0	yes
Potassium	mg/L	50.1	45.0	55.0	yes
Iron	mg/L	2.07	1.80	2.20	yes
Manganese	mg/L	0.501	0.450	0.550	yes
Date Acquired: February 16, 2012					
Calcium	mg/L	5.3	4.6	5.7	yes
Magnesium	mg/L	2.1	1.8	2.2	yes
Sodium	mg/L	5.3	4.7	5.7	yes
Potassium	mg/L	5.1	4.5	5.5	yes
Iron	mg/L	0.22	0.18	0.22	yes
Manganese	mg/L	0.052	0.045	0.055	yes
Date Acquired: February 16, 2012					