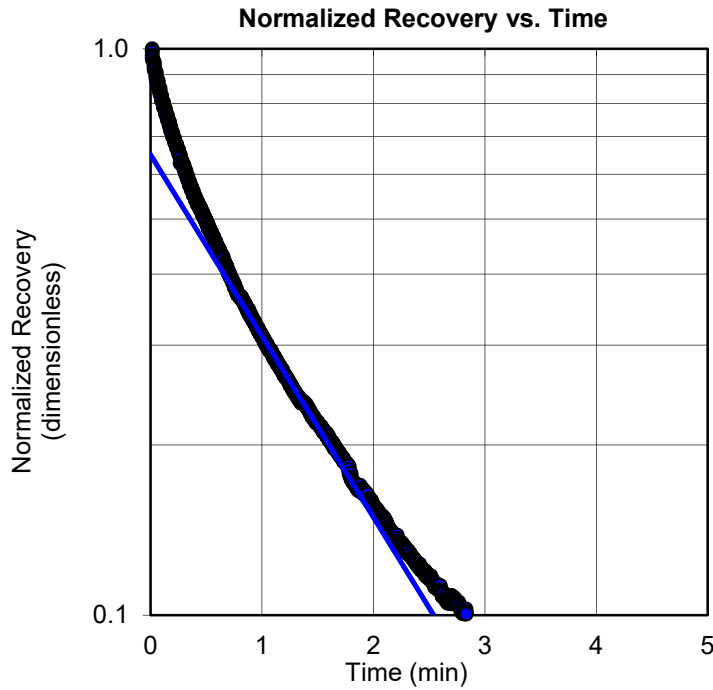
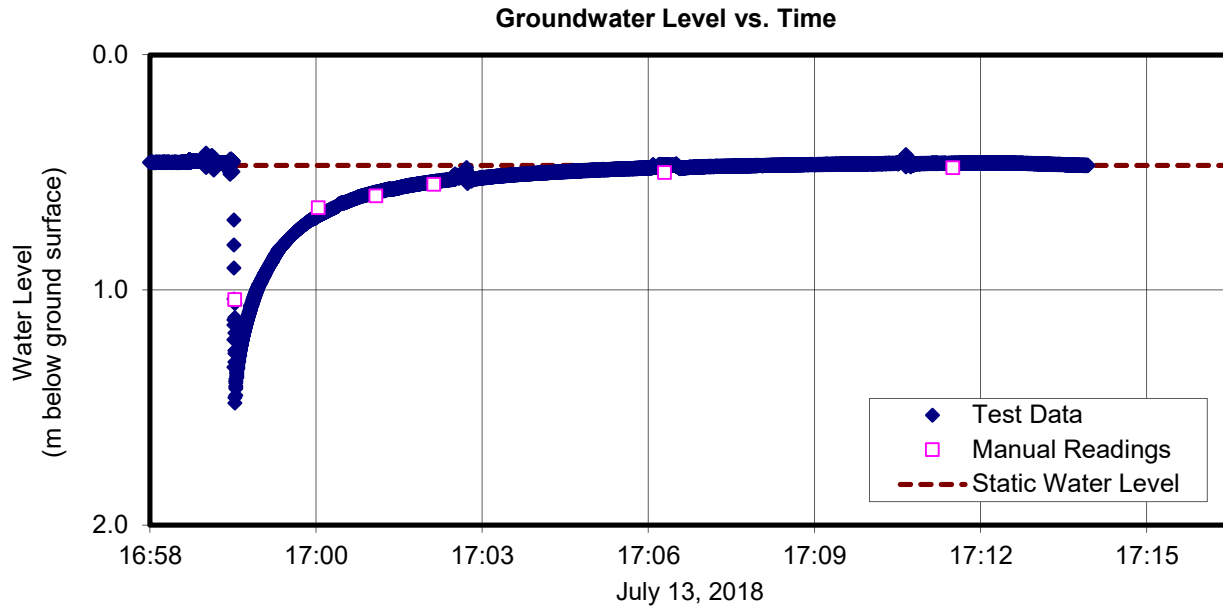


In-Situ Hydraulic Conductivity Test Report

Borehole FMS-HG18-07B

**FIGURE
E10**



Test Interval (below ground surface)

1.7 m to 4.8 m

Static Water Level (below ground surface)

0.47 m

Test Interval (L) = 3.05 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.048 m

Points Used for Match Line

$h_1/H_0 = 0.65$ $t_1 = 0$ min

$h_2/H_0 = 0.20$ $t_2 = 1.6$ min

Hvorslev Analysis

$$\text{Hydraulic Conductivity (K)} = \frac{-(r^2) \cdot \ln(t/R)}{2 \cdot L} \cdot \frac{\ln(h_2/H_0) - \ln(h_1/H_0)}{t_2 - t_1} = \mathbf{5E-6 \text{ m/s}}$$

DATE: November 2018

PROJECT: 1895674



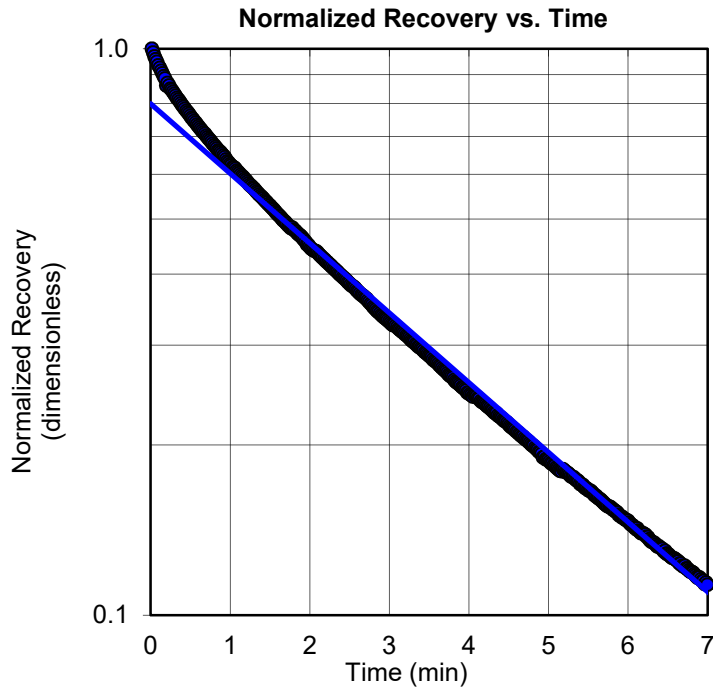
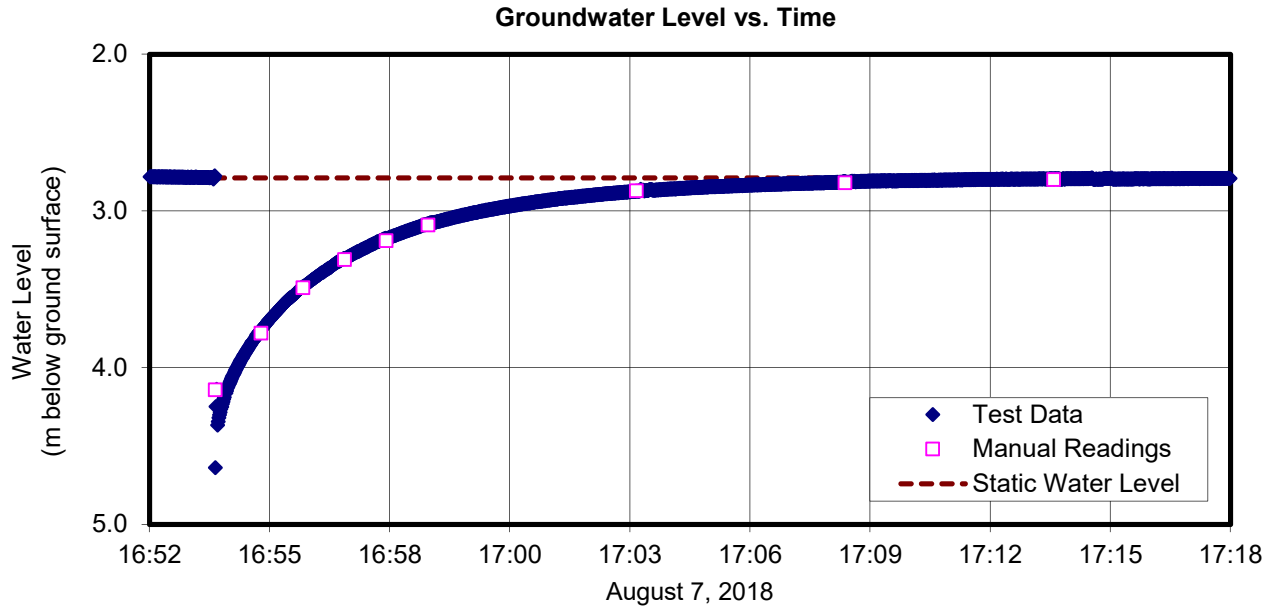
DESIGN: KL

CHECK: MB

In-Situ Hydraulic Conductivity Test Report

Borehole FMS-HG18-08A

**FIGURE
E11**



Test Interval (below ground surface)

10.3 m to 13.3 m

Static Water Level (below ground surface)

2.79 m

Test Interval (L) = 3.05 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.048 m

Points Used for Match Line

$h_1/H_0 = 0.80$ $t_1 = 0$ min

$h_2/H_0 = 0.11$ $t_2 = 7$ min

Hvorslev Analysis

$$\text{Hydraulic Conductivity (K)} = \frac{-(r^2) \cdot \ln(t/R)}{2 \cdot L} \cdot \frac{\ln(h_2/H_0) - \ln(h_1/H_0)}{t_2 - t_1} = \mathbf{2E-6 \text{ m/s}}$$

DATE: November 2018

PROJECT: 1895674



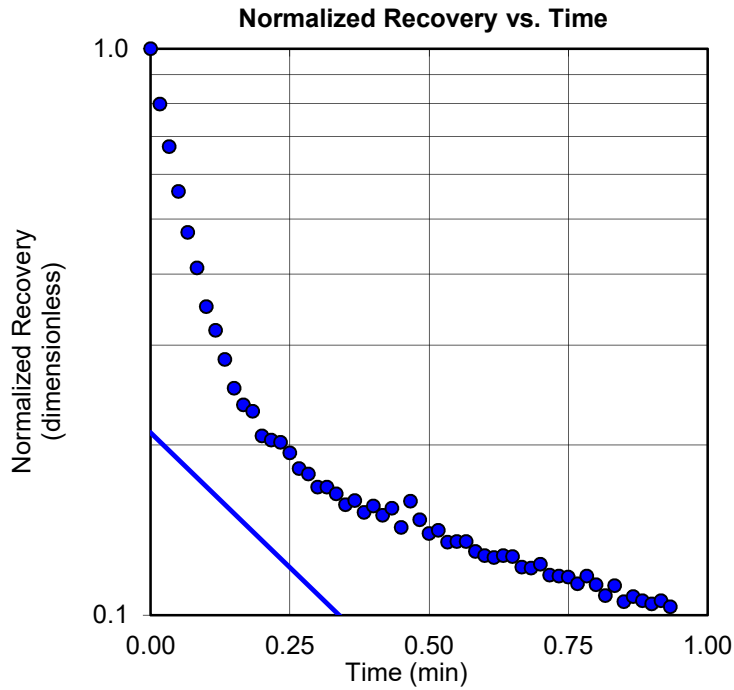
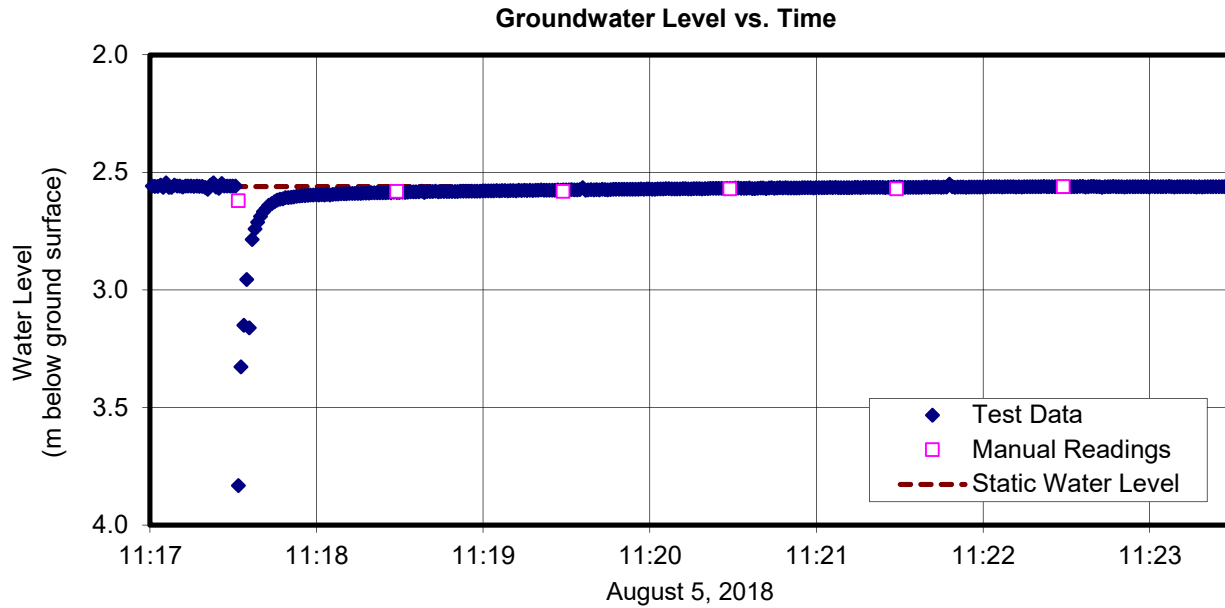
DESIGN: KL

CHECK: RA

In-Situ Hydraulic Conductivity Test Report

Borehole FMS-HG18-08B

**FIGURE
E12**



Test Interval (below ground surface)

2.6 m to 6.0 m

Static Water Level (below ground surface)

2.56 m

Test Interval (L) = 3.4 m

Eff. Well Radius (r) = 0.0338 m

Hole Radius (R) = 0.048 m

Points Used for Match Line

$h_1/H_0 = 0.21$ $t_1 = 0$ min

$h_2/H_0 = 0.10$ $t_2 = 1$ min

Hvorslev Analysis

$$\text{Hydraulic Conductivity (K)} = \frac{-(r^2) \cdot \ln(t/R)}{2 \cdot L} \cdot \frac{\ln(h_2/H_0) - \ln(h_1/H_0)}{t_2 - t_1} = \mathbf{9E-6 \text{ m/s}}$$

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PROJECT: 1895674



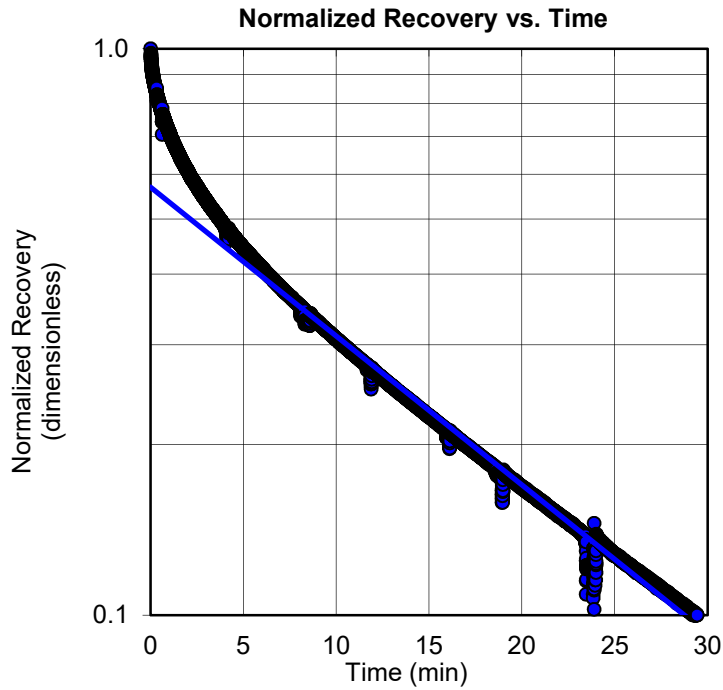
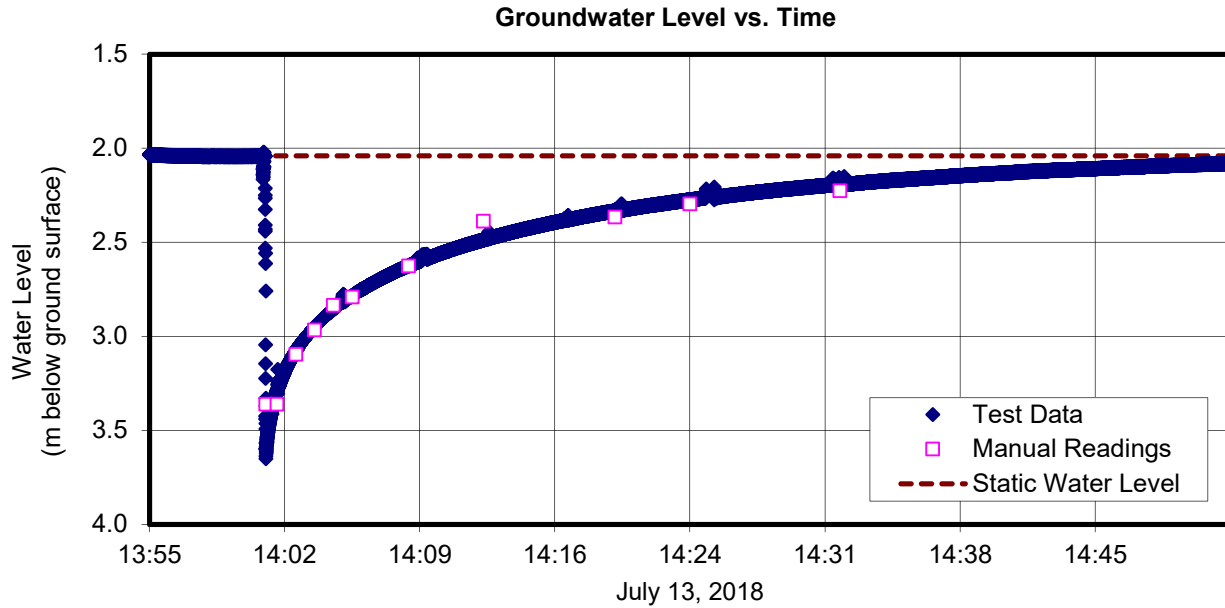
DESIGN: KL

CHECK: MB

In-Situ Hydraulic Conductivity Test Report

Borehole FMS-HG18-09A

**FIGURE
E13**



Test Interval (below ground surface)

9.0 m to 12.0 m

Static Water Level (below ground surface)

2.04 m

Test Interval (L) = 3.05 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.048 m

Points Used for Match Line

$h_1/H_0 = 0.57$ $t_1 = 0$ min

$h_2/H_0 = 0.23$ $t_2 = 15$ min

Hvorslev Analysis

$$\text{Hydraulic Conductivity (K)} = \frac{-(r^2) \cdot \ln(t/R)}{2 \cdot L} \cdot \frac{\ln(h_2/H_0) - \ln(h_1/H_0)}{t_2 - t_1} = \mathbf{4E-7 \text{ m/s}}$$

DATE: November 2018

PROJECT: 1895674



DESIGN: KL

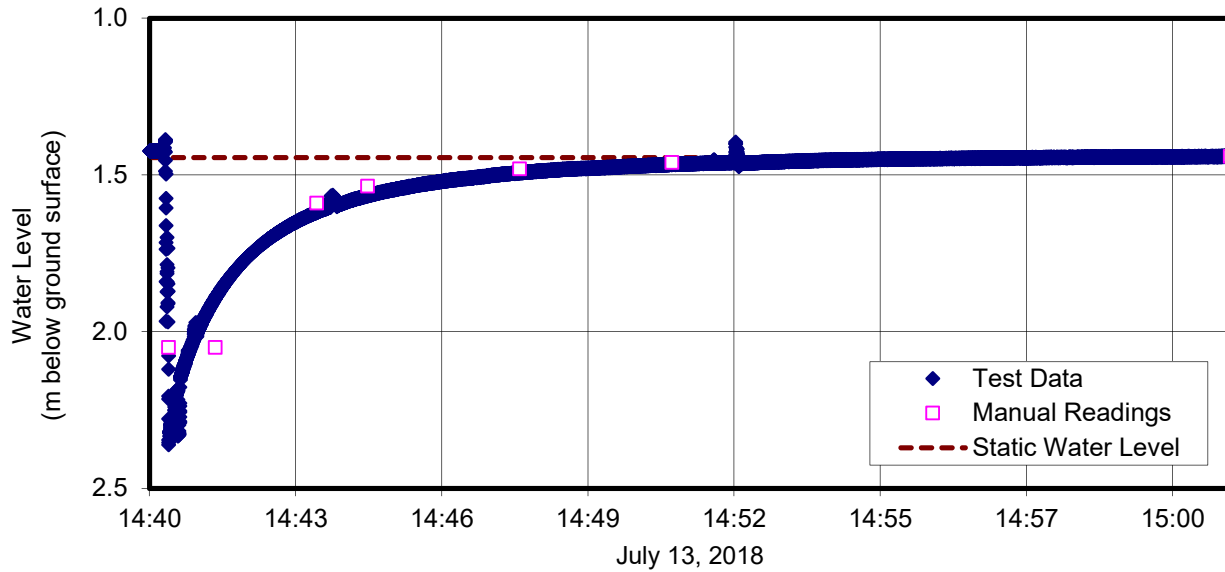
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In-Situ Hydraulic Conductivity Test Report

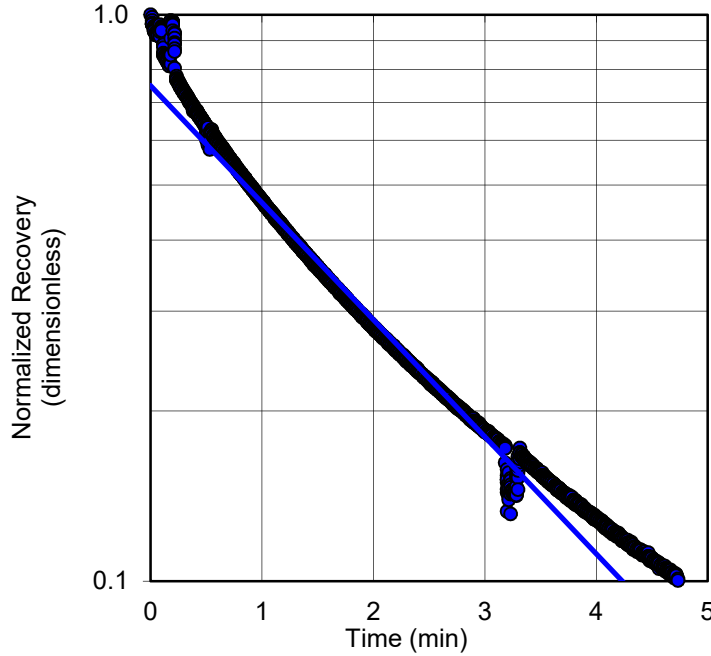
Borehole FMS-HG18-09B

**FIGURE
E14**

Groundwater Level vs. Time



Normalized Recovery vs. Time



Test Interval (below ground surface)

3.1 m to 6.2 m

Static Water Level (below ground surface)

1.45 m

Test Interval (L) = 3.05 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.048 m

Points Used for Match Line

$h_1/H_0 = 0.75$ $t_1 = 0$ min

$h_2/H_0 = 0.18$ $t_2 = 3$ min

Hvorslev Analysis

$$\text{Hydraulic Conductivity (K)} = \frac{-(r^2) \cdot \ln(t/R)}{2 \cdot L} \cdot \frac{\ln(h_2/H_0) - \ln(h_1/H_0)}{t_2 - t_1} = \mathbf{3E-6 \text{ m/s}}$$

DATE: November 2018

PROJECT: 1895674



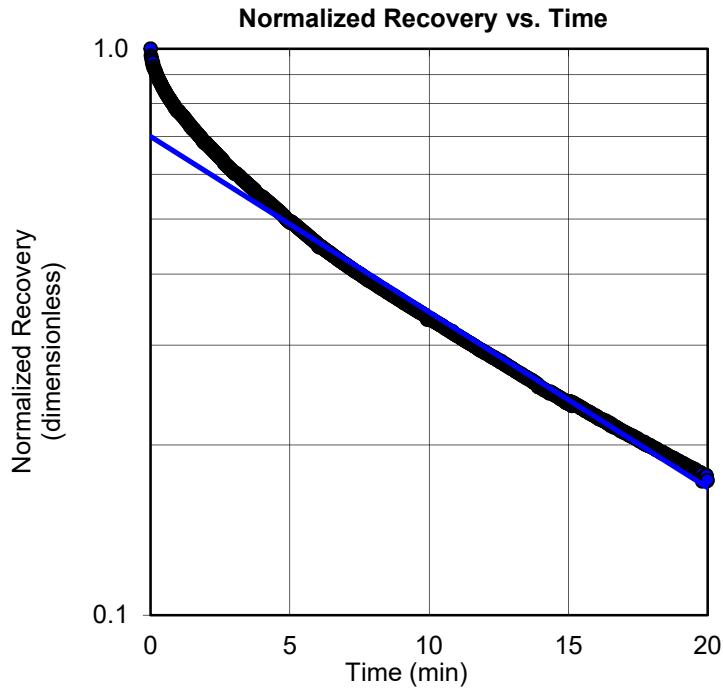
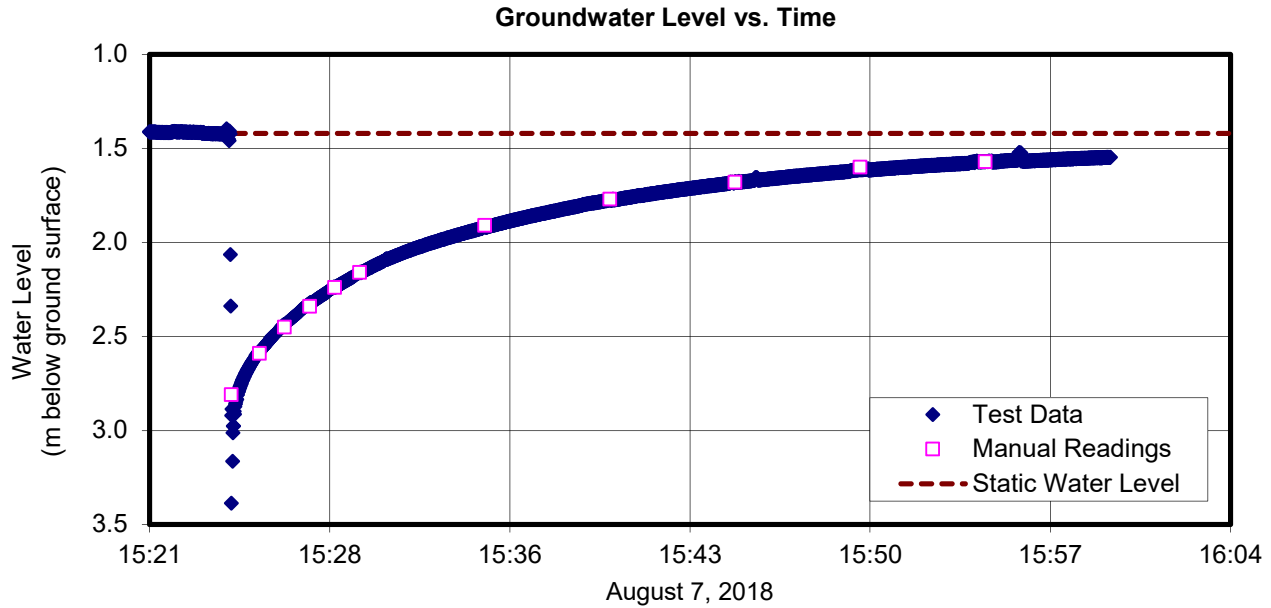
DESIGN: KL

CHECK: MB

In-Situ Hydraulic Conductivity Test Report

Borehole FMS-HG18-10A

**FIGURE
E15**



Test Interval (below ground surface)

9.2 m to 12.3 m

Static Water Level (below ground surface)

1.42 m

Test Interval (L) = 3.05 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.048 m

Points Used for Match Line

$h_1/H_0 = 0.70$ $t_1 = 0$ min

$h_2/H_0 = 0.24$ $t_2 = 15$ min

Hvorslev Analysis

$$\text{Hydraulic Conductivity (K)} = \frac{- (r^2) \cdot \ln(t/R)}{2 \cdot L} \cdot \frac{\ln(h_2/H_0) - \ln(h_1/H_0)}{t_2 - t_1} = \mathbf{5E-7 \text{ m/s}}$$

DATE: November 2018

PROJECT: 1895674



DESIGN: KL

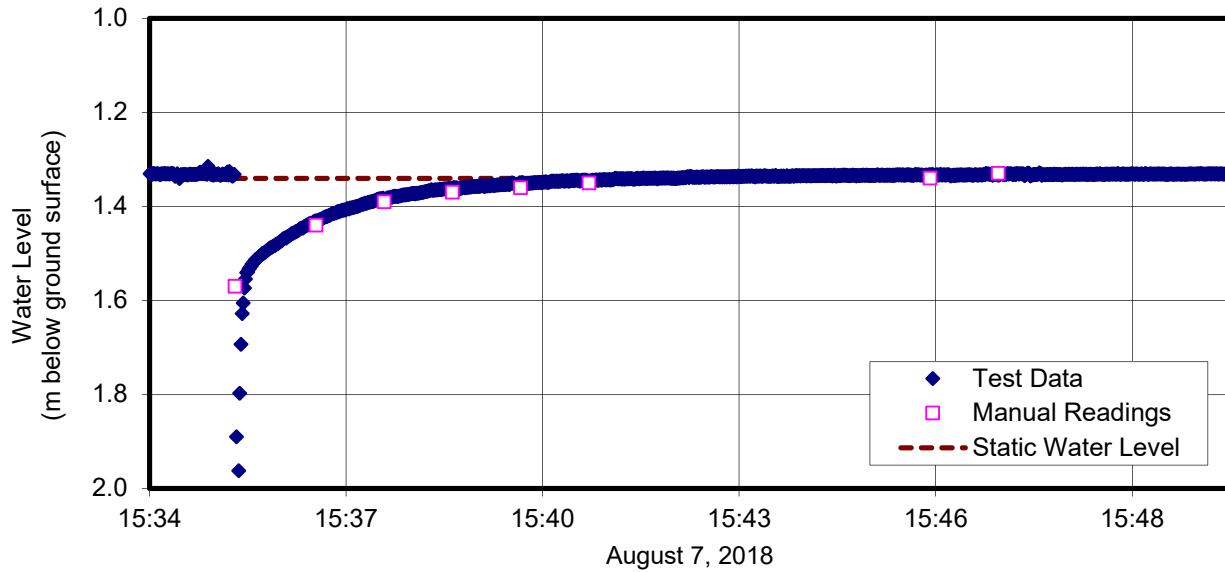
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In-Situ Hydraulic Conductivity Test Report

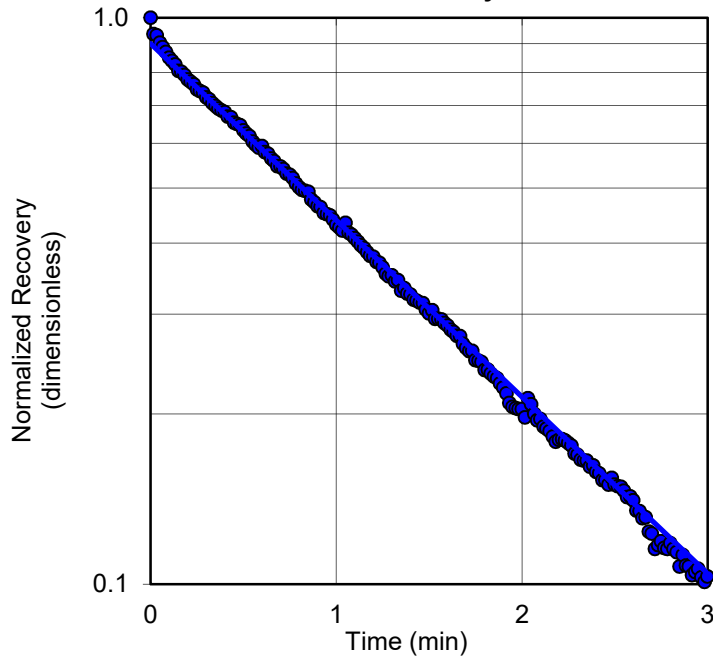
Borehole FMS-HG18-10B

**FIGURE
E16**

Groundwater Level vs. Time



Normalized Recovery vs. Time



Test Interval (below ground surface)

1.9 m to 6.5 m

Static Water Level (below ground surface)

1.34 m

Test Interval (L) = 4.57 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.048 m

Points Used for Match Line

$h_1/H_0 = 0.90$ $t_1 = 0$ min

$h_2/H_0 = 0.23$ $t_2 = 1.9$ min

Hvorslev Analysis

$$\text{Hydraulic Conductivity (K)} = \frac{-(r^2) \cdot \ln(t/R)}{2 \cdot L} \cdot \frac{\ln(h_2/H_0) - \ln(h_1/H_0)}{t_2 - t_1} = \mathbf{4E-6 \text{ m/s}}$$

DATE: November 2018

PROJECT: 1895674



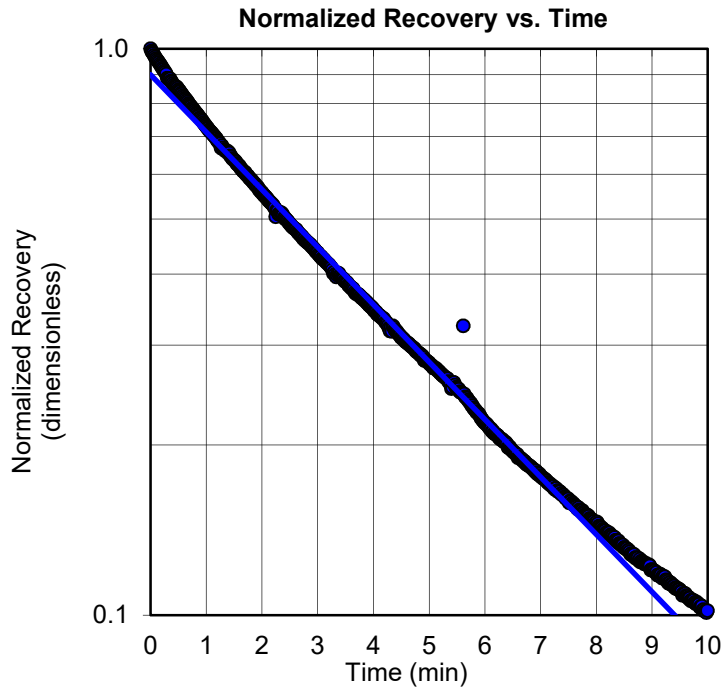
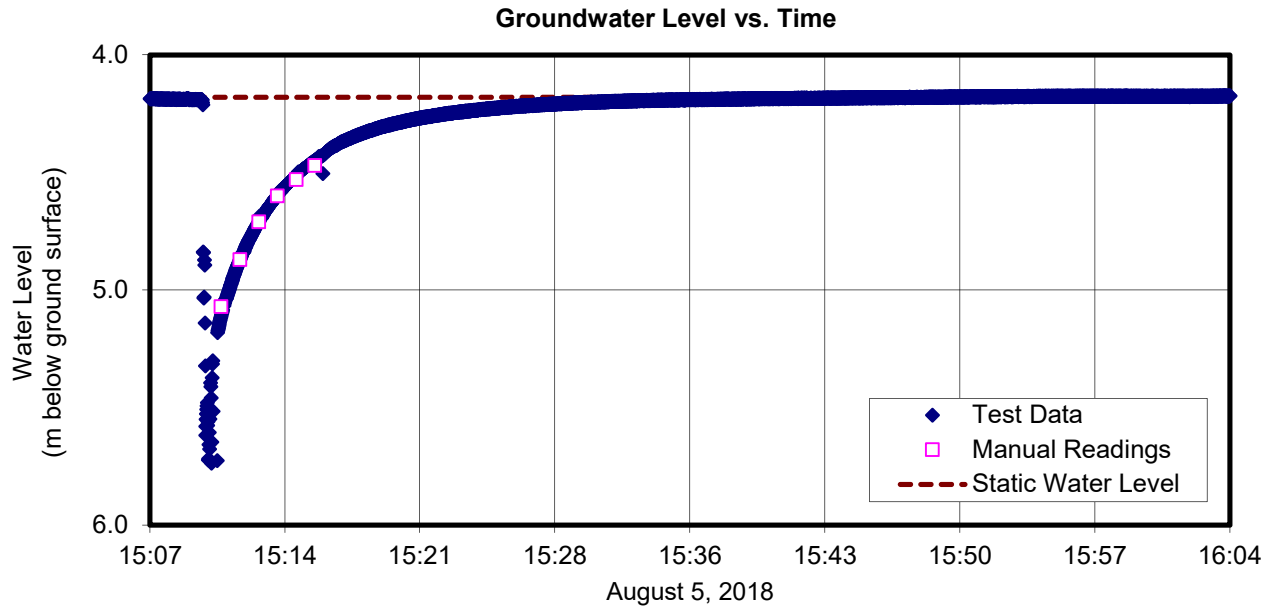
DESIGN: KL

CHECK: MB

In-Situ Hydraulic Conductivity Test Report

Borehole FMS-HG18-11A

**FIGURE
E17**



Test Interval (below ground surface)

7.9 m to 10.9 m

Static Water Level (below ground surface)

4.18 m

Test Interval (L) = 3.05 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.048 m

Points Used for Match Line

$h_1/H_0 = 0.90$ $t_1 = 0$ min

$h_2/H_0 = 0.28$ $t_2 = 5$ min

Hvorslev Analysis

$$\text{Hydraulic Conductivity (K)} = \frac{- (r^2) \cdot \ln(t/R)}{2 \cdot L} \cdot \frac{\ln(h_2/H_0) - \ln(h_1/H_0)}{t_2 - t_1} = \mathbf{2E-6 \text{ m/s}}$$

DATE: November 2018

PROJECT: 1895674



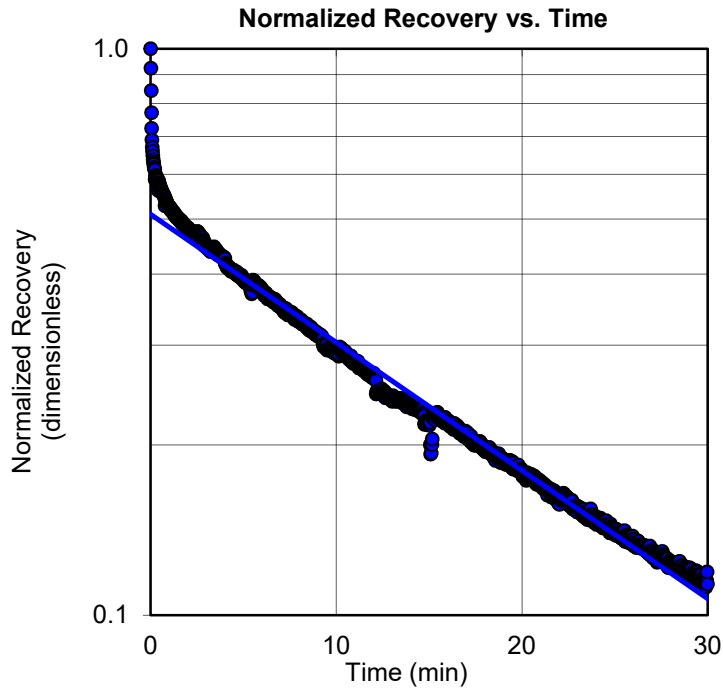
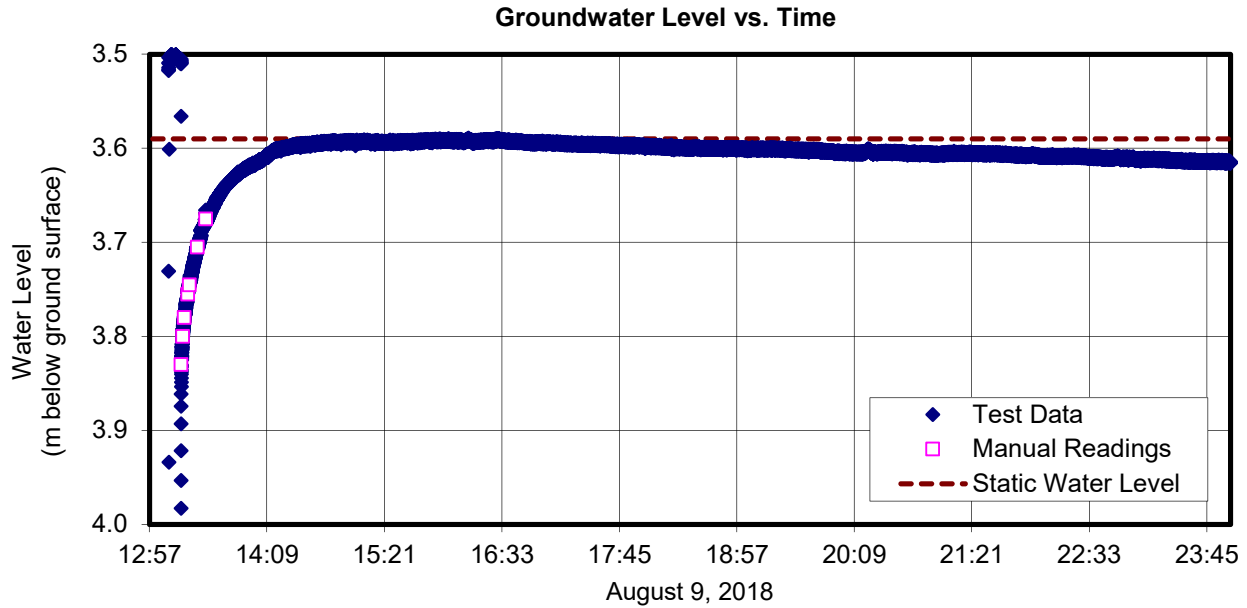
DESIGN: KL

CHECK: MB

In-Situ Hydraulic Conductivity Test Report

Borehole FMS-HG18-11B

**FIGURE
E18**



Test Interval (below ground surface)

3.6 m to 4.9 m

Static Water Level (below ground surface)

3.59 m

Test Interval (L) = 1.31 m

Eff. Well Radius (r) = 0.0338 m

Hole Radius (R) = 0.048 m

Points Used for Match Line

$h_1/H_0 = 0.51$ $t_1 = 0$ min

$h_2/H_0 = 0.18$ $t_2 = 20$ min

Hvorslev Analysis

$$\text{Hydraulic Conductivity (K)} = \frac{-(r^2) \cdot \ln(t/R)}{2 \cdot L} \cdot \frac{\ln(h_2/H_0) - \ln(h_1/H_0)}{t_2 - t_1} = \mathbf{1E-6 \text{ m/s}}$$

DATE: November 2018

PROJECT: 1895674



DESIGN: KL

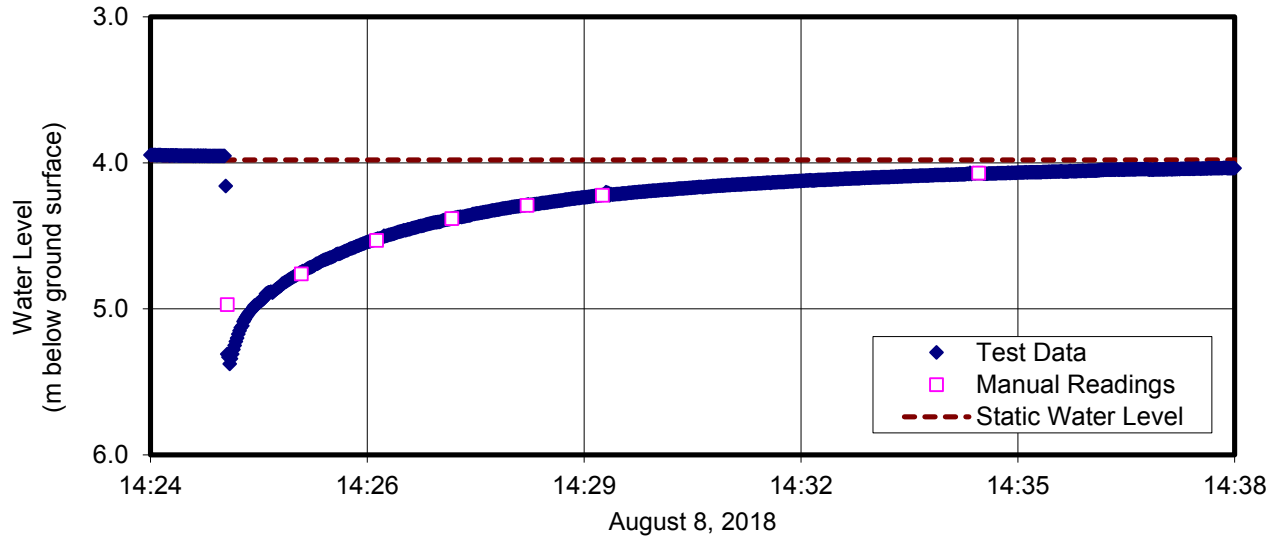
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In-Situ Hydraulic Conductivity Test Report

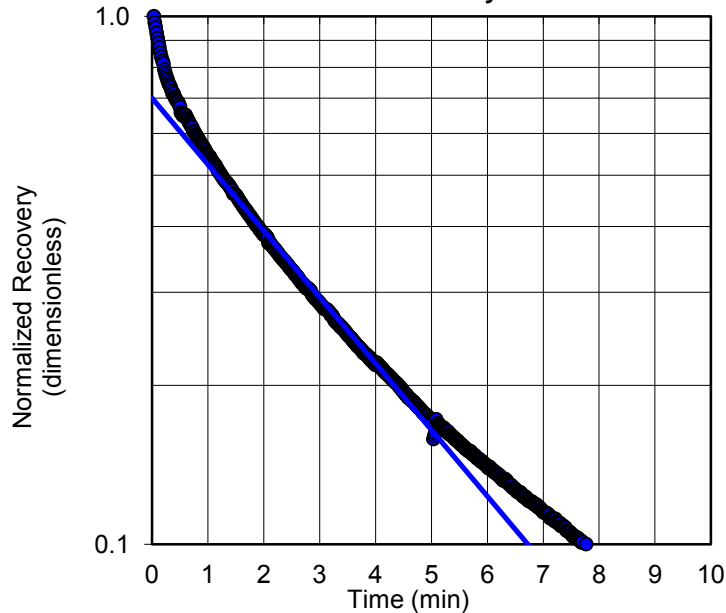
Borehole FMS-HG18-13A

**FIGURE
E19**

Groundwater Level vs. Time



Normalized Recovery vs. Time



Test Interval (below ground surface)

9.4 m to 12.4 m

Static Water Level (below ground surface)

3.98 m

Test Interval (L) = 3.05 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.048 m

Points Used for Match Line

$h_1/H_0 = 0.70$ $t_1 = 0$ min

$h_2/H_0 = 0.22$ $t_2 = 4$ min

Hvorslev Analysis

$$\text{Hydraulic Conductivity (K)} = \frac{-(r^2) \cdot \ln(t/R)}{2 \cdot L} \cdot \frac{\ln(h_2/H_0) - \ln(h_1/H_0)}{t_2 - t_1} = \mathbf{2E-6 \text{ m/s}}$$

DATE: November 2018

PROJECT: 1895674



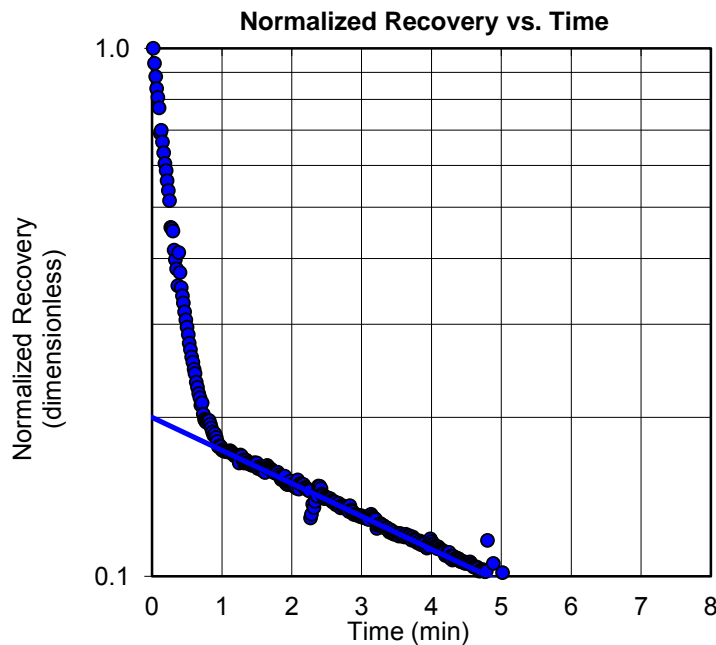
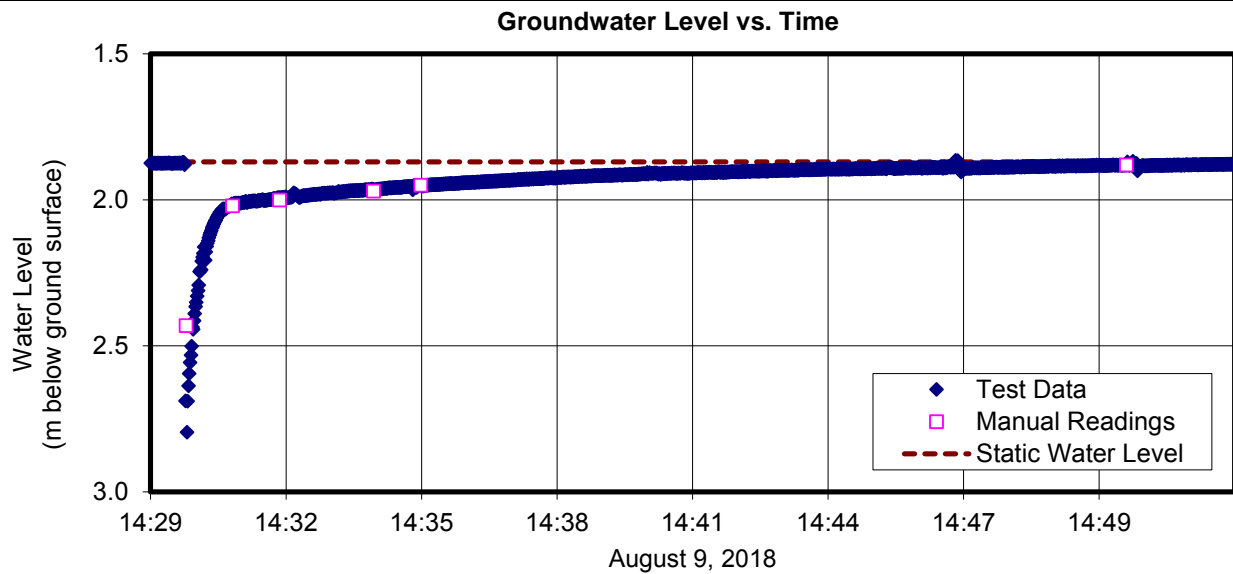
DESIGN: KL

CHECK: RA

In-Situ Hydraulic Conductivity Test Report

Borehole FMS-HG18-13B

**FIGURE
E20**



Test Interval (below ground surface)

2.5 m to 5.6 m

Static Water Level (below ground surface)

1.87 m

Test Interval (L) = 3.05 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.048 m

Points Used for Match Line

$h_1/H_0 = 0.20$ $t_1 = 0$ min

$h_2/H_0 = 0.15$ $t_2 = 2$ min

Hvorslev Analysis

$$\text{Hydraulic Conductivity (K)} = \frac{-(r^2) \cdot \ln(t/R)}{2 \cdot L} \cdot \frac{\ln(h_2/H_0) - \ln(h_1/H_0)}{t_2 - t_1} = \mathbf{1E-6 \text{ m/s}}$$

DATE: November 2018

PROJECT: 1895674



DESIGN: KL

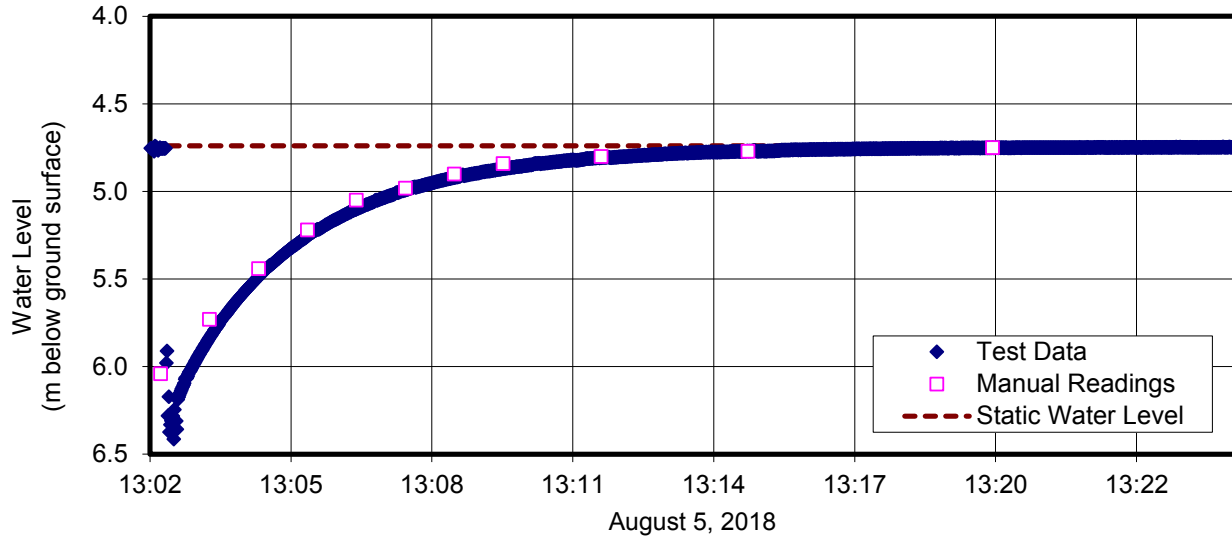
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In-Situ Hydraulic Conductivity Test Report

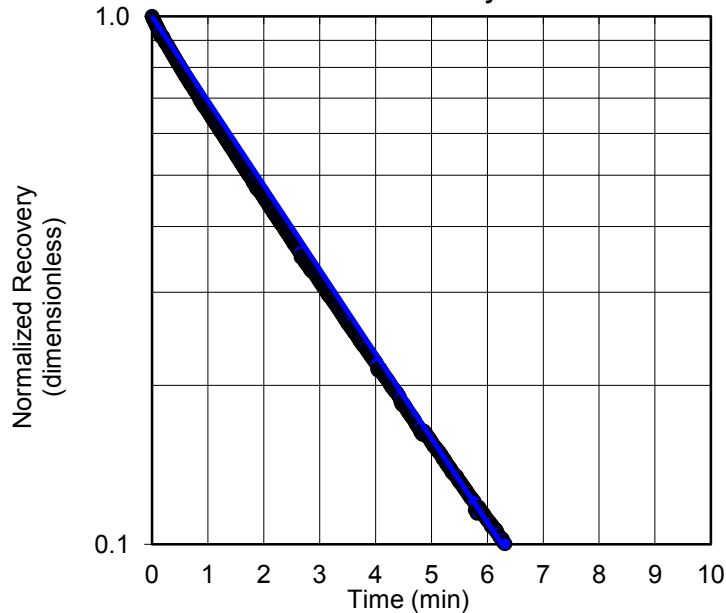
Borehole FMS-HG18-14A

**FIGURE
E21**

Groundwater Level vs. Time



Normalized Recovery vs. Time



Test Interval (below ground surface)

9.6 m to 12.6 m

Static Water Level (below ground surface)

4.74 m

Test Interval (L) = 3.05 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.048 m

Points Used for Match Line

$h_1/H_0 = 1.00$ $t_1 = 0$ min

$h_2/H_0 = 0.11$ $t_2 = 6$ min

Hvorslev Analysis

$$\text{Hydraulic Conductivity (K)} = \frac{-(r^2) \cdot \ln(t/R)}{2 \cdot L} \cdot \frac{\ln(h_2/H_0) - \ln(h_1/H_0)}{t_2 - t_1} = \mathbf{3E-6 \text{ m/s}}$$

DATE: November 2018

PROJECT: 1895674



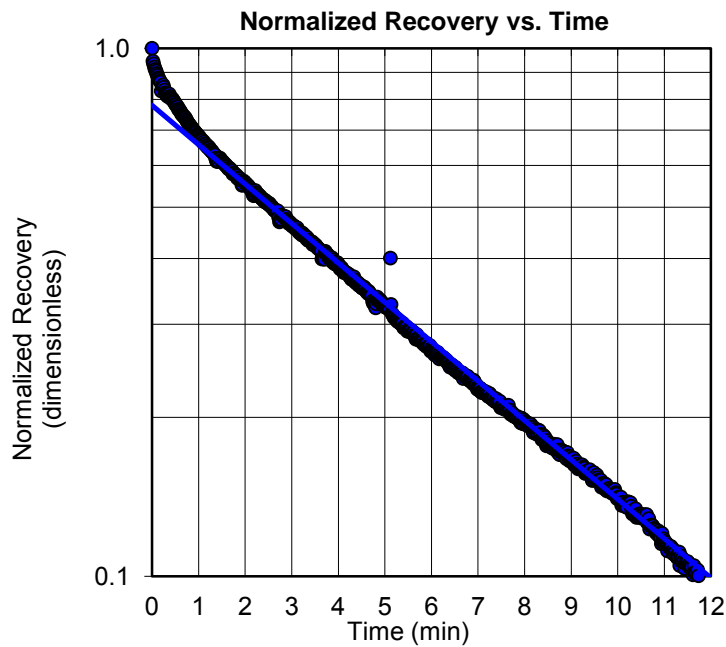
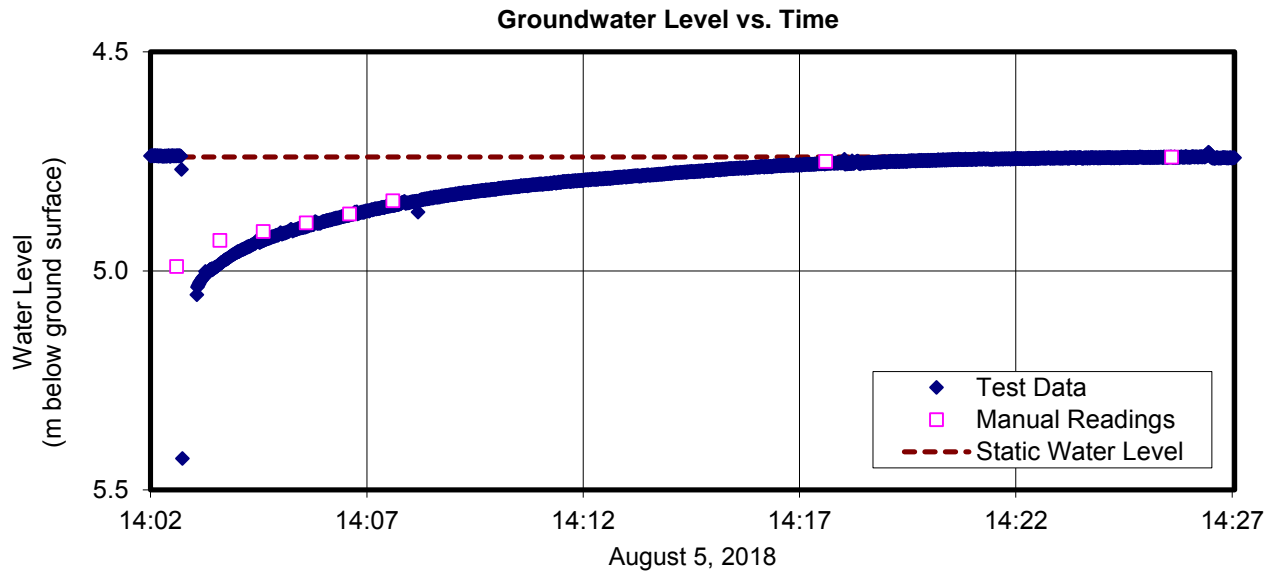
DESIGN: KL

CHECK: RA

In-Situ Hydraulic Conductivity Test Report

Borehole FMS-HG18-14B

**FIGURE
E22**



Test Interval (below ground surface)

4.7 m to 6.4 m

Static Water Level (below ground surface)

4.74 m

Test Interval (L) = 1.69 m

Eff. Well Radius (r) = 0.0338 m

Hole Radius (R) = 0.048 m

Points Used for Match Line

$h_1/H_0 = 0.78$ $t_1 = 0$ min

$h_2/H_0 = 0.14$ $t_2 = 10$ min

Hvorslev Analysis

$$\text{Hydraulic Conductivity (K)} = \frac{-(r^2) \cdot \ln(t/R)}{2 \cdot L} \cdot \frac{\ln(h_2/H_0) - \ln(h_1/H_0)}{t_2 - t_1} = \mathbf{3E-6 \text{ m/s}}$$

DATE: November 2018

PROJECT: 1895674



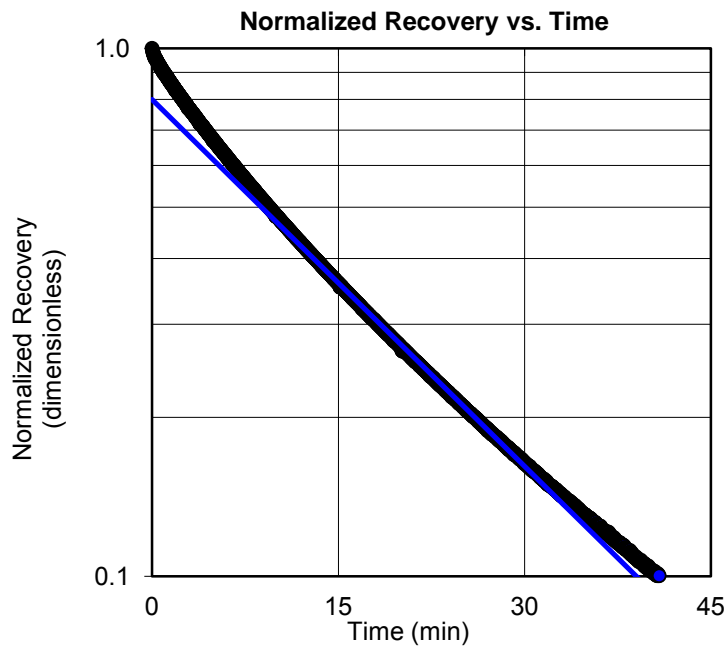
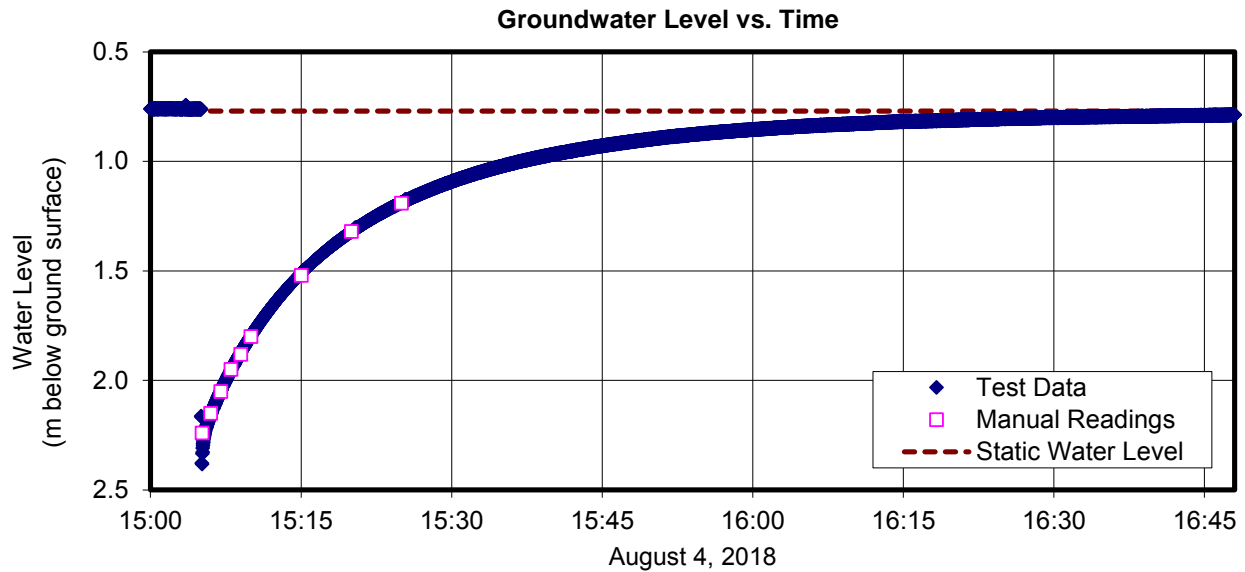
DESIGN: KL

CHECK: MB

In-Situ Hydraulic Conductivity Test Report

Borehole FMS-HG18-15A

**FIGURE
E23**



Test Interval (below ground surface)

7.7 m to 10.8 m

Static Water Level (below ground surface)

0.77 m

Test Interval (L) = 3.05 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.048 m

Points Used for Match Line

$h_1/H_0 = 0.80$ $t_1 = 0$ min

$h_2/H_0 = 0.10$ $t_2 = 39$ min

Hvorslev Analysis

$$\text{Hydraulic Conductivity (K)} = \frac{-(r^2) \cdot \ln(t/R)}{2 \cdot L} \cdot \frac{\ln(h_2/H_0) - \ln(h_1/H_0)}{t_2 - t_1} = \mathbf{4E-7 \text{ m/s}}$$

DATE: November 2018

PROJECT: 1895674



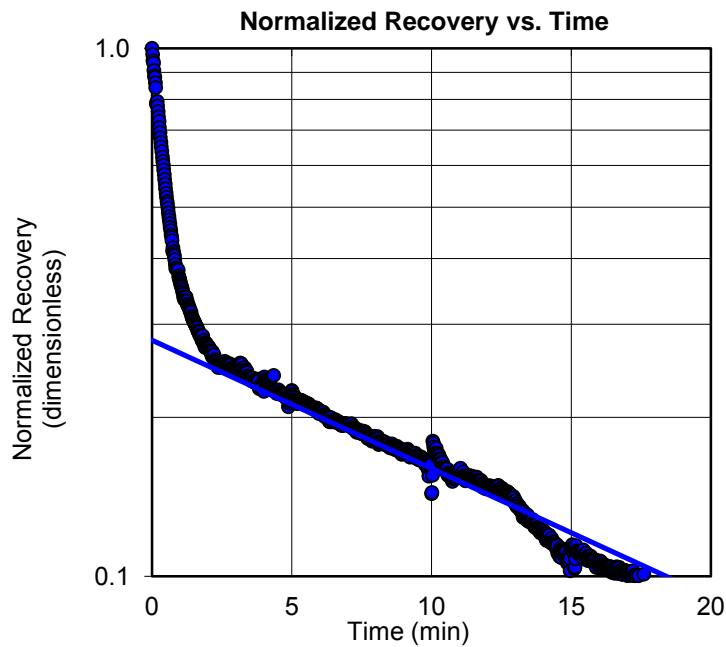
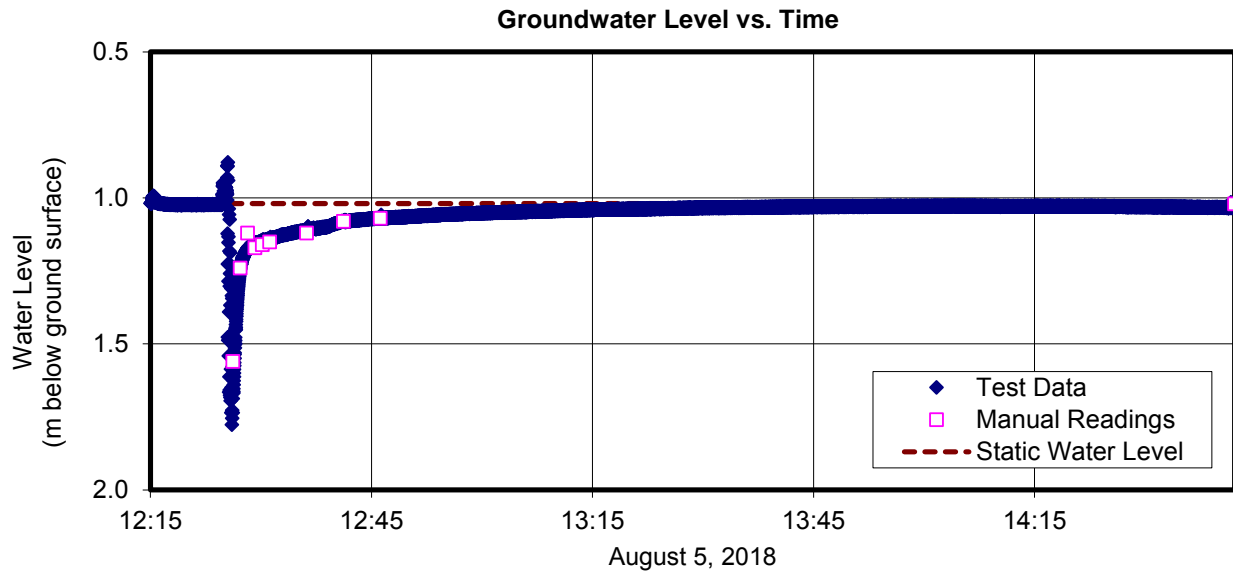
DESIGN: KL

CHECK: RA

In-Situ Hydraulic Conductivity Test Report

Borehole FMS-HG18-15B

**FIGURE
E24**



Test Interval (below ground surface)

1.0 m to 4.1 m

Static Water Level (below ground surface)

1.02 m

Test Interval (L) = 3.05 m

Eff. Well Radius (r) = 0.0338 m

Hole Radius (R) = 0.048 m

Points Used for Match Line

$h_1/H_0 = 0.28$ $t_1 = 0$ min

$h_2/H_0 = 0.16$ $t_2 = 10$ min

Hvorslev Analysis

$$\text{Hydraulic Conductivity (K)} = \frac{-(r^2) \cdot \ln(t/R)}{2 \cdot L} \cdot \frac{\ln(h_2/H_0) - \ln(h_1/H_0)}{t_2 - t_1} = \mathbf{7E-7 \text{ m/s}}$$

DATE: November 2018

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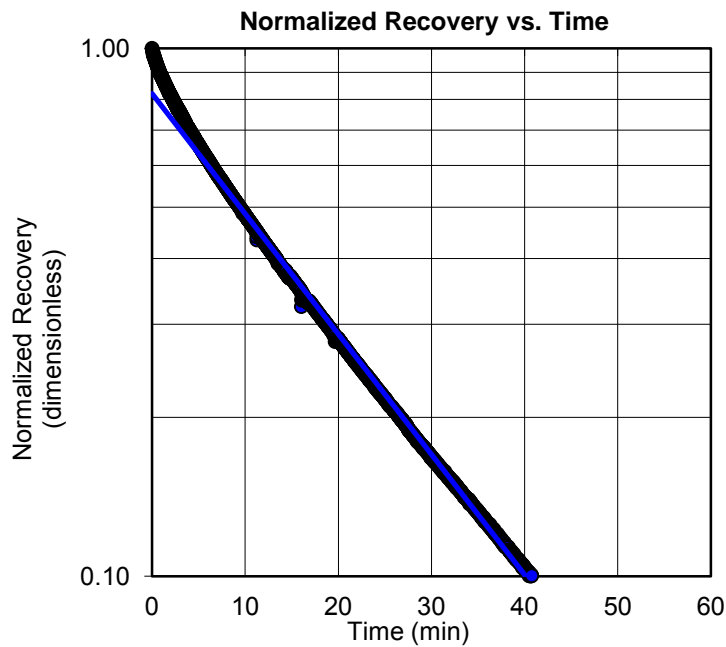
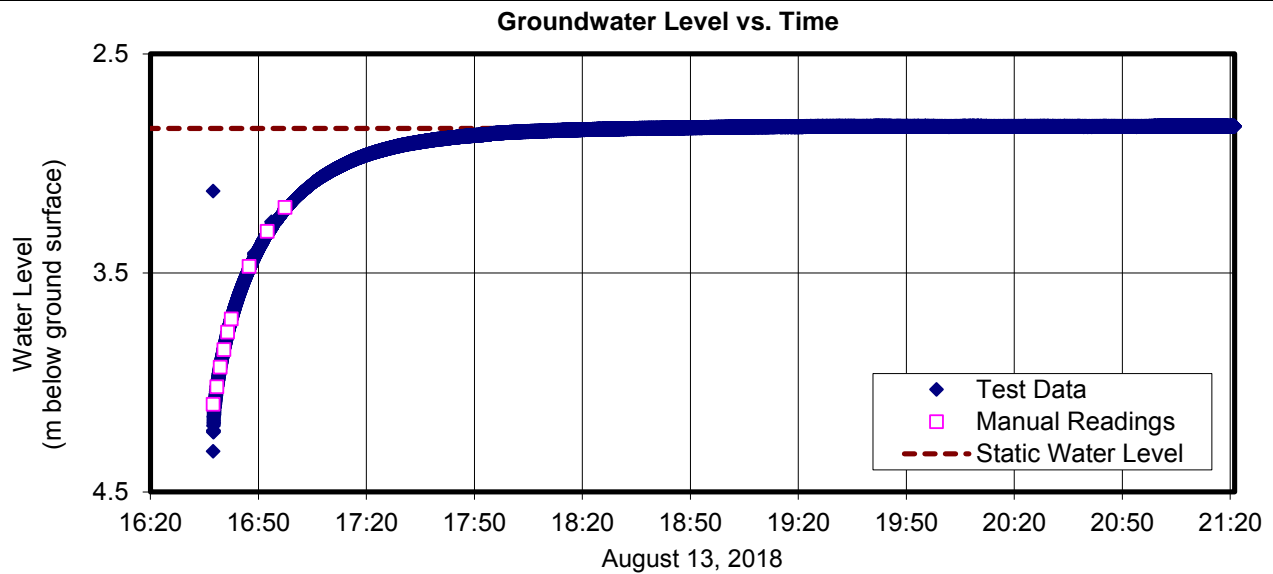
DESIGN: KL

CHECK: MB

In-Situ Hydraulic Conductivity Test Report

Borehole FMS-HG18-16A

**FIGURE
E25**



Test Interval (below ground surface)

7.9 m to 10.9 m

Static Water Level (below ground surface)

2.84 m

Test Interval (L) = 3.05 m

Well Radius (r) = 0.0254 m

Hole Radius (R) = 0.048 m

Points Used for Match Line

$h_1/H_0 = 0.82$ $t_1 = 0$ min

$h_2/H_0 = 0.17$ $t_2 = 30$ min

Hvorslev Analysis

$$\text{Hydraulic Conductivity (K)} = \frac{-(r^2) \cdot \ln(t/R)}{2 \cdot L} \cdot \frac{\ln(h_2/H_0) - \ln(h_1/H_0)}{t_2 - t_1} = \mathbf{4E-7 \text{ m/s}}$$

DATE: November 2018

PROJECT: 1895674



DESIGN: KL

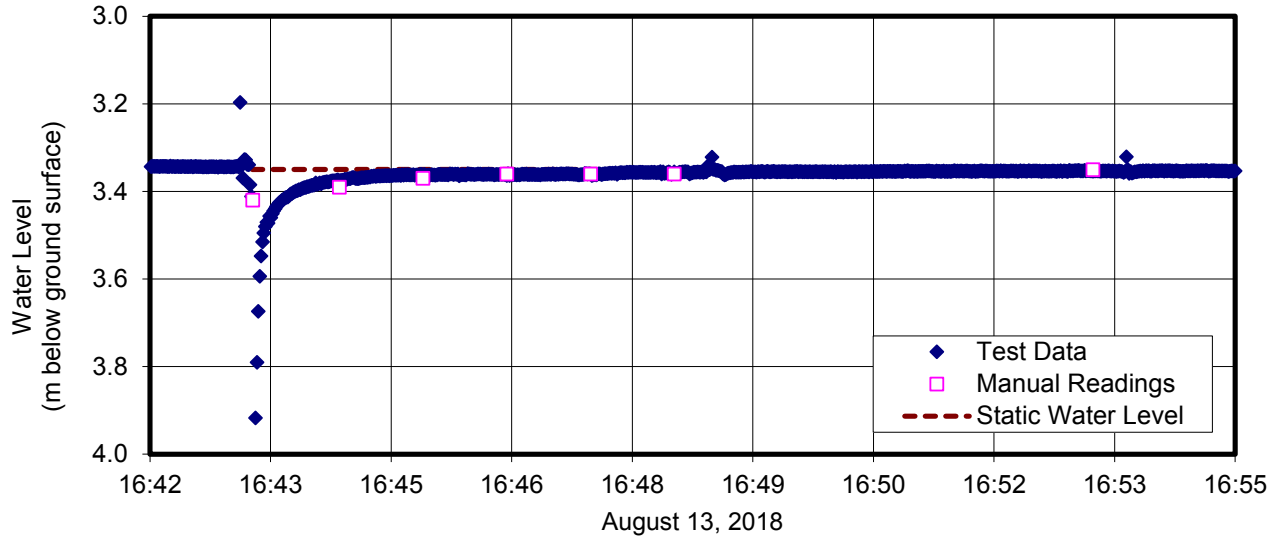
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In-Situ Hydraulic Conductivity Test Report

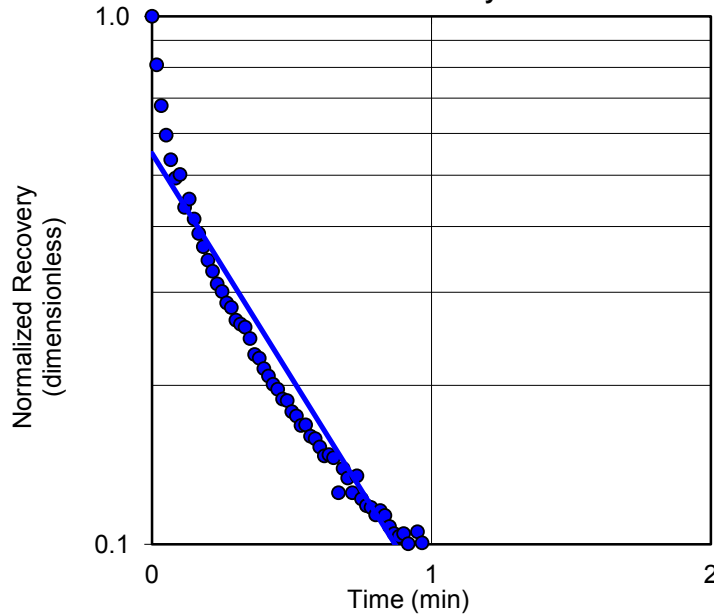
Borehole FMS-HG18-16B

**FIGURE
E26**

Groundwater Level vs. Time



Normalized Recovery vs. Time



Test Interval (below ground surface)

3.4 m to 5.5 m

Static Water Level (below ground surface)

3.35 m

Test Interval (L) = 2.12 m

Eff. Well Radius (r) = 0.0338 m

Hole Radius (R) = 0.048 m

Points Used for Match Line

$h_1/H_0 = 0.55$ $t_1 = 0$ min

$h_2/H_0 = 0.10$ $t_2 = 0.8$ min

Hvorslev Analysis

$$\text{Hydraulic Conductivity (K)} = \frac{-(r^2) \cdot \ln(t/R)}{2 \cdot L} \cdot \frac{\ln(h_2/H_0) - \ln(h_1/H_0)}{t_2 - t_1} = \mathbf{4E-5 \text{ m/s}}$$

DATE: November 2018

PROJECT: 1895674



DESIGN: KL

CHECK: MB

APPENDIX F

Overburden Quality Results

Parameters	Units	Price Crustal Abundance	FMS-HG18-03A, SS2/SS4	FMS-HG18-04A, SS1B	FMS-HG18-05B, OS1	FMS-HG18-06A, OS2	FMS-HG18-07A, OS2	FMS-HG18-08A, SS1	FMS-HG18-09A, SS1A/SS1B/SS2	FMS-HG18-10A, SS3	FMS-HG18-11A, SS2	FMS-HG18-13A, OS3	FMS-HG18-14A, SS1	FMS-HG18-16A, SS2
Sample ID														
Borehole			FMS-HG18-03A	FMS-HG18-04A	FMS-HG18-05A	FMS-HG18-06A	FMS-HG18-07A	FMS-HG18-08A	FMS-HG18-09A	FMS-HG18-10A	FMS-HG18-11A	FMS-HG18-13A	FMS-HG18-14A	FMS-HG18-16A
Depth (m)			0.61 - 1.71	0.05 - 0.61	0.00 - 0.61	0.61 - 1.22	0.61 - 1.22	0.00 - 0.61	0.00 - 0.65	1.45 - 2.03	0.61 - 0.97	1.22 - 1.60	0.00 - 0.61	0.61 - 1.22
Aluminum	ppm	82300	16000	10000	18000	16000	15000	17000	16000	19000	13000	16000	20000	16000
Antimony	ppm	0.2	< 0.8	< 0.8	< 0.8	<u>1.2</u>	< 0.8	< 0.8	<u>1.6</u>	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Arsenic	ppm	1.8	<u>17</u>	4.9	<u>170</u>	<u>270</u>	<u>53</u>	<u>14</u>	<u>3000</u>	<u>19</u>	<u>30</u>	5.3	<u>770</u>	3.0
Barium	ppm	425	94	64	52	48	67	54	60	51	66	77	66	96
Beryllium	ppm	3	0.32	0.18	0.29	0.35	0.28	0.35	0.34	0.36	0.33	0.19	0.35	0.22
Bismuth	ppm	0.0085	<u>0.31</u>	<u>0.15</u>	<u>0.49</u>	<u>1.2</u>	<u>0.30</u>	<u>0.21</u>	<u>0.46</u>	<u>0.29</u>	<u>0.24</u>	<u>0.26</u>	<u>1.0</u>	<u>0.15</u>
Cadmium	ppm	3	0.058	0.048	0.053	0.096	0.034	0.052	0.041	0.038	0.052	0.045	0.084	0.027
Calcium	ppm	41500	1400	1300	930	1400	1200	1000	1100	1100	600	2000	780	1100
Chromium	ppm	102	27	16	30	52	31	29	28	48	21	55	37	32
Cobalt	ppm	25	12	7	11	10	13	13	8.9	15	12	13	13	10
Copper	ppm	60	29	5.6	28	26	21	18	27	36	23	37	27	10
Iron	ppm	56300	29000	22000	34000	34000	37000	35000	33000	40000	26000	30000	39000	30000
Lead	ppm	14	8	11	10	<u>260</u>	10	7	12	7	9	7	21	6
Lithium	ppm	20	26	13	30	19	31	23	29	32	21	24	27	29
Magnesium	ppm	23300	8200	4300	8800	6300	8000	7900	7600	9900	5200	8900	9300	7800
Manganese	ppm	950	480	400	390	340	520	370	300	400	720	400	430	400
Molybdenum	ppm	1.2	0.7	0.6	0.5	0.7	0.5	0.6	0.7	0.5	0.6	0.4	0.7	0.6
Nickel	ppm	84	29	11	27	21	24	34	21	24	23	32	27	24
Potassium	ppm	20850	5800	1800	2900	1800	3500	1700	3700	3300	2200	5900	3700	5600
Selenium	ppm	0.05	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Silver	ppm	0.075	0.260	0.250	0.047	0.280	0.033	0.023	0.056	0.028	0.034	0.043	0.260	0.058
Strontium	ppm	370	11	13	5.5	9.3	6.9	6.4	6.3	5.0	6.8	17	5.6	7.6
Thallium	ppm	0.85	0.23	0.09	0.14	0.24	0.18	0.09	0.18	0.21	0.12	0.27	0.18	0.24
Tin	ppm	2.3	< 0.5	< 0.5	< 0.5	1.0	0.5	< 0.5	0.6	< 0.5	< 0.5	0.5	0.5	0.6
Titanium	ppm	5650	820	600	500	500	710	530	630	620	420	970	590	1100
Uranium	ppm	2.7	0.69	0.47	0.63	0.55	0.80	0.86	0.65	1.2	0.82	0.79	0.69	0.59
Vanadium	ppm	120	26	25	28	31	34	31	29	28	20	29	36	33
Yttrium	ppm	33	9.2	2.8	9.7	8.4	9.0	9.0	7.0	11	6.3	12	6.9	5.6
Zinc	ppm	70	65	43	70	89	64	57	55	81	47	65	75	56

Notes:

- Price Crustal Abundance taken from: Price, W.A., 1997. Draft Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia, Ministry of Energy and Mines. p. 159.

- 0.7 - Denotes values greater than five times the Price Crustal Abundance.
- 0.7 - Denotes values greater than ten times the Price Crustal Abundance.

Sample ID	Borehole	Depth (m)	Paste pH	Total Sulphur	Sulphide Sulphur	Sulphate Sulphur	Total Carbon	Carbonate	CO ₃ -NP ⁽¹⁾	NP ⁽²⁾	AP ⁽³⁾	Net NP ⁽⁴⁾	Net CO ₃ -NP ⁽⁵⁾	NPR ⁽⁶⁾	CO ₃ -NPR ⁽⁷⁾
			s.u.	%	%	%	%	%	t CaCO ₃ /1000 t			ratio	ratio		
FMS-HG18-06A, OS2	FMS-HG18-06A	0.61 – 1.22	5.7	0.121	0.07	0.05	2.09	2.79	47	-0.8	2.2	-3.0	44	-0.4	21
FMS-HG18-09A, SS1A/SS1B/SS2	FMS-HG18-09A	0.00 - 0.65	6.1	0.169	0.12	0.05	1.15	1.28	21	1.3	3.8	-2.5	18	0.3	5.7
FMS-HG18-10A, SS3	FMS-HG18-10A	1.45 – 2.03	7.0	0.017	< 0.02	< 0.02	0.06	0.075	1.3	2.9	0.3	2.6	0.9	9.3	4.0
FMS-HG18-11A, SS2	FMS-HG18-11A	0.61 – 0.97	7.3	0.005	< 0.02	< 0.02	0.15	< 0.025	0.1	1.3	0.3	1.0	-0.2	4.2	0.3
FMS-HG18-13A, OS3	FMS-HG18-13A	1.22 – 1.60	8.2	< 0.005	< 0.02	< 0.02	0.04	< 0.025	0.1	4.0	0.3	3.7	-0.2	13	0.3
FMS-HG18-14A, SS1	FMS-HG18-14A	0.00 – 0.61	6.5	0.078	0.05	0.03	0.57	0.405	6.8	2.3	1.6	0.7	5.2	1.5	4.3

Notes:

- (1) Carbonate neutralization potential (CO₃-NP) = (Carbonate (CO₃) / 60.01) * 100.09 * 10
(2) Neutralization potential (NP) is determined directly from Sobek method (Sobek, 1978).
(3) Acid potential (AP) = Sulphide Sulphur (%) x 31.25
(4) Net neutralization potential = NP - AP
(4) Net carbonate neutralization potential = CO₃-NP - AP
(6) Net Potential Ratio (NPR) = NP / AP
(7) Carbonate NPR (CO₃-NPR) = CO₃-NP / AP

Parameters	Units	CCME CEQG ^(a)							
		Long Term		FMS-HG18-06A, OS2	FMS-HG18-09A, SS1A/SS1B/SS2	FMS-HG18-10A, SS3	FMS-HG18-11A, SS2	FMS-HG18-13A, OS3	FMS-HG18-14A, SS1
Sample ID			FMS-HG18-06A, OS2	FMS-HG18-09A, SS1A/SS1B/SS2	FMS-HG18-10A, SS3	FMS-HG18-11A, SS2	FMS-HG18-13A, OS3	FMS-HG18-14A, SS1	
Borehole			FMS-HG18-06A	FMS-HG18-09A	FMS-HG18-10A	FMS-HG18-11A	FMS-HG18-13A	FMS-HG18-14A	
Depth (m)			0.61 – 1.22	0.00 – 0.65	1.45 – 2.03	0.61 – 0.97	1.22 – 1.60	0.00 – 0.61	
pH	units	6.5-9.0	<u>5.6</u>	<u>5.4</u>	<u>5.2</u>	6.6	7.0	7.3	
Conductivity	µS/cm	-	130	148	180	37	27	452	
Alkalinity	mg/L as CaCO ₃	-	< 2	< 2	< 2	2	5	30	
Chloride	mg/L	120	2.0	1.0	1.0	2.0	1.0	11	
Nitrate	mg/L as N	0.05	<u>0.94</u>	<u>0.96</u>	< 0.6	< 0.6	< 0.6	<u>8.4</u>	
Sulphate	mg/L	-	47	53	72	8.0	4.0	140	
Aluminum	mg/L	0.005 - 0.1 ^b	<u>0.031</u>	<u>0.046</u>	<u>0.017</u>	0.008	<u>0.384</u>	0.007	
Antimony	mg/L	-	0.0004	0.0005	< 0.0002	< 0.0002	0.0003	0.0006	
Arsenic	mg/L	0.005	<u>0.0101</u>	<u>0.0576</u>	0.0015	0.0004	0.0015	<u>0.0154</u>	
Barium	mg/L	-	0.0449	0.0171	0.0570	0.0033	0.0028	0.0194	
Beryllium	mg/L	-	0.000029	0.000041	0.000071	< 0.000007	0.000013	< 0.000007	
Bismuth	mg/L	-	< 0.000007	< 0.000007	< 0.000007	< 0.000007	0.000016	< 0.000007	
Boron	mg/L	1.5	0.017	0.018	0.007	0.006	0.005	0.016	
Cadmium	mg/L	0.09	0.00042	0.00016	0.00035	0.00001	0.00001	0.00009	
Calcium	mg/L	-	9.48	4.80	5.28	0.28	0.14	62.6	
Chromium	mg/L	0.001 ^c	0.00013	0.00017	< 0.00003	0.00003	0.00061	0.00007	
Cobalt	mg/L	-	0.01170	0.00826	0.16800	0.00016	0.00052	0.00471	
Copper	mg/L	0.002 ^d	<u>0.00436</u>	0.00152	0.00050	0.00029	<u>0.00363</u>	0.00106	
Iron	mg/L	0.3	0.008	0.047	0.100	< 0.007	<u>0.418</u>	< 0.007	
Lead	mg/L	0.001 ^d	<u>0.02091</u>	0.00008	0.00006	< 0.00001	0.00059	0.00034	
Lithium	mg/L	-	0.0059	0.0138	0.0046	0.0005	0.0005	0.0013	
Magnesium	mg/L	-	2.21	2.49	5.94	0.33	0.13	11.1	
Manganese	mg/L	-	0.720	0.381	3.710	0.145	0.015	0.707	
Mercury	mg/L	0.000026	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	
Molybdenum	mg/L	0.073	0.00011	0.00006	0.00007	0.00035	0.00478	0.00049	
Nickel	mg/L	0.025 ^d	0.0199	0.0126	<u>0.1640</u>	0.0003	0.0009	0.0190	
Potassium	mg/L	-	4.77	15.1	14.3	2.82	3.44	4.85	
Selenium	mg/L	0.001	0.00015	0.00024	0.00019	0.00025	0.00007	0.00071	
Silicon	mg/L	-	5.99	7.28	4.67	2.93	2.92	2.32	
Silver	mg/L	0.0001	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	
Sodium	mg/L	-	5.68	5.48	3.58	3.17	3.07	8.02	
Strontium	mg/L	-	0.077	0.023	0.036	0.003	0.002	0.117	
Thallium	mg/L	0.0008	0.00009	0.00009	0.00012	0.00002	0.00001	0.00003	
Tin	mg/L	-	0.00003	0.00006	0.00005	0.00002	0.00007	0.00004	
Titanium	mg/L	-	0.00024	0.00016	< 0.00005	0.00035	0.01590	0.00006	
Uranium	mg/L	0.015	0.00003	0.00001	0.00005	0.00001	0.00012	0.00002	
Vanadium	mg/L	-	0.0001	0.0002	0.0001	0.0002	0.0010	0.0001	
Zinc	mg/L	0.007 ^e	<u>0.224</u>	<u>0.016</u>	0.003	< 0.002	< 0.002	<u>0.008</u>	

Notes:

- 0.1** – Denotes a value that is greater than the CCME Guideline for the Protection of Freshwater Aquatic Life
 - a) Canadian Council of Ministers of the Environment (1999 updated in 2018). Canadian Environmental Quality Guidelines for the Protection of Aquatic Life.
 - b) Guideline is variable and dependent on pH values. Refer to CCME (2018) for method of calculation.
 - c) Chromium guideline for Cr (VI)
 - d) Guideline is variable and dependent on pH values. Refer to CCME (2018) for method of calculation. 10 mg/L CaCO₃ assumed for screening.
 - e) CEQG for zinc is for dissolved metal fraction.
- A dash "-" indicates that results were not reported for this parameter.

APPENDIX G

Groundwater Quality Results

CLIENT NAME: GOLDER ASSOCIATES
201 Brownlow Avenue, Suite 26
DARTMOUTH, NS B3B 1W2
(902) 466-1668

ATTENTION TO: Glen Merkley

PROJECT: 1895674

AGAT WORK ORDER: 18X382529

MISCELLANEOUS ANALYSIS REVIEWED BY: Kelly Hogue, B.Sc, P.Chem, Operations Manager

TRACE ORGANICS REVIEWED BY: Amy Hunter, Trace Organics Supervisor, B.Sc.

WATER ANALYSIS REVIEWED BY: Michelle Hildebrand, Inorganics Analyst, B.Sc, P.Chem

DATE REPORTED: Oct 04, 2018

PAGES (INCLUDING COVER): 41

VERSION*: 3

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

***NOTES**

VERSION 3:Version 2.0 supersedes version 1.0 - Complete Report

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



Certificate of Analysis

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Subcontracted Data Received											
DATE RECEIVED: 2018-09-07						DATE REPORTED: 2018-10-04					
		SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A FMS-HG18-05B									
		SAMPLE TYPE: Water Water Water Water Water Water Water Water Water									
		DATE SAMPLED: 2018-09-05 2018-09-05 2018-09-05 2018-09-05 2018-09-06 2018-09-06 2018-09-05 2018-09-06									
Parameter	Unit	G / S	RDL	9528572	9528577	9528578	9528579	9528580	9528581	9528582	9528583
Subcontracted Data				Y	Y	Y	Y	Y	Y	Y	Y
		SAMPLE DESCRIPTION: FMS-HG18-06A FMS-HG18-07A FMS-HG18-07B FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A FMS-HG18-09B FMS-HG18-10A									
		SAMPLE TYPE: Water Water Water Water Water Water Water Water Water									
		DATE SAMPLED: 2018-09-05 2018-09-06 2018-09-06 2018-09-05 2018-09-05 2018-09-08 2018-09-06 2018-09-05									
Parameter	Unit	G / S	RDL	9528584	9528585	9528586	9528587	9528604	9528605	9528606	9528607
Subcontracted Data				Y	Y	Y	Y	Y	Y	Y	Y
		SAMPLE DESCRIPTION: FMS-HG18-10B FMS-HG18-11A FMS-HG18-11B FMS-HG18-13A FMS-HG18-13B FMS-HG18-14A FMS-HG18-14B FMS-HG18-15A									
		SAMPLE TYPE: Water Water Water Water Water Water Water Water Water									
		DATE SAMPLED: 2018-09-05 2018-09-04 2018-09-04 2018-09-05 2018-09-05 2018-09-05 2018-09-05 2018-09-06									
Parameter	Unit	G / S	RDL	9528608	9528609	9528610	9528611	9528612	9528613	9528614	9528615
Subcontracted Data				Y	Y	Y	Y	Y	Y	Y	Y
		SAMPLE DESCRIPTION: FMS-HG18-15B FMS-HG18-16A FMS-HG18-16B DUP-A DUP-B DUP-C									
		SAMPLE TYPE: Water Water Water Water Water Water									
		DATE SAMPLED: 2018-09-06 2018-09-06 2018-09-06 2018-09-05 2018-09-05 2018-09-06									
Parameter	Unit	G / S	RDL	9528771	9528772	9528773	9528776	9528777	9528778		
Subcontracted Data				Y	Y	Y	Y	Y	Y		

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

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:

Kelly Hogue



Certificate of Analysis

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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

CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A											
		G / S: A		G / S: B		RDL		2018-09-05		2018-09-06		2018-09-05	
		0.06, 0.024		0.32		0.001		9528572		9528580		9528577	
		0.14, 0.0016		0.33		0.001		9528572		9528580		9528577	
Benzene	mg/L	0.005	2.1	0.001	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	
Toluene	mg/L	0.06, 0.024	0.77	0.001	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	
Ethylbenzene	mg/L	0.14, 0.0016	0.32	0.001	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	
Xylene (Total)	mg/L	0.09, 0.02	0.33	0.002	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	
C6-C10 (less BTEX)	mg/L			0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
>C10-C16 Hydrocarbons	mg/L			0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
>C16-C21 Hydrocarbons	mg/L			0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
>C21-C32 Hydrocarbons	mg/L			0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Modified TPH (Tier 1)	mg/L		0.1	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	
Resemblance Comment					NR	NR	NR	NR	NR	NR	NR	NR	
Return to Baseline at C32					Y	Y	Y	Y	Y	Y	Y	Y	
Surrogate	Unit	Acceptable Limits											
Isobutylbenzene - EPH	%	70-130		111	99	89	100	101	86	109			
Isobutylbenzene - VPH	%	70-130		116	108	117	117	129	104	104			
n-Dotriacontane - EPH	%	70-130		118	102	94	102	109	104	119			

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

11 Morris Drive, Unit 122
 Dartmouth, Nova Scotia
 CANADA B3B 1M2
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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-05B FMS-HG18-06A FMS-HG18-07A FMS-HG18-07B FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A											
		G / S: A		G / S: B		RDL		2018-09-06		2018-09-05		2018-09-06	
		0.06, 0.024		0.32		0.001		9528583		9528584		9528585	
		0.14, 0.0016		0.33		0.001		9528586		9528587		9528604	
Benzene	mg/L	0.005	2.1	0.001	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	
Toluene	mg/L	0.06, 0.024	0.77	0.001	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	
Ethylbenzene	mg/L	0.14, 0.0016	0.32	0.001	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	
Xylene (Total)	mg/L	0.09, 0.02	0.33	0.002	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	
C6-C10 (less BTEX)	mg/L			0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
>C10-C16 Hydrocarbons	mg/L			0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
>C16-C21 Hydrocarbons	mg/L			0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
>C21-C32 Hydrocarbons	mg/L			0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Modified TPH (Tier 1)	mg/L		0.1	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	
Resemblance Comment					NR	NR	NR	NR	NR	NR	NR	NR	
Return to Baseline at C32					Y	Y	Y	Y	Y	Y	Y	Y	
Surrogate	Unit	Acceptable Limits											
Isobutylbenzene - EPH	%		70-130		84	108	87	117	107	113	110		
Isobutylbenzene - VPH	%		70-130		110	114	112	113	115	110	111		
n-Dotriacontane - EPH	%		70-130		94	111	104	118	123	N/A	96		

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-09B FMS-HG18-10A FMS-HG18-10B FMS-HG18-11A FMS-HG18-11B FMS-HG18-13A FMS-HG18-13B											
		SAMPLE TYPE: Water			Water			Water			Water		
		DATE SAMPLED: 2018-09-06			2018-09-05			2018-09-05			2018-09-04		
		G / S: A	G / S: B	RDL	9528606	9528607	9528608	9528609	9528610	9528611	9528612		
Benzene	mg/L	0.005	2.1	0.001	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	
Toluene	mg/L	0.06, 0.024	0.77	0.001	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	
Ethylbenzene	mg/L	0.14, 0.0016	0.32	0.001	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	
Xylene (Total)	mg/L	0.09, 0.02	0.33	0.002	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	
C6-C10 (less BTEX)	mg/L			0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
>C10-C16 Hydrocarbons	mg/L			0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
>C16-C21 Hydrocarbons	mg/L			0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
>C21-C32 Hydrocarbons	mg/L			0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Modified TPH (Tier 1)	mg/L		0.1	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	
Resemblance Comment					NR	NR	NR	NR	NR	NR	NR	NR	
Return to Baseline at C32					Y	Y	Y	Y	Y	Y	Y	Y	
Surrogate	Unit	Acceptable Limits											
Isobutylbenzene - EPH	%		70-130		102	115	103	98	93	88	74		
Isobutylbenzene - VPH	%		70-130		113	113	114	113	111	120	112		
n-Dotriacontane - EPH	%		70-130		110	123	120	117	126	125	122		

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-14A FMS-HG18-14B FMS-HG18-15A FMS-HG18-15B FMS-HG18-16A FMS-HG18-16B DUP-A											
		G / S: A		G / S: B		Water		Water		Water		Water	
		0.06, 0.024		0.77		Water		Water		Water		Water	
		DATE SAMPLED: 2018-09-05		DATE SAMPLED: 2018-09-05		DATE SAMPLED: 2018-09-06		DATE SAMPLED: 2018-09-06		DATE SAMPLED: 2018-09-06		DATE SAMPLED: 2018-09-06	
				RDL	9528613	9528614	9528615	9528771	9528772	9528773	9528776		
Benzene	mg/L	0.005	2.1	0.001	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]		
Toluene	mg/L	0.06, 0.024	0.77	0.001	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]		
Ethylbenzene	mg/L	0.14, 0.0016	0.32	0.001	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]		
Xylene (Total)	mg/L	0.09, 0.02	0.33	0.002	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]		
C6-C10 (less BTEX)	mg/L			0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
>C10-C16 Hydrocarbons	mg/L			0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
>C16-C21 Hydrocarbons	mg/L			0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
>C21-C32 Hydrocarbons	mg/L			0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
Modified TPH (Tier 1)	mg/L		0.1	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]		
Resemblance Comment					NR	NR	NR	NR	NR	NR	NR		
Return to Baseline at C32					Y	Y	Y	Y	Y	Y	Y		
Surrogate	Unit	Acceptable Limits											
Isobutylbenzene - EPH	%		70-130		92	116	111	98	126	81	81		
Isobutylbenzene - VPH	%		70-130		118	115	113	113	118	116	112		
n-Dotriacontane - EPH	%		70-130		110	117	120	108	96	120	125		

Certified By:



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AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

Parameter	Unit	SAMPLE DESCRIPTION:			DUP-B	DUP-C
		SAMPLE TYPE:			Water	Water
		DATE SAMPLED:			2018-09-05	2018-09-06
		G / S: A	G / S: B	RDL	9528777	9528778
Benzene	mg/L	0.005	2.1	0.001	<0.001[<A]	<0.001[<A]
Toluene	mg/L	0.06, 0.024	0.77	0.001	<0.001[<B]	<0.001[<B]
Ethylbenzene	mg/L	0.14, 0.0016	0.32	0.001	<0.001[<B]	<0.001[<B]
Xylene (Total)	mg/L	0.09, 0.02	0.33	0.002	<0.002[<B]	<0.002[<B]
C6-C10 (less BTEX)	mg/L			0.01	<0.01	<0.01
>C10-C16 Hydrocarbons	mg/L			0.05	<0.05	<0.05
>C16-C21 Hydrocarbons	mg/L			0.10	<0.10	<0.10
>C21-C32 Hydrocarbons	mg/L			0.1	<0.1	<0.1
Modified TPH (Tier 1)	mg/L		0.1	0.1	<0.1[<B]	<0.1[<B]
Resemblance Comment					NR	NR
Return to Baseline at C32					Y	Y
Surrogate	Unit	Acceptable Limits				
Isobutylbenzene - EPH	%	70-130			71	74
Isobutylbenzene - VPH	%	70-130			116	98
n-Dotriacontane - EPH	%	70-130			126	123

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Canadian Drinking Water Quality - updated 2017-05, B Refers to EQS Surface water - Fresh, TPH (Fuel, Lube) - 2016 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9528572-9528778 Resemblance Comment Key:
 GF - Gasoline Fraction
 WGF - Weathered Gasoline Fraction
 GR - Product in Gasoline Range
 FOF - Fuel Oil Fraction
 WFOF - Weathered Fuel Oil Fraction
 FR - Product in Fuel Oil Range
 LOF - Lube Oil Fraction
 LR - Lube Range
 UC - Unidentified Compounds
 NR - No Resemblance
 NA - Not Applicable

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Analyses Inorganiques

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-07B FMS-HG18-15B FMS-HG18-16B				
		SAMPLE TYPE: Water		Water		Water
		DATE SAMPLED: 2018-09-06	2018-09-06	2018-09-06	2018-09-06	2018-09-06
		G / S	RDL	9528586	9528771	9528773
Cyanures totaux	mg/L - CN		0.005	<0.005	<0.005	<0.005

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

9528586-9528773 Une LDR plus élevée indique qu'une dilution a été effectuée afin de réduire la concentration des analytes ou de réduire l'interférence de la matrice.

Analysis performed at AGAT Montreal (unless marked by *)

Certified By:

Michelle Hildebrand



Certificate of Analysis

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Free Cyanide (Water)

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-07B FMS-HG18-15B FMS-HG18-16B					
		SAMPLE TYPE:		Water	Water	Water	
		DATE SAMPLED:		2018-09-06	2018-09-06	2018-09-06	
		G / S	RDL	9528586	9528771	9528773	
Cyanide, Free	mg/L	0.002	<0.002	<0.002	<0.002		

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

Certified By:

Michelle Hildebrand



Certificate of Analysis

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Mercury Analysis in Water (Dissolved)

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

		SAMPLE DESCRIPTION: FMS-HG18-02A			FMS-HG18-02B	FMS-HG18-03A	FMS-HG18-03B	FMS-HG18-04A	FMS-HG18-04B	FMS-HG18-05A
Parameter		Unit	G / S: A	G / S: B	RDL					
Dissolved Mercury		ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]
		SAMPLE DESCRIPTION: FMS-HG18-05B			FMS-HG18-06A	FMS-HG18-07A	FMS-HG18-07B	FMS-HG18-08A	FMS-HG18-08B	FMS-HG18-09A
Parameter		Unit	G / S: A	G / S: B	RDL					
Dissolved Mercury		ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]
		SAMPLE DESCRIPTION: FMS-HG18-09B			FMS-HG18-10A	FMS-HG18-10B	FMS-HG18-11A	FMS-HG18-11B	FMS-HG18-13A	FMS-HG18-13B
Parameter		Unit	G / S: A	G / S: B	RDL					
Dissolved Mercury		ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]
		SAMPLE DESCRIPTION: FMS-HG18-14A			FMS-HG18-14B	FMS-HG18-15A	FMS-HG18-15B	FMS-HG18-16A	FMS-HG18-16B	DUP-A
Parameter		Unit	G / S: A	G / S: B	RDL					Water
Dissolved Mercury		ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]
		SAMPLE DESCRIPTION: DUP-B			DUP-C					
Parameter		Unit	G / S: A	G / S: B	RDL					
Dissolved Mercury		ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]			

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Canadian Drinking Water Quality - updated 2017-05, B Refers to EQS Surface water - Fresh, TPH (Fuel, Lube) - 2016
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:

Michelle Hildebrand



Certificate of Analysis

AGAT WORK ORDER: 18X382529

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Mercury Analysis in Water (Total)

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

		SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A											
		SAMPLE TYPE: Water		Water		Water		Water		Water		Water	
		DATE SAMPLED: 2018-09-05 2018-09-05 2018-09-05 2018-09-05 2018-09-06 2018-09-06 2018-09-05											
Parameter	Unit	G / S: A	G / S: B	RDL	9528572	9528577	9528578	9528579	9528580	9528581	9528582		
Total Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]		
		SAMPLE DESCRIPTION: FMS-HG18-05B FMS-HG18-06A FMS-HG18-07A FMS-HG18-07B FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A											
		SAMPLE TYPE: Water		Water		Water		Water		Water		Water	
		DATE SAMPLED: 2018-09-06 2018-09-05 2018-09-06 2018-09-06 2018-09-05 2018-09-05 2018-09-08											
Parameter	Unit	G / S: A	G / S: B	RDL	9528583	9528584	9528585	9528586	9528587	9528604	9528605		
Total Mercury	ug/L	1	0.026	0.016	<0.016[<B]	0.028[B-A]	<0.016[<B]	0.024[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]		
		SAMPLE DESCRIPTION: FMS-HG18-09B FMS-HG18-10A FMS-HG18-10B FMS-HG18-11A FMS-HG18-11B FMS-HG18-13A FMS-HG18-13B											
		SAMPLE TYPE: Water		Water		Water		Water		Water		Water	
		DATE SAMPLED: 2018-09-06 2018-09-05 2018-09-05 2018-09-04 2018-09-04 2018-09-05 2018-09-05											
Parameter	Unit	G / S: A	G / S: B	RDL	9528606	9528607	9528608	9528609	9528610	9528611	9528612		
Total Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	0.028[B-A]	<0.016[<B]	<0.016[<B]		
		SAMPLE DESCRIPTION: FMS-HG18-14A FMS-HG18-14B FMS-HG18-15A FMS-HG18-15B FMS-HG18-16A FMS-HG18-16B DUP-A											
		SAMPLE TYPE: Water		Water		Water		Water		Water		Water	
		DATE SAMPLED: 2018-09-05 2018-09-05 2018-09-06 2018-09-06 2018-09-06 2018-09-06 2018-09-05											
Parameter	Unit	G / S: A	G / S: B	RDL	9528613	9528614	9528615	9528771	9528772	9528773	9528776		
Total Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]		
		SAMPLE DESCRIPTION: DUP-B DUP-C		SAMPLE TYPE: Water Water		DATE SAMPLED: 2018-09-05 2018-09-06		RDL 9528777 9528778					
Total Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]							

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Canadian Drinking Water Quality - updated 2017-05, B Refers to EQS Surface water - Fresh, TPH (Fuel, Lube) - 2016
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:

Michelle Hildebrand



Certificate of Analysis

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A																			
		G / S: A		G / S: B		RDL		2018-09-05		2018-09-06		2018-09-05									
		7.0-10.5 OG						9528572		9528577		9528578									
pH		7.0-10.5 OG						8.03		7.06		7.45		6.74		8.16		7.03		6.53	
Reactive Silica as SiO2	mg/L					0.5		8.5		8.8		9.2		6.3		8.1		6.1		6.7	
Chloride	mg/L	250 AO				1		3		4		2		2		3		3		4	
Fluoride	mg/L	1.5				0.12		<0.12[<A]		<0.12[<A]		<0.12[<A]		<0.12[<A]		0.18[<A]		<0.12[<A]		<0.12[<A]	
Sulphate	mg/L	500 AO				2		8		3		3		<2		6		<2		2	
Alkalinity	mg/L					5		69		32		28		7		140		38		10	
True Color	TCU	15 AO				5		10		<5		<5		<5		<5		<5		<5	
Turbidity	NTU	0.1-1				0.1		9.4		16.1		7.4		1.5		1.6		31.1		3.0	
Electrical Conductivity	umho/cm					1		172		90		77		32		288		89		54	
Nitrate + Nitrite as N	mg/L					0.05		0.06		0.10		0.13		0.26		0.07		<0.05		0.33	
Nitrate as N	mg/L	10				0.05		0.06[<A]		0.10[<A]		0.13[<A]		0.26[<A]		0.07[<A]		<0.05[<A]		0.33[<A]	
Nitrite as N	mg/L	1.0				0.05		<0.05[<A]		<0.05[<A]		<0.05[<A]		<0.05[<A]		<0.05[<A]		<0.05[<A]		<0.05[<A]	
Ammonia as N	mg/L					0.03		0.04		0.05		0.03		0.04		0.07		0.03		<0.03	
Total Organic Carbon	mg/L					0.5		<0.5		<0.5		0.9		0.6		<0.5		<0.5		0.6	
Ortho-Phosphate as P	mg/L					0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01	
Dissolved Sodium	mg/L	200 AO				0.1		6.5		4.4		4.9		2.7		37.9		7.4		2.6	
Dissolved Potassium	mg/L					0.1		1.6		4.7		1.1		0.5		2.4		1.3		2.7	
Dissolved Calcium	mg/L					0.1		24.3		3.4		7.1		1.4		20.8		2.7		3.7	
Dissolved Magnesium	mg/L					0.1		2.1		2.4		0.6		0.3		3.3		0.6		0.8	
Bicarb. Alkalinity (as CaCO3)	mg/L					5		69		32		28		7		140		38		10	
Carb. Alkalinity (as CaCO3)	mg/L					10		<10		<10		<10		<10		<10		<10		<10	
Hydroxide	mg/L					5		<5		<5		<5		<5		<5		<5		<5	
Calculated TDS	mg/L	500 AO				1		87		48		36		12		157		39		23	
Hardness	mg/L							69.3		18.4		20.2		4.7		65.5		9.2		12.5	
Langelier Index (@20C)	NA							-0.33		-2.46		-1.79		-3.77		0.02		-2.51		-3.43	
Langelier Index (@ 4C)	NA							-0.65		-2.78		-2.11		-4.09		-0.30		-2.83		-3.75	
Saturation pH (@ 20C)	NA							8.36		9.52		9.24		10.5		8.14		9.54		9.96	
Saturation pH (@ 4C)	NA							8.68		9.84		9.56		10.8		8.46		9.86		10.3	
Anion Sum	me/L							1.64		0.82		0.69		0.21		2.99		0.84		0.38	
Cation sum	me/L							1.72		0.92		0.65		0.23		3.04		0.58		0.43	

Certified By:

Michelle Hildebrand



Certificate of Analysis

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A											
		G / S: A		G / S: B		RDL		2018-09-05		2018-09-06		2018-09-05	
		100 OG AO	5	20	2	5	5	3.0	4.2	0.8	18.6	6.9	
% Difference/ Ion Balance (NS)	%					2.5	5.5	3.0	4.2	0.8	18.6	6.9	
Dissolved Aluminum	ug/L	100 OG AO	5	5	11[>B]	15[>B]	<5[<B]	<5[<B]	7[>B]	<5[<B]	7[>B]	<2[<A]	
Dissolved Antimony	ug/L	6	20	2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	
Dissolved Arsenic	ug/L	10	5.0	2	9[B-A]	<2[<B]	17[>A]	<2[<B]	47[>A]	<2[<B]	13[>A]	<2[<A]	
Dissolved Barium	ug/L	1000	1000	5	10[<A]	14[<A]	<5[<A]	<5[<A]	13[<A]	10[<A]	11[<A]	<2[<A]	
Dissolved Beryllium	ug/L		5.3	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	
Dissolved Bismuth	ug/L			2	<2	<2	<2	<2	<2	<2	<2	<2	
Dissolved Boron	ug/L	5000	1200	5	14[<B]	12[<B]	5[<B]	5[<B]	20[<B]	7[<B]	6[<B]	<2[<A]	
Dissolved Cadmium	ug/L	5	0.01	0.017	<0.017[<A]	<0.017[<A]	<0.017[<A]	0.020[B-A]	0.020[B-A]	0.086[B-A]	0.018[B-A]	<2[<A]	
Dissolved Chromium	ug/L	50	-	1	1[<A]	1[<A]	<1[<A]	<1[<A]	2[<A]	1[<A]	1[<A]	<2[<A]	
Dissolved Cobalt	ug/L		10	1	<1[<B]	9[<B]	<1[<B]	3[<B]	<1[<B]	5[<B]	<1[<B]	<2[<A]	
Dissolved Copper	ug/L	1000 AO	2	1	<1[<B]	<1[<B]	<1[<B]	3[>B]	<1[<B]	<1[<B]	<1[<B]	<2[<A]	
Dissolved Iron	ug/L	300 AO	300	50	<50[<B]	3440[>B]	<50[<B]	<50[<B]	<50[<B]	<50[<B]	<50[<B]	<2[<A]	
Dissolved Lead	ug/L	10	1	0.5	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<2[<A]	
Dissolved Manganese	ug/L	50 AO	820	2	112[<B]	3080[>B]	26[<B]	136[<B]	306[<B]	1010[>B]	9[<B]	<2[<A]	
Dissolved Molybdenum	ug/L		73	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	8[<B]	<2[<B]	<2[<B]	<2[<A]	
Dissolved Nickel	ug/L		25	2	2[<B]	6[<B]	<2[<B]	19[<B]	<2[<B]	6[<B]	3[<B]	<2[<A]	
Dissolved Phosphorus	mg/L			0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<2[<A]	
Dissolved Selenium	ug/L	50	1.0	1	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<2[<A]	
Dissolved Silver	ug/L		0.1	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<2[<A]	
Dissolved Strontium	ug/L		21000	5	174[<B]	24[<B]	34[<B]	13[<B]	136[<B]	13[<B]	23[<B]	<2[<A]	
Dissolved Thallium	ug/L		0.8	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<2[<A]	
Dissolved Tin	ug/L		-	2	<2	<2	<2	<2	<2	<2	<2	<2[<A]	
Dissolved Titanium	ug/L			2	<2	<2	<2	<2	<2	<2	<2	<2[<A]	
Dissolved Uranium	ug/L	20	300	0.1	2.4[<A]	<0.1[<A]	0.4[<A]	<0.1[<A]	9.5[<A]	<0.1[<A]	<0.1[<A]	<2[<A]	
Dissolved Vanadium	ug/L		6	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<A]	
Dissolved Zinc	ug/L	5000 AO	30	5	9[<B]	<5[<B]	<5[<B]	31[>B]	17[<B]	33[>B]	<5[<B]	<2[<A]	

Certified By:

Michelle Hildebrand



Certificate of Analysis

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-05B FMS-HG18-06A FMS-HG18-07A FMS-HG18-07B FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A																	
		G / S: A		G / S: B		RDL		2018-09-06		2018-09-05		2018-09-06		2018-09-05		2018-09-05		2018-09-08	
		9528583	9528584	9528585	9528586	9528587	9528604	9528605											
pH		7.0-10.5 OG				6.87	7.04	7.96	6.54	7.65	7.36	7.72							
Reactive Silica as SiO2	mg/L		0.5	6.3	5.8	14.2	7.2	7.7	7.0	12.1									
Chloride	mg/L	250 AO	1	2	10	3	3	3	2	3									
Fluoride	mg/L	1.5	0.12	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]									
Sulphate	mg/L	500 AO	2	4	9	4	<2	3	5	4									
Alkalinity	mg/L		5	25	38	89	13	50	35	76									
True Color	TCU	15 AO	5	<5	28	<5	438	<5	<5	<5									
Turbidity	NTU	0.1-1	0.1	94.6	6.5	1.4	14.6	11.5	9.2	4.0									
Electrical Conductivity	umho/cm		1	87	134	202	54	124	97	174									
Nitrate + Nitrite as N	mg/L		0.05	1.27	0.16	0.22	<0.05	0.21	0.10	<0.05									
Nitrate as N	mg/L	10	0.05	1.27[<A]	0.16[<A]	0.22[<A]	<0.05[<A]	0.21[<A]	0.10[<A]	<0.05[<A]									
Nitrite as N	mg/L	1.0	0.05	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]									
Ammonia as N	mg/L		0.03	0.14	0.16	0.03	0.11	0.04	0.08	0.04									
Total Organic Carbon	mg/L		0.5	1.3	0.8	<0.5	21.8	<0.5	<0.5	<0.5									
Ortho-Phosphate as P	mg/L		0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01									
Dissolved Sodium	mg/L	200 AO	0.1	13.8	4.9	5.7	5.4	4.8	3.8	4.7									
Dissolved Potassium	mg/L		0.1	3.7	1.4	1.8	0.9	0.9	2.0	1.2									
Dissolved Calcium	mg/L		0.1	1.9	17.3	29.5	3.1	17.9	8.6	28.2									
Dissolved Magnesium	mg/L		0.1	0.4	0.9	1.7	0.5	1.1	2.1	1.0									
Bicarb. Alkalinity (as CaCO3)	mg/L		5	25	38	89	13	50	35	76									
Carb. Alkalinity (as CaCO3)	mg/L		10	<10	<10	<10	<10	<10	<10	<10									
Hydroxide	mg/L		5	<5	<5	<5	<5	<5	<5	<5									
Calculated TDS	mg/L	500 AO	1	47	76	101	30	62	45	88									
Hardness	mg/L			6.4	46.9	80.7	9.8	49.2	30.1	74.5									
Langelier Index (@20C)	NA			-3.01	-1.72	-0.21	-3.39	-0.96	-1.71	-0.53									
Langelier Index (@ 4C)	NA			-3.33	-2.04	-0.53	-3.71	-1.28	-2.03	-0.85									
Saturation pH (@ 20C)	NA			9.88	8.76	8.17	9.93	8.61	9.07	8.25									
Saturation pH (@ 4C)	NA			10.2	9.08	8.49	10.2	8.93	9.39	8.57									
Anion Sum	me/L			0.73	1.24	1.96	0.34	1.16	0.87	1.69									
Cation sum	me/L			0.84	1.53	1.93	0.87	1.22	0.84	1.75									

Certified By:

Michelle Hildebrand



Certificate of Analysis

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-05B FMS-HG18-06A FMS-HG18-07A FMS-HG18-07B FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A											
		G / S: A		G / S: B		RDL		2018-09-06		2018-09-05		2018-09-06	
		9528583	9528584	9528585	9528586	9528587	9528604	9528605					
% Difference/ Ion Balance (NS)	%					7.1	10.3	0.7	43.4	2.5	1.9	1.9	
Dissolved Aluminum	ug/L	100 OG AO	5	5	24[>B]	26[>B]	5[B]	1060[>B]	<5[<B]	<5[<B]	<5[<B]	<5[<B]	
Dissolved Antimony	ug/L	6	20	2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	
Dissolved Arsenic	ug/L	10	5.0	2	6[B-A]	169[>A]	35[>A]	24[>A]	3[<B]	<2[<B]	<2[<B]	<2[<B]	
Dissolved Barium	ug/L	1000	1000	5	7[<A]	19[<A]	9[<A]	17[<A]	<5[<A]	7[<A]	14[<A]	14[<A]	
Dissolved Beryllium	ug/L		5.3	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	
Dissolved Bismuth	ug/L			2	<2	<2	<2	<2	<2	<2	<2	<2	
Dissolved Boron	ug/L	5000	1200	5	10[<B]	8[<B]	13[<B]	9[<B]	8[<B]	12[<B]	7[<B]	7[<B]	
Dissolved Cadmium	ug/L	5	0.01	0.017	0.034[B-A]	<0.017[<A]	<0.017[<A]	<0.017[<A]	<0.017[<A]	<0.017[<A]	<0.017[<A]	<0.017[<A]	
Dissolved Chromium	ug/L	50	-	1	1[<A]	1[<A]	2[<A]	3[<A]	1[<A]	1[<A]	1[<A]	1[<A]	
Dissolved Cobalt	ug/L		10	1	3[<B]	<1[<B]	<1[<B]	2[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	
Dissolved Copper	ug/L	1000 AO	2	1	2[B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	3[>B]	<1[<B]	<1[<B]	
Dissolved Iron	ug/L	300 AO	300	50	<50[<B]	8200[>B]	<50[<B]	7830[>B]	<50[<B]	<50[<B]	<50[<B]	<50[<B]	
Dissolved Lead	ug/L	10	1	0.5	<0.5[<B]	<0.5[<B]	<0.5[<B]	0.8[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	
Dissolved Manganese	ug/L	50 AO	820	2	157[<B]	835[>B]	646[<B]	321[<B]	40[<B]	296[<B]	597[<B]	597[<B]	
Dissolved Molybdenum	ug/L		73	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	
Dissolved Nickel	ug/L		25	2	9[<B]	<2[<B]	2[<B]	5[<B]	<2[<B]	4[<B]	3[<B]	3[<B]	
Dissolved Phosphorus	mg/L			0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
Dissolved Selenium	ug/L	50	1.0	1	<1[<B]	<1[<B]	<1[<B]	1[B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	
Dissolved Silver	ug/L		0.1	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	
Dissolved Strontium	ug/L		21000	5	14[<B]	35[<B]	164[<B]	17[<B]	59[<B]	24[<B]	91[<B]	91[<B]	
Dissolved Thallium	ug/L		0.8	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	
Dissolved Tin	ug/L		-	2	<2	<2	<2	<2	<2	<2	<2	<2	
Dissolved Titanium	ug/L			2	<2	<2	<2	10	<2	<2	<2	<2	
Dissolved Uranium	ug/L	20	300	0.1	<0.1[<A]	<0.1[<A]	1.3[<A]	0.4[<A]	0.4[<A]	<0.1[<A]	1.2[<A]	1.2[<A]	
Dissolved Vanadium	ug/L		6	2	<2[<B]	<2[<B]	<2[<B]	4[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	
Dissolved Zinc	ug/L	5000 AO	30	5	10[<B]	<5[<B]	<5[<B]	8[<B]	<5[<B]	<5[<B]	7[<B]	7[<B]	

Certified By:

Michelle Hildebrand



Certificate of Analysis

AGAT WORK ORDER: 18X382529

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-09B FMS-HG18-10A FMS-HG18-10B FMS-HG18-11A FMS-HG18-11B FMS-HG18-13A FMS-HG18-13B																			
		G / S: A		G / S: B		RDL		9528606		9528607		9528608		9528609		9528610		9528611		9528612	
		7.0-10.5 OG																			
pH		7.0-10.5 OG						6.78		7.49		6.63		6.91		6.89		6.99		6.47	
Reactive Silica as SiO2	mg/L			0.5		10.7		6.5		4.1		8.8		8.4		7.1		4.6			
Chloride	mg/L	250 AO		1		3		4		4		3		5		2		2			
Fluoride	mg/L	1.5		0.12		<0.12[<A]		<0.12[<A]		<0.12[<A]		<0.12[<A]		<0.12[<A]		<0.12[<A]		<0.12[<A]			
Sulphate	mg/L	500 AO		2		3		9		2		3		6		3		2			
Alkalinity	mg/L			5		36		45		9		41		79		16		7			
True Color	TCU	15 AO		5		<5		10		<5		<5		<5		10		<5			
Turbidity	NTU	0.1-1		0.1		9.1		25.6		17.2		2.6		3.0		1.0		12.7			
Electrical Conductivity	umho/cm			1		100		139		50		106		205		56		38			
Nitrate + Nitrite as N	mg/L			0.05		0.19		0.28		0.19		0.15		0.08		0.18		0.10			
Nitrate as N	mg/L	10		0.05		0.19[<A]		0.28[<A]		0.19[<A]		0.15[<A]		0.08[<A]		0.18[<A]		0.10[<A]			
Nitrite as N	mg/L	1.0		0.05		<0.05[<A]		<0.05[<A]		<0.05[<A]		<0.05[<A]		<0.05[<A]		<0.05[<A]		<0.05[<A]			
Ammonia as N	mg/L			0.03		0.04		0.04		0.06		0.03		0.04		0.05		0.04			
Total Organic Carbon	mg/L			0.5		<0.5		<0.5		0.6		<0.5		<0.5		0.7		0.9			
Ortho-Phosphate as P	mg/L			0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01			
Dissolved Sodium	mg/L	200 AO		0.1		8.3		15.2		2.9		3.9		4.6		3.6		5.8			
Dissolved Potassium	mg/L			0.1		1.3		1.3		0.4		1.0		2.0		0.6		0.7			
Dissolved Calcium	mg/L			0.1		4.0		16.1		3.9		9.9		29.1		3.5		1.1			
Dissolved Magnesium	mg/L			0.1		0.7		0.9		0.6		0.9		2.0		0.6		0.5			
Bicarb. Alkalinity (as CaCO3)	mg/L			5		36		45		9		41		79		16		7			
Carb. Alkalinity (as CaCO3)	mg/L			10		<10		<10		<10		<10		<10		<10		<10			
Hydroxide	mg/L			5		<5		<5		<5		<5		<5		<5		<5			
Calculated TDS	mg/L	500 AO		1		44		75		20		48		111		24		17			
Hardness	mg/L					12.9		43.9		12.2		28.4		80.9		11.2		4.8			
Langelier Index (@20C)	NA					-2.61		-1.22		-3.34		-2.04		-1.34		-2.79		-4.15			
Langelier Index (@ 4C)	NA					-2.93		-1.54		-3.66		-2.36		-1.66		-3.11		-4.47			
Saturation pH (@ 20C)	NA					9.39		8.71		9.97		8.95		8.23		9.78		10.6			
Saturation pH (@ 4C)	NA					9.71		9.03		10.3		9.27		8.55		10.1		10.9			
Anion Sum	me/L					0.88		1.22		0.35		0.98		1.85		0.45		0.25			
Cation sum	me/L					0.69		1.58		0.39		0.81		2.41		0.40		0.38			

Certified By:

Michelle Hildebrand



Certificate of Analysis

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-09B FMS-HG18-10A FMS-HG18-10B FMS-HG18-11A FMS-HG18-11B FMS-HG18-13A FMS-HG18-13B																			
		G / S: A		G / S: B		RDL		2018-09-06		2018-09-05		2018-09-05		2018-09-04		2018-09-04		2018-09-05		2018-09-05	
		9528606	9528607	9528608	9528609	9528610	9528611	9528612													
% Difference/ Ion Balance (NS)	%					12.5	12.9	5.7	9.3	13.0	6.0	21.0									
Dissolved Aluminum	ug/L	100 OG AO	5	5	<5[<B]	<5[<B]	36[>B]	<5[<B]	6[>B]	<5[<B]	15[>B]										
Dissolved Antimony	ug/L	6	20	2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]										
Dissolved Arsenic	ug/L	10	5.0	2	<2[<B]	3[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]										
Dissolved Barium	ug/L	1000	1000	5	13[<A]	10[<A]	5[<A]	<5[<A]	59[<A]	<5[<A]	7[<A]										
Dissolved Beryllium	ug/L		5.3	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]										
Dissolved Bismuth	ug/L			2	<2	<2	<2	<2	<2	<2	<2										
Dissolved Boron	ug/L	5000	1200	5	7[<B]	15[<B]	5[<B]	6[<B]	7[<B]	5[<B]	10[<B]										
Dissolved Cadmium	ug/L	5	0.01	0.017	0.054[B-A]	0.020[B-A]	0.019[B-A]	0.046[B-A]	0.183[B-A]	<0.017[<A]	<0.017[<A]										
Dissolved Chromium	ug/L	50	-	1	2[<A]	1[<A]	1[<A]	2[<A]	5[<A]	1[<A]	2[<A]										
Dissolved Cobalt	ug/L		10	1	4[<B]	<1[<B]	<1[<B]	<1[<B]	6[<B]	<1[<B]	1[<B]										
Dissolved Copper	ug/L	1000 AO	2	1	2[B]	1[<B]	2[B]	<1[<B]	5[>B]	<1[<B]	5[>B]										
Dissolved Iron	ug/L	300 AO	300	50	<50[<B]	<50[<B]	<50[<B]	<50[<B]	<50[<B]	<50[<B]	<50[<B]										
Dissolved Lead	ug/L	10	1	0.5	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]										
Dissolved Manganese	ug/L	50 AO	820	2	811[<B]	61[<B]	32[<B]	1230[>B]	14600[>B]	25[<B]	115[<B]										
Dissolved Molybdenum	ug/L		73	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]										
Dissolved Nickel	ug/L		25	2	11[<B]	3[<B]	2[<B]	<2[<B]	7[<B]	<2[<B]	4[<B]										
Dissolved Phosphorus	mg/L			0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02										
Dissolved Selenium	ug/L	50	1.0	1	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]										
Dissolved Silver	ug/L		0.1	0.1	0.2[>B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	0.3[>B]										
Dissolved Strontium	ug/L		21000	5	38[<B]	93[<B]	14[<B]	48[<B]	75[<B]	25[<B]	13[<B]										
Dissolved Thallium	ug/L		0.8	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]										
Dissolved Tin	ug/L		-	2	<2	<2	<2	<2	<2	<2	<2										
Dissolved Titanium	ug/L			2	<2	<2	<2	<2	<2	<2	<2										
Dissolved Uranium	ug/L	20	300	0.1	<0.1[<A]	0.5[<A]	<0.1[<A]	0.3[<A]	0.4[<A]	<0.1[<A]	<0.1[<A]										
Dissolved Vanadium	ug/L		6	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]										
Dissolved Zinc	ug/L	5000 AO	30	5	48[>B]	68[>B]	<5[<B]	<5[<B]	14[<B]	<5[<B]	11[<B]										

Certified By:

Michelle Hildebrand



Certificate of Analysis

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-14A FMS-HG18-14B FMS-HG18-15A FMS-HG18-15B FMS-HG18-16A FMS-HG18-16B DUP-A											
		G / S: A		G / S: B		RDL		2018-09-05		2018-09-06		2018-09-06	
		9528613	9528614	9528615	9528771	9528772	9528773	9528776					
pH		7.0-10.5 OG					7.51	7.14	8.07	7.73	7.89	6.70	7.24
Reactive Silica as SiO2	mg/L			0.5	6.7	6.7	9.5	9.1	14.2	6.8	6.6		
Chloride	mg/L	250 AO		1	5	7	3	2	3	4	7		
Fluoride	mg/L	1.5		0.12	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]		
Sulphate	mg/L	500 AO		2	9	7	10	6	8	3	6		
Alkalinity	mg/L			5	69	46	79	56	53	7	48		
True Color	TCU	15 AO		5	<5	<5	<5	6	5	<5	<5		
Turbidity	NTU	0.1-1		0.1	4.0	2.7	1.1	24.9	1.1	12.9	3.8		
Electrical Conductivity	umho/cm			1	196	150	201	144	152	55	152		
Nitrate + Nitrite as N	mg/L			0.05	0.29	0.06	0.22	0.13	0.51	0.56	0.10		
Nitrate as N	mg/L	10		0.05	0.29[<A]	0.06[<A]	0.22[<A]	0.13[<A]	0.51[<A]	0.56[<A]	0.10[<A]		
Nitrite as N	mg/L	1.0		0.05	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]		
Ammonia as N	mg/L			0.03	0.05	0.04	0.06	0.06	0.04	0.05	0.04		
Total Organic Carbon	mg/L			0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.1	<0.5		
Ortho-Phosphate as P	mg/L			0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Dissolved Sodium	mg/L	200 AO		0.1	9.0	7.8	6.4	5.9	5.3	6.7	7.0		
Dissolved Potassium	mg/L			0.1	1.7	2.0	1.0	1.2	1.4	1.0	1.8		
Dissolved Calcium	mg/L			0.1	28.6	16.7	31.6	24.8	22.2	2.1	18.4		
Dissolved Magnesium	mg/L			0.1	1.4	2.4	1.9	1.3	2.0	0.7	2.3		
Bicarb. Alkalinity (as CaCO3)	mg/L			5	69	46	79	56	53	7	48		
Carb. Alkalinity (as CaCO3)	mg/L			10	<10	<10	<10	<10	<10	<10	<10		
Hydroxide	mg/L			5	<5	<5	<5	<5	<5	<5	<5		
Calculated TDS	mg/L	500 AO		1	98	71	103	76	76	24	72		
Hardness	mg/L				77.2	51.6	86.7	67.3	63.7	8.1	55.4		
Langelier Index (@20C)	NA				-0.78	-1.55	-0.12	-0.70	-0.61	-3.66	-1.39		
Langelier Index (@ 4C)	NA				-1.10	-1.87	-0.44	-1.02	-0.93	-3.98	-1.71		
Saturation pH (@ 20C)	NA				8.29	8.69	8.19	8.43	8.50	10.4	8.63		
Saturation pH (@ 4C)	NA				8.61	9.01	8.51	8.75	8.82	10.7	8.95		
Anion Sum	me/L				1.73	1.27	1.89	1.31	1.35	0.36	1.29		
Cation sum	me/L				1.99	1.44	2.06	1.66	1.55	0.49	1.47		

Certified By:

Michelle Hildebrand



Certificate of Analysis

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PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-14A FMS-HG18-14B FMS-HG18-15A FMS-HG18-15B FMS-HG18-16A FMS-HG18-16B DUP-A											
		G / S: A		G / S: B		RDL		Water		Water		Water	
		DATE SAMPLED: 2018-09-05		DATE SAMPLED: 2018-09-05		DATE SAMPLED: 2018-09-06		DATE SAMPLED: 2018-09-06		DATE SAMPLED: 2018-09-06		DATE SAMPLED: 2018-09-06	
					9528613	9528614	9528615	9528771	9528772	9528773	9528776		
% Difference/ Ion Balance (NS)	%				6.9	6.2	4.3	11.9	7.0	15.7	6.7		
Dissolved Aluminum	ug/L	100 OG AO	5	5	<5[<B]	<5[<B]	37[>B]	<5[<B]	<5[<B]	10[>B]	<5[<B]		
Dissolved Antimony	ug/L	6	20	2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]		
Dissolved Arsenic	ug/L	10	5.0	2	6[B-A]	<2[<B]	19[>A]	5[B]	<2[<B]	<2[<B]	<2[<B]		
Dissolved Barium	ug/L	1000	1000	5	8[<A]	19[<A]	<5[<A]	12[<A]	<5[<A]	<5[<A]	18[<A]		
Dissolved Beryllium	ug/L		5.3	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]		
Dissolved Bismuth	ug/L			2	<2	<2	<2	<2	<2	<2	<2		
Dissolved Boron	ug/L	5000	1200	5	6[<B]	10[<B]	6[<B]	7[<B]	8[<B]	8[<B]	9[<B]		
Dissolved Cadmium	ug/L	5	0.01	0.017	0.032[B-A]	0.107[B-A]	<0.017[<A]	<0.017[<A]	<0.017[<A]	0.023[B-A]	0.096[B-A]		
Dissolved Chromium	ug/L	50	-	1	2[<A]	2[<A]	2[<A]	2[<A]	1[<A]	2[<A]	2[<A]		
Dissolved Cobalt	ug/L		10	1	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	1[<B]	<1[<B]		
Dissolved Copper	ug/L	1000 AO	2	1	<1[<B]	1[<B]	<1[<B]	<1[<B]	<1[<B]	16[>B]	<1[<B]		
Dissolved Iron	ug/L	300 AO	300	50	<50[<B]	<50[<B]	155[<B]	83[<B]	<50[<B]	<50[<B]	<50[<B]		
Dissolved Lead	ug/L	10	1	0.5	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]		
Dissolved Manganese	ug/L	50 AO	820	2	72[<B]	276[<B]	158[<B]	605[<B]	220[<B]	62[<B]	317[<B]		
Dissolved Molybdenum	ug/L		73	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]		
Dissolved Nickel	ug/L		25	2	3[<B]	6[<B]	<2[<B]	3[<B]	<2[<B]	6[<B]	6[<B]		
Dissolved Phosphorus	mg/L			0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		
Dissolved Selenium	ug/L	50	1.0	1	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]		
Dissolved Silver	ug/L		0.1	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]		
Dissolved Strontium	ug/L		21000	5	65[<B]	52[<B]	81[<B]	47[<B]	73[<B]	22[<B]	50[<B]		
Dissolved Thallium	ug/L		0.8	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]		
Dissolved Tin	ug/L		-	2	<2	<2	<2	<2	<2	<2	<2		
Dissolved Titanium	ug/L			2	<2	<2	<2	<2	<2	<2	<2		
Dissolved Uranium	ug/L	20	300	0.1	0.7[<A]	<0.1[<A]	1.3[<A]	0.3[<A]	0.2[<A]	0.1[<A]	<0.1[<A]		
Dissolved Vanadium	ug/L		6	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]		
Dissolved Zinc	ug/L	5000 AO	30	5	<5[<B]	<5[<B]	6[<B]	<5[<B]	<5[<B]	22[<B]	<5[<B]		

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

Parameter	Unit	SAMPLE DESCRIPTION:			DUP-B	DUP-C
		SAMPLE TYPE:			Water	Water
		DATE SAMPLED:			2018-09-05	2018-09-06
		G / S: A	G / S: B	RDL	9528777	9528778
pH		7.0-10.5 OG			6.67	7.78
Reactive Silica as SiO2	mg/L			0.5	6.8	12.7
Chloride	mg/L	250 AO		1	4	3
Fluoride	mg/L	1.5		0.12	<0.12[<A]	<0.12[<A]
Sulphate	mg/L	500 AO		2	3	3
Alkalinity	mg/L			5	9	76
True Color	TCU	15 AO		5	12	7
Turbidity	NTU	0.1-1		0.1	3.8	4.5
Electrical Conductivity	umho/cm			1	54	176
Nitrate + Nitrite as N	mg/L			0.05	0.30	0.05
Nitrate as N	mg/L	10		0.05	0.30[<A]	0.05[<A]
Nitrite as N	mg/L	1.0		0.05	<0.05[<A]	<0.05[<A]
Ammonia as N	mg/L			0.03	0.03	0.04
Total Organic Carbon	mg/L			0.5	0.8	<0.5
Ortho-Phosphate as P	mg/L			0.01	<0.01	<0.01
Dissolved Sodium	mg/L	200 AO		0.1	2.8	4.9
Dissolved Potassium	mg/L			0.1	3.0	1.3
Dissolved Calcium	mg/L			0.1	3.9	30.4
Dissolved Magnesium	mg/L			0.1	0.8	1.0
Bicarb. Alkalinity (as CaCO3)	mg/L			5	9	76
Carb. Alkalinity (as CaCO3)	mg/L			10	<10	<10
Hydroxide	mg/L			5	<5	<5
Calculated TDS	mg/L	500 AO		1	24	90
Hardness	mg/L				13.0	80.0
Langelier Index (@20C)	NA				-3.31	-0.44
Langelier Index (@ 4C)	NA				-3.63	-0.76
Saturation pH (@ 20C)	NA				9.98	8.22
Saturation pH (@ 4C)	NA				10.3	8.54
Anion Sum	me/L				0.38	1.67
Cation sum	me/L				0.46	1.87

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ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

Parameter	Unit	SAMPLE DESCRIPTION:			DUP-B	DUP-C	
		G / S: A	G / S: B	RDL	Water	Water	
					DATE SAMPLED:	2018-09-05	2018-09-06
						9528777	9528778
% Difference/ Ion Balance (NS)	%				10.3	5.7	
Dissolved Aluminum	ug/L	100 OG AO	5	5	9[>B]	<5[<B]	
Dissolved Antimony	ug/L	6	20	2	<2[<A]	<2[<A]	
Dissolved Arsenic	ug/L	10	5.0	2	14[>A]	<2[<B]	
Dissolved Barium	ug/L	1000	1000	5	11[<A]	15[<A]	
Dissolved Beryllium	ug/L		5.3	2	<2[<B]	<2[<B]	
Dissolved Bismuth	ug/L			2	<2	<2	
Dissolved Boron	ug/L	5000	1200	5	6[<B]	8[<B]	
Dissolved Cadmium	ug/L	5	0.01	0.017	0.053[B-A]	<0.017[<A]	
Dissolved Chromium	ug/L	50	-	1	1[<A]	2[<A]	
Dissolved Cobalt	ug/L		10	1	<1[<B]	<1[<B]	
Dissolved Copper	ug/L	1000 AO	2	1	1[<B]	<1[<B]	
Dissolved Iron	ug/L	300 AO	300	50	<50[<B]	<50[<B]	
Dissolved Lead	ug/L	10	1	0.5	<0.5[<B]	<0.5[<B]	
Dissolved Manganese	ug/L	50 AO	820	2	10[<B]	585[<B]	
Dissolved Molybdenum	ug/L		73	2	<2[<B]	<2[<B]	
Dissolved Nickel	ug/L		25	2	3[<B]	3[<B]	
Dissolved Phosphorus	mg/L			0.02	<0.02	<0.02	
Dissolved Selenium	ug/L	50	1.0	1	<1[<B]	<1[<B]	
Dissolved Silver	ug/L		0.1	0.1	<0.1[<B]	<0.1[<B]	
Dissolved Strontium	ug/L		21000	5	23[<B]	92[<B]	
Dissolved Thallium	ug/L		0.8	0.1	<0.1[<B]	<0.1[<B]	
Dissolved Tin	ug/L		-	2	<2	<2	
Dissolved Titanium	ug/L			2	<2	<2	
Dissolved Uranium	ug/L	20	300	0.1	<0.1[<A]	1.3[<A]	
Dissolved Vanadium	ug/L		6	2	<2[<B]	<2[<B]	
Dissolved Zinc	ug/L	5000 AO	30	5	5[<B]	7[<B]	

Certified By:

Michelle Hildebrand



Certificate of Analysis

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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TEL (902)468-8718
FAX (902)468-8924
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Canadian Drinking Water Quality - updated 2017-05, B Refers to EQS Surface water - Fresh, TPH (Fuel, Lube) - 2016
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9528572-9528580 Metals analysis completed on a filtered sample.

9528581 Metals analysis completed on a filtered sample.

The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.

9528582-9528585 Metals analysis completed on a filtered sample.

9528586 Metals analysis completed on a filtered sample.

Ion Balance is biased high, contributing parameters have been confirmed.

9528587-9528605 Metals analysis completed on a filtered sample.

9528606-9528607 Metals analysis completed on a filtered sample.

Ion Balance is biased high, contributing parameters have been confirmed.

9528608-9528609 Metals analysis completed on a filtered sample.

9528610 Metals analysis completed on a filtered sample.

Ion Balance is biased high, contributing parameters have been confirmed.

9528611 Metals analysis completed on a filtered sample.

9528612 Metals analysis completed on a filtered sample.

The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.

9528613-9528615 Metals analysis completed on a filtered sample.

9528771 Metals analysis completed on a filtered sample.

Ion Balance is biased high, contributing parameters have been confirmed.

9528772 Metals analysis completed on a filtered sample.

9528773 Metals analysis completed on a filtered sample.

The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.

9528776-9528778 Metals analysis completed on a filtered sample.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Total + Dissolved Phosphorus (Water)

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

		SAMPLE DESCRIPTION: FMS-HG18-02A		FMS-HG18-02B	FMS-HG18-03A	FMS-HG18-03B	FMS-HG18-04A	FMS-HG18-04B	FMS-HG18-05A	FMS-HG18-05B
		SAMPLE TYPE: Water		Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED: 2018-09-05		2018-09-05	2018-09-05	2018-09-05	2018-09-05	2018-09-06	2018-09-06	2018-09-05
Parameter	Unit	G / S	RDL	9528572	9528577	9528578	9528579	9528580	9528581	9528582
Total Phosphorus	mg/L		0.005	0.010	0.047	0.017	0.036	0.018	0.018	0.022
Total Phosphorus, Dissolved	mg/L		0.005	<0.005	0.006	<0.005	0.005	<0.005	0.017	0.009

		SAMPLE DESCRIPTION: FMS-HG18-06A		FMS-HG18-07A	FMS-HG18-07B	FMS-HG18-08A	FMS-HG18-08B	FMS-HG18-09A	FMS-HG18-09B	FMS-HG18-10A
		SAMPLE TYPE: Water		Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED: 2018-09-05		2018-09-06	2018-09-06	2018-09-05	2018-09-05	2018-09-08	2018-09-06	2018-09-05
Parameter	Unit	G / S	RDL	9528584	9528585	9528586	9528587	9528604	9528605	9528606
Total Phosphorus	mg/L		0.005	0.093	0.016	0.057	0.015	0.027	0.011	0.016
Total Phosphorus, Dissolved	mg/L		0.005	0.009	<0.005	0.019	0.005	<0.005	0.005	<0.005

		SAMPLE DESCRIPTION: FMS-HG18-10B		FMS-HG18-11A	FMS-HG18-11B	FMS-HG18-13A	FMS-HG18-13B	FMS-HG18-14A	FMS-HG18-14B	FMS-HG18-15A
		SAMPLE TYPE: Water		Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED: 2018-09-05		2018-09-04	2018-09-04	2018-09-05	2018-09-05	2018-09-05	2018-09-05	2018-09-05
Parameter	Unit	G / S	RDL	9528608	9528609	9528610	9528611	9528612	9528613	9528614
Total Phosphorus	mg/L		0.005	0.063	0.010	0.016	0.009	0.029	0.015	0.014
Total Phosphorus, Dissolved	mg/L		0.005	<0.005	0.009	0.007	0.005	0.006	0.006	<0.005

		SAMPLE DESCRIPTION: FMS-HG18-15B		FMS-HG18-16A	FMS-HG18-16B	DUP-A	DUP-B	DUP-C
		SAMPLE TYPE: Water		Water	Water	Water	Water	Water
		DATE SAMPLED: 2018-09-06		2018-09-06	2018-09-06	2018-09-06	2018-09-05	2018-09-05
Parameter	Unit	G / S	RDL	9528771	9528772	9528773	9528776	9528777
Total Phosphorus	mg/L		0.005	0.053	0.006	0.037	0.017	0.016
Total Phosphorus, Dissolved	mg/L		0.005	<0.005	<0.005	0.005	<0.005	0.012

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard
 Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Michelle Hildebrand



Certificate of Analysis

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Various Inorganics

DATE RECEIVED: 2018-09-07

DATE REPORTED: 2018-10-04

		SAMPLE DESCRIPTION: FMS-HG18-02A		FMS-HG18-02B	FMS-HG18-03A	FMS-HG18-03B	FMS-HG18-04A	FMS-HG18-04B	FMS-HG18-05A	FMS-HG18-05B	
		SAMPLE TYPE: Water		Water	Water	Water	Water	Water	Water	Water	
		DATE SAMPLED: 2018-09-05		2018-09-05	2018-09-05	2018-09-05	2018-09-05	2018-09-06	2018-09-06	2018-09-05	
Parameter	Unit	G / S	RDL	9528572	9528577	9528578	9528579	9528580	9528581	9528582	
Chemical Oxygen Demand	mg/L		3	<3	7	<3	<3	<3	<3	<3	
Dissolved Organic Carbon	mg/L		0.5	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	0.6	
Total Suspended Solids	mg/L		5	9	6	16	<5	5	17	5	
		SAMPLE DESCRIPTION: FMS-HG18-06A		FMS-HG18-07A	FMS-HG18-07B	FMS-HG18-08A	FMS-HG18-08B	FMS-HG18-09A	FMS-HG18-09B	FMS-HG18-10A	
		SAMPLE TYPE: Water		Water	Water	Water	Water	Water	Water	Water	
		DATE SAMPLED: 2018-09-05		2018-09-06	2018-09-06	2018-09-05	2018-09-05	2018-09-08	2018-09-06	2018-09-05	
Parameter	Unit	G / S	RDL	9528584	9528585	9528586	9528587	9528604	9528605	9528606	
Chemical Oxygen Demand	mg/L		3	9	20	63	<3	<3	<3	<3	
Dissolved Organic Carbon	mg/L		0.5	<0.5	<0.5	17.8	<0.5	<0.5	<0.5	<0.5	
Total Suspended Solids	mg/L		5	5	5	8	23	22	5	28	
		SAMPLE DESCRIPTION: FMS-HG18-10B		FMS-HG18-11A	FMS-HG18-11B	FMS-HG18-13A	FMS-HG18-13B	FMS-HG18-14A	FMS-HG18-14B	FMS-HG18-15A	
		SAMPLE TYPE: Water		Water	Water	Water	Water	Water	Water	Water	
		DATE SAMPLED: 2018-09-05		2018-09-04	2018-09-04	2018-09-05	2018-09-05	2018-09-05	2018-09-05	2018-09-05	
Parameter	Unit	G / S	RDL	9528608	9528609	9528610	9528611	9528612	9528613	9528614	
Chemical Oxygen Demand	mg/L		3	<3	5	8	7	4	5	<3	
Dissolved Organic Carbon	mg/L		0.5	0.8	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	
Total Suspended Solids	mg/L		5	118	7	<5	<5	32	17	5	
		SAMPLE DESCRIPTION: FMS-HG18-15B		FMS-HG18-16A	FMS-HG18-16B	DUP-A	DUP-B	DUP-C			
		SAMPLE TYPE: Water		Water	Water	Water	Water	Water	Water		
		DATE SAMPLED: 2018-09-06		2018-09-06	2018-09-06	2018-09-06	2018-09-05	2018-09-05	2018-09-06		
Parameter	Unit	G / S	RDL	9528771	9528772	9528773	9528776	9528777	9528778		
Chemical Oxygen Demand	mg/L		3	4	<3	<3	3	6	3		
Dissolved Organic Carbon	mg/L		0.5	<0.5	<0.5	0.9	<0.5	0.8	<0.5		
Total Suspended Solids	mg/L		5	44	<5	40	<5	15	10		

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

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:

Michelle Hildebrand



Guideline Violation

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9528572	FMS-HG18-02A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	112
9528572	FMS-HG18-02A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	9.4
9528572	FMS-HG18-02A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	11
9528572	FMS-HG18-02A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	9
9528577	FMS-HG18-02B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300 AO	3440
9528577	FMS-HG18-02B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	3080
9528577	FMS-HG18-02B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	16.1
9528577	FMS-HG18-02B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	15
9528577	FMS-HG18-02B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300	3440
9528577	FMS-HG18-02B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	820	3080
9528578	FMS-HG18-03A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	17
9528578	FMS-HG18-03A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	7.4
9528578	FMS-HG18-03A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	17
9528579	FMS-HG18-03B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	136
9528579	FMS-HG18-03B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	1.5
9528579	FMS-HG18-03B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.74
9528579	FMS-HG18-03B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.020
9528579	FMS-HG18-03B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	3
9528579	FMS-HG18-03B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Zinc	ug/L	30	31
9528580	FMS-HG18-04A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	47
9528580	FMS-HG18-04A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	306
9528580	FMS-HG18-04A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	1.6
9528580	FMS-HG18-04A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	7
9528580	FMS-HG18-04A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	47
9528580	FMS-HG18-04A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.020
9528581	FMS-HG18-04B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	1010
9528581	FMS-HG18-04B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	31.1
9528581	FMS-HG18-04B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.086
9528581	FMS-HG18-04B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	820	1010
9528581	FMS-HG18-04B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Zinc	ug/L	30	33
9528582	FMS-HG18-05A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	13



Guideline Violation

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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 FAX (902)468-8924
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9528582	FMS-HG18-05A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	3.0
9528582	FMS-HG18-05A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.53
9528582	FMS-HG18-05A	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	7
9528582	FMS-HG18-05A	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	13
9528582	FMS-HG18-05A	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.018
9528583	FMS-HG18-05B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	157
9528583	FMS-HG18-05B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	94.6
9528583	FMS-HG18-05B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.87
9528583	FMS-HG18-05B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	24
9528583	FMS-HG18-05B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	6
9528583	FMS-HG18-05B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.034
9528584	FMS-HG18-06A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	169
9528584	FMS-HG18-06A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300 AO	8200
9528584	FMS-HG18-06A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	835
9528584	FMS-HG18-06A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	True Color	TCU	15 AO	28
9528584	FMS-HG18-06A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	6.5
9528584	FMS-HG18-06A	NS-ContSiteSW_FW_FL	Mercury Analysis in Water (Total)	Total Mercury	ug/L	0.026	0.028
9528584	FMS-HG18-06A	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	26
9528584	FMS-HG18-06A	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	169
9528584	FMS-HG18-06A	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300	8200
9528584	FMS-HG18-06A	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	820	835
9528585	FMS-HG18-07A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	35
9528585	FMS-HG18-07A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	646
9528585	FMS-HG18-07A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	1.4
9528585	FMS-HG18-07A	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	35
9528586	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	100 OG AO	1060
9528586	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	24
9528586	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300 AO	7830
9528586	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	321
9528586	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	True Color	TCU	15 AO	438
9528586	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	14.6
9528586	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.54
9528586	FMS-HG18-07B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	1060



Guideline Violation

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9528586	FMS-HG18-07B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	24
9528586	FMS-HG18-07B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300	7830
9528587	FMS-HG18-08A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	11.5
9528604	FMS-HG18-08B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	296
9528604	FMS-HG18-08B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	9.2
9528604	FMS-HG18-08B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	3
9528605	FMS-HG18-09A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	597
9528605	FMS-HG18-09A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	4.0
9528606	FMS-HG18-09B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	811
9528606	FMS-HG18-09B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	9.1
9528606	FMS-HG18-09B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.78
9528606	FMS-HG18-09B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.054
9528606	FMS-HG18-09B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Silver	ug/L	0.1	0.2
9528606	FMS-HG18-09B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Zinc	ug/L	30	48
9528607	FMS-HG18-10A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	61
9528607	FMS-HG18-10A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	25.6
9528607	FMS-HG18-10A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.020
9528607	FMS-HG18-10A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Zinc	ug/L	30	68
9528608	FMS-HG18-10B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	17.2
9528608	FMS-HG18-10B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.63
9528608	FMS-HG18-10B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	36
9528608	FMS-HG18-10B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.019
9528609	FMS-HG18-11A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	1230
9528609	FMS-HG18-11A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	2.6
9528609	FMS-HG18-11A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.91
9528609	FMS-HG18-11A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.046
9528609	FMS-HG18-11A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	820	1230
9528610	FMS-HG18-11B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	14600
9528610	FMS-HG18-11B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	3.0
9528610	FMS-HG18-11B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.89
9528610	FMS-HG18-11B	NS- ContSiteSW_FW_FL	Mercury Analysis in Water (Total)	Total Mercury	ug/L	0.026	0.028
9528610	FMS-HG18-11B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	6



Guideline Violation

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9528610	FMS-HG18-11B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.183
9528610	FMS-HG18-11B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	5
9528610	FMS-HG18-11B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	820	14600
9528611	FMS-HG18-13A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.99
9528612	FMS-HG18-13B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	115
9528612	FMS-HG18-13B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	12.7
9528612	FMS-HG18-13B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.47
9528612	FMS-HG18-13B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	15
9528612	FMS-HG18-13B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	5
9528612	FMS-HG18-13B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Silver	ug/L	0.1	0.3
9528613	FMS-HG18-14A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	72
9528613	FMS-HG18-14A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	4.0
9528613	FMS-HG18-14A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	6
9528613	FMS-HG18-14A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.032
9528614	FMS-HG18-14B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	276
9528614	FMS-HG18-14B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	2.7
9528614	FMS-HG18-14B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.107
9528615	FMS-HG18-15A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	19
9528615	FMS-HG18-15A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	158
9528615	FMS-HG18-15A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	1.1
9528615	FMS-HG18-15A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	37
9528615	FMS-HG18-15A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	19
9528771	FMS-HG18-15B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	605
9528771	FMS-HG18-15B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	24.9
9528772	FMS-HG18-16A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	220
9528772	FMS-HG18-16A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	1.1
9528773	FMS-HG18-16B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	62
9528773	FMS-HG18-16B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	12.9
9528773	FMS-HG18-16B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.70
9528773	FMS-HG18-16B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	10
9528773	FMS-HG18-16B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.023
9528773	FMS-HG18-16B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	16



Guideline Violation

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

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<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9528776	DUP-A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	317
9528776	DUP-A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	3.8
9528776	DUP-A	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.096
9528777	DUP-B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	14
9528777	DUP-B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	3.8
9528777	DUP-B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.67
9528777	DUP-B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	9
9528777	DUP-B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	14
9528777	DUP-B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.053
9528778	DUP-C	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	585
9528778	DUP-C	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	4.5

Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES

AGAT WORK ORDER: 18X382529

PROJECT: 1895674

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis																
RPT Date: Oct 04, 2018			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	

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

Benzene	1	9528572	< 0.001	< 0.001	NA	< 0.001	116%	70%	130%	125%	70%	130%			
Toluene	1	9528572	< 0.001	< 0.001	NA	< 0.001	94%	70%	130%	111%	70%	130%			
Ethylbenzene	1	9528572	< 0.001	< 0.001	NA	< 0.001	90%	70%	130%	104%	70%	130%			
Xylene (Total)	1	9528572	< 0.002	< 0.002	NA	< 0.002	106%	70%	130%	101%	70%	130%			
C6-C10 (less BTEX)	1	9528572	< 0.01	< 0.01	NA	< 0.01	86%	70%	130%	112%	70%	130%	NA	70%	130%
>C10-C16 Hydrocarbons	1	9524872	< 0.05	< 0.05	NA	< 0.05	105%	70%	130%	102%	70%	130%	NA	70%	130%
>C16-C21 Hydrocarbons	1	9524872	< 0.10	< 0.10	NA	< 0.10	96%	70%	130%	102%	70%	130%	NA	70%	130%
>C21-C32 Hydrocarbons	1	9524872	< 0.1	< 0.1	NA	< 0.1	75%	70%	130%	102%	70%	130%	NA	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
 If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

>C10-C16 Hydrocarbons	1	9528614	< 0.05	< 0.05	NA	< 0.05	115%	70%	130%	101%	70%	130%	NA	70%	130%
>C16-C21 Hydrocarbons	1	9528614	< 0.10	< 0.10	NA	< 0.10	106%	70%	130%	101%	70%	130%	NA	70%	130%
>C21-C32 Hydrocarbons	1	9528614	< 0.1	< 0.1	NA	< 0.1	88%	70%	130%	101%	70%	130%	NA	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
 If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

Benzene	1	9518606	< 0.001	< 0.001	NA	< 0.001	96%	70%	130%	106%	70%	130%			
Toluene	1	9518606	< 0.001	< 0.001	NA	< 0.001	95%	70%	130%	105%	70%	130%			
Ethylbenzene	1	9518606	< 0.001	< 0.001	NA	< 0.001	96%	70%	130%	105%	70%	130%			
Xylene (Total)	1	9518606	< 0.002	< 0.002	NA	< 0.002	98%	70%	130%	111%	70%	130%			
C6-C10 (less BTEX)	1	9518606	< 0.01	< 0.01	NA	< 0.01	103%	70%	130%	122%	70%	130%	NA	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
 If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

>C10-C16 Hydrocarbons	1	9528130	< 0.05	< 0.05	NA	< 0.05	94%	70%	130%	130%	70%	130%	106%	70%	130%
>C16-C21 Hydrocarbons	1	9528130	< 0.10	< 0.10	NA	< 0.10	97%	70%	130%	130%	70%	130%	106%	70%	130%
>C21-C32 Hydrocarbons	1	9528130	< 0.1	< 0.1	NA	< 0.1	82%	70%	130%	130%	70%	130%	106%	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
 If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

Benzene	1	9528778	< 0.001	< 0.001	NA	< 0.001	83%	70%	130%	106%	70%	130%			
Toluene	1	9528778	< 0.001	< 0.001	NA	< 0.001	83%	70%	130%	105%	70%	130%			
Ethylbenzene	1	9528778	< 0.001	< 0.001	NA	< 0.001	82%	70%	130%	105%	70%	130%			
Xylene (Total)	1	9528778	< 0.002	< 0.002	NA	< 0.002	89%	70%	130%	111%	70%	130%			
C6-C10 (less BTEX)	1	9528778	< 0.01	< 0.01	NA	< 0.01	86%	70%	130%	109%	70%	130%	NA	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
 If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES
PROJECT: 1895674
SAMPLING SITE:

AGAT WORK ORDER: 18X382529
ATTENTION TO: Glen Merkley
SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Oct 04, 2018			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

Certified By: _____



Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES
AGAT WORK ORDER: 18X382529
PROJECT: 1895674
ATTENTION TO: Glen Merkley
SAMPLING SITE:
SAMPLED BY:

Water Analysis															
RPT Date: Oct 04, 2018			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

Standard Water Analysis + Dissolved Metals

pH	9525103		6.49	6.47	0.3%	<	102%	80%	120%	NA	80%	120%	NA	80%	120%
Reactive Silica as SiO2	1	9525103	1.2	1.3	NA	< 0.5	90%	80%	120%		80%	120%	80%	80%	120%
Chloride	9525919		6	5	5.2%	< 1	91%	80%	120%	NA	80%	120%	91%	80%	120%
Fluoride	9525919		<0.12	<0.12	NA	< 0.12	116%	80%	120%	NA	80%	120%	104%	80%	120%
Sulphate	9525919		14	14	1.3%	< 2	108%	80%	120%	NA	80%	120%	NA	80%	120%
Alkalinity	9525103		<5	<5	NA	< 5	94%	80%	120%	NA	80%	120%	NA	80%	120%
True Color	9525359		<5	<5	NA	< 5	80%	80%	120%	NA			NA		
Turbidity	9528605	9528605	4.0	4.6	15.2%	< 0.1	95%	80%	120%	NA			NA		
Electrical Conductivity	9525103		38	38	0.0%	< 1	101%	80%	120%	NA	80%	120%	NA	80%	120%
Nitrate as N	9525919		0.10	0.07	NA	< 0.05	92%	80%	120%	NA	80%	120%	86%	80%	120%
Nitrite as N	9525919		<0.05	<0.05	NA	< 0.05	96%	80%	120%	NA	80%	120%	101%	80%	120%
Ammonia as N	1	9497554	0.07	0.07	NA	< 0.03	102%	80%	120%		80%	120%	92%	80%	120%
Total Organic Carbon	9528572	9528572	<0.5	<0.5	NA	< 0.5	91%	80%	120%	NA	80%	120%	91%	80%	120%
Ortho-Phosphate as P	1	9549755	<0.01	<0.01	NA	< 0.01	88%	80%	120%		80%	120%	96%	80%	120%
Dissolved Sodium	9528605	9528605	4.7	5.1	8.0%	< 0.1	105%	80%	120%	104%	80%	120%	NA	70%	130%
Dissolved Potassium	9528605	9528605	1.2	1.3	9.5%	< 0.1	105%	80%	120%	103%	80%	120%	NA	70%	130%
Dissolved Calcium	9528605	9528605	28.2	28.6	1.8%	< 0.1	102%	80%	120%	103%	80%	120%	NA	70%	130%
Dissolved Magnesium	9528605	9528605	1.0	1.0	5.5%	< 0.1	106%	80%	120%	105%	80%	120%	86%	70%	130%
Bicarb. Alkalinity (as CaCO3)	9525103		<5	<5	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Carb. Alkalinity (as CaCO3)	9525103		<10	<10	NA	< 10	NA	80%	120%	NA	80%	120%	NA	80%	120%
Hydroxide	9525103		<5	<5	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Dissolved Aluminum	9528605	9528605	<5	<5	NA	< 5	106%	80%	120%	104%	80%	120%	89%	70%	130%
Dissolved Antimony	9528605	9528605	<2	<2	NA	< 2	84%	80%	120%	105%	80%	120%	114%	70%	130%
Dissolved Arsenic	9528605	9528605	<2	<2	NA	< 2	98%	80%	120%	99%	80%	120%	112%	70%	130%
Dissolved Barium	9528605	9528605	14	15	NA	< 5	99%	80%	120%	99%	80%	120%	106%	70%	130%
Dissolved Beryllium	9528605	9528605	<2	<2	NA	< 2	113%	80%	120%	115%	80%	120%	114%	70%	130%
Dissolved Bismuth	9528605	9528605	<2	<2	NA	< 2	104%	80%	120%	109%	80%	120%	71%	70%	130%
Dissolved Boron	9528605	9528605	7	8	NA	< 5	113%	80%	120%	114%	80%	120%	115%	70%	130%
Dissolved Cadmium	9528605	9528605	<0.017	<0.017	NA	< 0.09	92%	80%	120%	94%	80%	120%	104%	70%	130%
Dissolved Chromium	9528605	9528605	1	2	NA	< 1	111%	80%	120%	100%	80%	120%	113%	70%	130%
Dissolved Cobalt	9528605	9528605	<1	<1	NA	< 1	100%	80%	120%	100%	80%	120%	107%	70%	130%
Dissolved Copper	9528605	9528605	<1	<1	NA	< 2	102%	80%	120%	102%	80%	120%	109%	70%	130%
Dissolved Iron	9528605	9528605	<50	<50	NA	< 50	112%	80%	120%	108%	80%	120%	110%	70%	130%
Dissolved Lead	9528605	9528605	<0.5	<0.5	NA	< 0.5	106%	80%	120%	107%	80%	120%	109%	70%	130%
Dissolved Manganese	9528605	9528605	597	620	3.8%	< 2	107%	80%	120%	105%	80%	120%	NA	70%	130%
Dissolved Molybdenum	9528605	9528605	<2	<2	NA	< 2	95%	80%	120%	97%	80%	120%	78%	70%	130%
Dissolved Nickel	9528605	9528605	3	3	NA	< 2	101%	80%	120%	99%	80%	120%	108%	70%	130%
Dissolved Phosphorus	9528605	9528605	<0.02	<0.02	NA	< 0.02	NA	80%	120%	120%	80%	120%	NA	70%	130%
Dissolved Selenium	9528605	9528605	<1	<1	NA	< 1	105%	80%	120%	100%	80%	120%	115%	70%	130%

Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES
PROJECT: 1895674
SAMPLING SITE:

AGAT WORK ORDER: 18X382529
ATTENTION TO: Glen Merkley
SAMPLED BY:

Water Analysis (Continued)

RPT Date: Oct 04, 2018			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	
Dissolved Silver	9528605	9528605	<0.1	<0.1	NA	< 0.1	99%	80%	120%	104%	80%	120%	92%	70%	130%	
Dissolved Strontium	9528605	9528605	91	98	6.7%	< 5	100%	80%	120%	100%	80%	120%	NA	70%	130%	
Dissolved Thallium	9528605	9528605	<0.1	<0.1	NA	< 0.1	105%	80%	120%	106%	80%	120%	109%	70%	130%	
Dissolved Tin	9528605	9528605	<2	<2	NA	< 2	93%	80%	120%	97%	80%	120%	86%	70%	130%	
Dissolved Titanium	9528605	9528605	<2	<2	NA	< 2	102%	80%	120%	101%	80%	120%	120%	70%	130%	
Dissolved Uranium	9528605	9528605	1.2	1.3	5.8%	< 0.1	102%	80%	120%	102%	80%	120%	107%	70%	130%	
Dissolved Vanadium	9528605	9528605	<2	<2	NA	< 2	95%	80%	120%	95%	80%	120%	103%	70%	130%	
Dissolved Zinc	9528605	9528605	7	8	NA	< 5	106%	80%	120%	106%	80%	120%	119%	70%	130%	

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Mercury Analysis in Water (Dissolved)

Dissolved Mercury	1	9528611	<0.016	<0.016	NA	< 0.026	99%	80%	120%		80%	120%	94%	80%	120%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Mercury Analysis in Water (Total)

Total Mercury	1	9528585	<0.016	<0.016	NA	< 0.026	95%	80%	120%		80%	120%	111%	80%	120%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Various Inorganics

Chemical Oxygen Demand	9528572	9528572	<3	<3	NA	< 3	97%	80%	120%	NA			96%	80%	120%
Dissolved Organic Carbon	1		NA	NA	NA	< 0.5	91%	80%	120%	NA	80%	120%	NA	80%	120%
Total Suspended Solids	9529303		6	5	NA	< 5	101%	80%	120%	NA			87%	80%	120%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Standard Water Analysis + Dissolved Metals

pH	9528582	9528582	6.53	6.51	0.3%	<	102%	80%	120%	NA	80%	120%	NA	80%	120%
Chloride	9528605	9528605	3	4	NA	< 1	92%	80%	120%	NA	80%	120%	100%	80%	120%
Fluoride	9528605	9528605	<0.12	<0.12	NA	< 0.12	116%	80%	120%	NA	80%	120%	111%	80%	120%
Sulphate	9528605	9528605	4	4	NA	< 2	107%	80%	120%	NA	80%	120%	100%	80%	120%
Alkalinity	9528582	9528582	10	9	NA	< 5	94%	80%	120%	NA	80%	120%	NA	80%	120%
Electrical Conductivity	9528582	9528582	54	53	2.1%	< 1	101%	80%	120%	NA	80%	120%	NA	80%	120%
Nitrate as N	9528605	9528605	<0.05	<0.05	NA	< 0.05	95%	80%	120%	NA	80%	120%	91%	80%	120%
Nitrite as N	9528605	9528605	<0.05	<0.05	NA	< 0.05	97%	80%	120%	NA	80%	120%	102%	80%	120%
Total Organic Carbon	9528586	9528586	21.8	21.7	0.3%	< 0.5	97%	80%	120%	NA	80%	120%	118%	80%	120%
Bicarb. Alkalinity (as CaCO3)	9528582	9528582	10	9	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Carb. Alkalinity (as CaCO3)	9528582	9528582	<10	<10	NA	< 10	NA	80%	120%	NA	80%	120%	NA	80%	120%
Hydroxide	9528582	9528582	<5	<5	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Standard Water Analysis + Dissolved Metals

Quality Assurance

CLIENT NAME: **GOLDER ASSOCIATES**

AGAT WORK ORDER: **18X382529**

PROJECT: **1895674**

ATTENTION TO: **Glen Merkley**

SAMPLING SITE:

SAMPLED BY:

Water Analysis (Continued)																
RPT Date: Oct 04, 2018			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	
pH	9528773	9528773	6.70	6.55	2.3%	<	102%	80%	120%	NA	80%	120%	NA	80%	120%	
Alkalinity	9528773	9528773	7	6	NA	< 5	94%	80%	120%	NA	80%	120%	NA	80%	120%	
Electrical Conductivity	9528773	9528773	55	53	2.7%	< 1	103%	80%	120%	NA	80%	120%	NA	80%	120%	
Total Organic Carbon	9528612	9528612	0.9	1.1	NA	< 0.5	85%	80%	120%	NA	80%	120%	103%	80%	120%	
Bicarb. Alkalinity (as CaCO3)	9528773	9528773	7	6	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%	
Carb. Alkalinity (as CaCO3)	9528773	9528773	<10	<10	NA	< 10	NA	80%	120%	NA	80%	120%	NA	80%	120%	
Hydroxide	9528773	9528773	<5	<5	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%	

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Standard Water Analysis + Dissolved Metals

Dissolved Sodium	9528778	9528778	4.9	4.6	5.4%	< 0.1	100%	80%	120%	93%	80%	120%	NA	70%	130%
Dissolved Potassium	9528778	9528778	1.3	1.2	6.6%	< 0.1	104%	80%	120%	94%	80%	120%	NA	70%	130%
Dissolved Calcium	9528778	9528778	30.4	30.1	1.1%	< 0.1	100%	80%	120%	96%	80%	120%	NA	70%	130%
Dissolved Magnesium	9528778	9528778	1.0	1.0	0.8%	< 0.1	100%	80%	120%	95%	80%	120%	84%	70%	130%
Dissolved Aluminum	9528778	9528778	<5	<5	NA	< 5	101%	80%	120%	94%	80%	120%	88%	70%	130%
Dissolved Antimony	9528778	9528778	<2	<2	NA	< 2	96%	80%	120%	100%	80%	120%	115%	70%	130%
Dissolved Arsenic	9528778	9528778	<2	<2	NA	< 2	100%	80%	120%	89%	80%	120%	106%	70%	130%
Dissolved Barium	9528778	9528778	15	14	NA	< 5	103%	80%	120%	91%	80%	120%	103%	70%	130%
Dissolved Beryllium	9528778	9528778	<2	<2	NA	< 2	105%	80%	120%	93%	80%	120%	124%	70%	130%
Dissolved Bismuth	9528778	9528778	<2	<2	NA	< 2	110%	80%	120%	100%	80%	120%	70%	70%	130%
Dissolved Boron	9528778	9528778	8	7	NA	< 5	101%	80%	120%	92%	80%	120%	121%	70%	130%
Dissolved Cadmium	9528778	9528778	<0.017	<0.017	NA	< 0.09	97%	80%	120%	84%	80%	120%	105%	70%	130%
Dissolved Chromium	9528778	9528778	2	2	NA	< 1	98%	80%	120%	83%	80%	120%	108%	70%	130%
Dissolved Cobalt	9528778	9528778	<1	<1	NA	< 1	107%	80%	120%	95%	80%	120%	110%	70%	130%
Dissolved Copper	9528778	9528778	<1	<1	NA	< 2	103%	80%	120%	101%	80%	120%	105%	70%	130%
Dissolved Iron	9528778	9528778	<50	<50	NA	< 50	104%	80%	120%	89%	80%	120%	98%	70%	130%
Dissolved Lead	9528778	9528778	<0.5	<0.5	NA	< 0.5	111%	80%	120%	96%	80%	120%	109%	70%	130%
Dissolved Manganese	9528778	9528778	585	590	1.0%	< 2	105%	80%	120%	94%	80%	120%	NA	70%	130%
Dissolved Molybdenum	9528778	9528778	<2	<2	NA	< 2	95%	80%	120%	84%	80%	120%	104%	70%	130%
Dissolved Nickel	9528778	9528778	3	3	NA	< 2	98%	80%	120%	87%	80%	120%	104%	70%	130%
Dissolved Phosphorus	9528778	9528778	<0.02	<0.02	NA	< 0.02	99%	80%	120%	91%	80%	120%	NA	70%	130%
Dissolved Selenium	9528778	9528778	<1	<1	NA	< 1	101%	80%	120%	86%	80%	120%	111%	70%	130%
Dissolved Silver	9528778	9528778	<0.1	<0.1	NA	< 0.1	104%	80%	120%	91%	80%	120%	99%	70%	130%
Dissolved Strontium	9528778	9528778	92	84	8.2%	< 5	99%	80%	120%	89%	80%	120%	NA	70%	130%
Dissolved Thallium	9528778	9528778	<0.1	<0.1	NA	< 0.1	109%	80%	120%	97%	80%	120%	107%	70%	130%
Dissolved Tin	9528778	9528778	<2	<2	NA	< 2	94%	80%	120%	86%	80%	120%	108%	70%	130%
Dissolved Titanium	9528778	9528778	<2	<2	NA	< 2	100%	80%	120%	93%	80%	120%	98%	70%	130%
Dissolved Uranium	9528778	9528778	1.3	1.3	4.8%	< 0.1	105%	80%	120%	92%	80%	120%	107%	70%	130%
Dissolved Vanadium	9528778	9528778	<2	<2	NA	< 2	95%	80%	120%	83%	80%	120%	99%	70%	130%
Dissolved Zinc	9528778	9528778	7	7	NA	< 5	113%	80%	120%	98%	80%	120%	128%	70%	130%

Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES
PROJECT: 1895674
SAMPLING SITE:

AGAT WORK ORDER: 18X382529
ATTENTION TO: Glen Merkley
SAMPLED BY:

Water Analysis (Continued)

RPT Date: Oct 04, 2018			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	

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Various Inorganics

Dissolved Organic Carbon	2	NA	NA	NA	< 0.5	97%	80%	120%	NA	80%	120%	NA	80%	120%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Various Inorganics

Dissolved Organic Carbon	3	NA	NA	NA	< 0.5	85%	80%	120%	NA	80%	120%	NA	80%	120%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Analyses Inorganiques

Cyanures totaux	9528476	<0.005	<0.005	NA	< 0.005	91%	80%	120%	108%	80%	120%	104%	80%	120%
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Comments: NA : Non applicable

NA dans l'écart du duplicata indique que l'écart n'a pu être calculé car l'un ou les deux résultats sont < 5x LDR.

NA dans le pourcentage de récupération de l'échantillon fortifié indique que le résultat n'est pas fourni en raison de l'hétérogénéité de l'échantillon ou de la concentration trop élevée par rapport à l'ajout.

NA dans le blanc fortifié ou le MRC indique qu'il n'est pas requis par la procédure.

Le pourcentage de récupération du MRC peut être en dehors du critère d'acceptabilité de 80-120%, s'il est conforme à l'écart du certificat du matériau de référence.

Total + Dissolved Phosphorus (Water)

Total Phosphorus	9528572	9528572	0.01	0.01	NA	< 0.005	101%	90%	110%	102%	90%	110%	100%	70%	130%
Total Phosphorus, Dissolved	9528572	9528572	<0.005	<0.005	NA	< 0.005	93%	90%	110%	95%	90%	110%	101%	80%	120%

Total + Dissolved Phosphorus (Water)

Total Phosphorus	9528612	9528612	0.029	0.032	9.8%	< 0.005	106%	90%	110%	102%	90%	110%	104%	70%	130%
Total Phosphorus, Dissolved	9528612	9528612	0.006	0.007	NA	< 0.005	102%	90%	110%	95%	90%	110%	93%	80%	120%

Free Cyanide (Water)

Cyanide, Free	9533410	<0.002	<0.002	NA	< 0.002	99%	90%	110%	108%	90%	110%	100%	70%	130%
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Certified By: Michelle Hildebrand

Method Summary

CLIENT NAME: GOLDER ASSOCIATES
AGAT WORK ORDER: 18X382529
PROJECT: 1895674
ATTENTION TO: Glen Merkley
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Miscellaneous Analysis			
Subcontracted Data			
Trace Organics Analysis			
Benzene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Toluene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Ethylbenzene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Xylene (Total)	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
C6-C10 (less BTEX)	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
>C10-C16 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
>C16-C21 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
>C21-C32 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Modified TPH (Tier 1)	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	CALCULATION
Resemblance Comment	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS/FID
Return to Baseline at C32	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Isobutylbenzene - EPH	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Isobutylbenzene - VPH	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
n-Dotriacontane - EPH	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID

Method Summary

CLIENT NAME: GOLDER ASSOCIATES
AGAT WORK ORDER: 18X382529
PROJECT: 1895674
ATTENTION TO: Glen Merkley
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Cyanures totaux	INOR-101-6061F	MA. 300 - CN 1.2	COLORIMÉTRIE
Cyanide, Free	INOR-93-6052	MOE CN-3015 & SM 4500 CN- I	TECHNICON AUTO ANALYZER
Dissolved Mercury	MET-121-6100 & MET-121-6107	SM 3112 B	CV/AA
Total Mercury	MET-121-6100 & MET-121-6107	SM 3112 B	CV/AA
pH	INOR-121-6001	SM 4500 H+B	PC TITRATE
Reactive Silica as SiO ₂	INOR-121-6027	SM 4110 B	COLORIMETER
Chloride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Fluoride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Alkalinity	INOR-121-6001	SM 2320 B	
True Color	INOR-121-6014	SM 2120 C	NEPHELOMETER
Turbidity	INOR-121-6022	SM 2130 B	NEPHELOMETER
Electrical Conductivity	INOR-121-6001	SM 2510 B	PC TITRATE
Nitrate + Nitrite as N	INORG-121-6005	SM 4110 B	CALCULATION
Nitrate as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-121-6047	SM 4500-NH ₃ G	COLORIMETER
Total Organic Carbon	INORG-121-6026	SM 5310 B	TOC ANALYZER
Ortho-Phosphate as P	INOR-121-6012	SM 4110 B	COLORIMETER
Dissolved Sodium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Potassium	MET121-6104 & MET-121-6105	SM 3125	ICP-MS
Dissolved Calcium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Magnesium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Bicarb. Alkalinity (as CaCO ₃)	INORG-121-6001	SM 2320 B	PC TITRATE
Carb. Alkalinity (as CaCO ₃)	INORG-121-6001	SM 2320 B	PC TITRATE
Hydroxide	INORG-121-6001	SM 2320 B	PC-TITRATE
Calculated TDS	CALCULATION	SM 1030E	CALCULATION
Hardness	CALCULATION	SM 2340B	CALCULATION
Langelier Index (@20C)	CALCULATION	CALCULATION	CALCULATION
Langelier Index (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 20C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Anion Sum	CALCULATION	SM 1030E	CALCULATION
Cation sum	CALCULATION	SM 1030E	CALCULATION
% Difference/ Ion Balance (NS)	CALCULATION	SM 1030E	CALCULATION
Dissolved Aluminum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Antimony	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Arsenic	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Barium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Beryllium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS

Method Summary

CLIENT NAME: GOLDER ASSOCIATES
AGAT WORK ORDER: 18X382529
PROJECT: 1895674
ATTENTION TO: Glen Merkley
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Dissolved Bismuth	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Boron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Cadmium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Chromium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Cobalt	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Copper	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Iron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Lead	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Manganese	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Molybdenum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Nickel	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Phosphorus	MET-121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Selenium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Silver	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Strontium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Thallium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Tin	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Titanium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Uranium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Vanadium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Zinc	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Phosphorus	INOR-93-6022	SM 4500-P B&E	SPECTROPHOTOMETER
Total Phosphorus, Dissolved	INOR-93-6022	SM 4500-P B&E	SPECTROPHOTOMETER
Chemical Oxygen Demand	INORG-121-6013	SM 5220 B	SPECTROPHOTOMETER
Dissolved Organic Carbon	INORG-121-6026	SM 5310 B	TOC ANALYZER
Total Suspended Solids	INOR-121-6024, 6025	SM 2540C, D	GRAVIMETRIC



AGAT Laboratories

Unit 122 • 11 Morris Drive
Dartmouth, NS
B3B 1M2

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P: 902.468.8718 • F: 902.468.8924

Laboratory Use Only

Arrival Condition: Good Poor (see notes)

Arrival Temperature: 3.7 - 6.2

Hold Time: _____

AGAT Job Number: RX382529

Notes:

Chain of Custody Record

Report Information

Company: Golder Associates
Contact: Glen Merkley
Address: 201 Brownlow Avenue, Suite 26
Dartmouth, NS, B3B 1W2
Phone: 9024661668 Fax: 9024661669
Client Project #: 1895674
AGAT Quotation: 204505
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):

1. Name: Glen Merkley
Email: glen_merkley@golder.com
2. Name: Sheri Burton
Email: sheri_burton@golder.com

Report Format

- Single Sample per page
 Multiple Sample per page
 Excel Format Included
 Export:

Turnaround Time Required (TAT)

Regular TAT 5 to 7 working days

Rush TAT Same day 1 day
 2 days 3 days

Date Required: _____

Invoice To

Same Yes / No

Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
PO/Credit Card#: _____

Regulatory Requirements (Check):

- List Guidelines on Report Do not list Guidelines on Report
 PIRI
 Tier 1 Res Pot Coarse
 Tier 2 Com N/Pot Fine
 Gas Fuel Lube
 CCME CDWQ
 Industrial NSEQS-Cont Sites
 Commercial HRM 101
 Res/Park Storm Water
 Agricultural Waste Water
 FWAL
 Sediment Other _____

Drinking Water Sample: Yes No Salt Water Sample: Yes No

Reg. No.: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments - Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals: <input type="checkbox"/> Total <input checked="" type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury (Total + Dissolved)	Lead COP DOC	pH	<input checked="" type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus + Dissolved Phos.	Phenols	Tier 1: TPH/BTEX (PIRI) <input type="checkbox"/> low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC <input type="checkbox"/> P/A <input type="checkbox"/> MPN <input type="checkbox"/> MF	<input type="checkbox"/> HPC <input type="checkbox"/> Pseudomonas	Fecal Coliform <input type="checkbox"/> MPN <input type="checkbox"/> MF	Other: Total and Free Cyanide	Other: Radium-226	azardous (Y/N)
FMS-HG18-02A	Aug 5/18 - 2:00PM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-02B	Aug 5/18 - 2:30PM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-03A	Aug 5/18 - 4:00PM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-03B	Aug 5/18 - 4:30PM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-04A	Aug 6/18 - 12:30PM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-04B	Aug 6/18 - 1:00PM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-05A	Aug 5/18 - 5:00PM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-05B	Aug 6/18 - 9:00AM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-06A	Aug 5/18 - 12:00PM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-07A	Aug 6/18 - 1:30PM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-07B	Aug 6/18 - 2:00PM	GW	13	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>											<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
FMS-HG18-08A	Aug 4/18 - 6:00PM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Samples Relinquished By (Print Name):

Glen Merkley

Date/Time:

Sept. 7/18

Samples Received By (Print Name):

Tim Goulet

Date/Time:

10:20

Samples Relinquished By (Sign):

D. Merkley

Date/Time:

10:20am

Samples Received By (Sign):

Date/Time:

07 Sept

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

Page 1 of 3

Nº: _____

Copper RDL - 1.0 µg/L, Mercury RDL - 0.016 µg/L



AGAT Laboratories

Unit 122 • 11 Morris Drive
Dartmouth, NS
B3B 1M2

webearth.agatlabs.com • www.agatlabs.com

P: 902.468.8718 • F: 902.468.8924

Laboratory Use Only

Arrival Condition: Good Poor (see notes)

Arrival Temperature: _____

Hold Time: _____

AGAT Job Number: 18X382529

Notes: _____

Chain of Custody Record

Report Information

Company: Golder Associates

Contact: Glen Merkley

Address: 201 Brownlow Avenue, Suite 26
Dartmouth, NS, B3B 1W2

Phone: 9024661668 Fax: 9024661669

Client Project #: 1895674

AGAT Quotation: 204505

Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):

1. Name: Glen Merkley

Email: glen_merkley@golder.com

2. Name: Sheri Burton

Email: sheri_burton@golder.com

Report Format

Single Sample per page

Multiple Sample per page

Excel Format Included

Export:

Turnaround Time Required (TAT)

Regular TAT 5 to 7 working days

Rush TAT Same day 1 day

2 days 3 days

Date Required: _____

Invoice To

Same Yes / No

Company: _____

Contact: _____

Address: _____

Phone: _____ Fax: _____

PO/Credit Card#: _____

Regulatory Requirements (Check):

List Guidelines on Report Do not list Guidelines on Report

PIRI

Tier 1 Res Pot Coarse

Tier 2 Com N/Pot Fine

Gas Fuel Lube

CCME CDWQ

Industrial NSEQS-Cont Sites

Commercial

Res/Park HRM 101

Agricultural Storm Water

FWAL

Waste Water

Sediment

Other _____

Drinking Water Sample: Yes No Salt Water Sample: Yes No

Reg. No.: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments - Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals: <input type="checkbox"/> Total <input checked="" type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury (Total + Dissolved)	As - COD + DOC	pH	<input checked="" type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus + Dissolved - Miss.	Phenols	Tier 1: TPH/BTEX (PIRI) <input type="checkbox"/> low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC <input type="checkbox"/> P/A <input type="checkbox"/> MPN <input type="checkbox"/> MF	<input type="checkbox"/> HPC <input type="checkbox"/> Pseudomonas	Fecal Coliform <input type="checkbox"/> MPN <input type="checkbox"/> MF	Other:	Other: Radium-226	Hazardous (Y/N)
FMS-HG18-08B	Aug 5/18 - 9:00AM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-09A	Aug 6/18 - 11:00AM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-09B	Aug 6/18 - 11:30AM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-10A	Aug 5/18 - 11:00AM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-10B	Aug 5/18 - 11:30AM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-11A	Aug 4/18 - 5:00PM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-11B	Aug 4/18 - 5:30PM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-13A	Aug 5/18 - 10:00AM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-13B	Aug 5/18 - 10:30AM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-14A	Aug 5/18 - 12:30PM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-14B	Aug 5/18 - 1:00PM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-15A	Aug 6/18 - 3:30PM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	

Samples Relinquished By (Print Name): <u>Glen Merkley</u>	Date/Time: <u>Aug. 7/18</u>	Samples Received By (Print Name): <u>Anna Ouel</u>	Date/Time: <u>07 Sept</u>	Pink Copy - Client	Page <u>2</u> of <u>3</u>
Samples Relinquished By (Sign): <u>[Signature]</u>	Date/Time: <u>10:20am</u>	Samples Received By (Sign): <u>[Signature]</u>	Date/Time: <u>10:20</u>	Yellow Copy - AGAT	Nº:
				White Copy- AGAT	

Document ID: DIV-133-1501002

Date revised: January 2016

Copper RDL - 1.0 µg/L, Mercury RDL - 0.016 µg/L



AGAT Laboratories

Unit 122 • 11 Morris Drive
Dartmouth, NS
B3B 1M2

webearth.agatlabs.com • www.agatlabs.com

P: 902.468.8718 • F: 902.468.8924

Laboratory Use Only

Arrival Condition: Good Poor (see notes)

Arrival Temperature: _____

Hold Time: _____

AGAT Job Number: 18X302529

Notes: _____

Chain of Custody Record

Report Information

Company: Golder Associates

Contact: Glen Merkley

Address: 201 Brownlow Avenue, Suite 26
Dartmouth, NS, B3B 1W2

Phone: 9024661668 Fax: 9024661669

Client Project #: 1895674

AGAT Quotation: 204505

Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):

1. Name: Glen Merkley

Email: glen_merkley@golder.com

2. Name: Sheri Burton

Email: sheri_burton@golder.com

Regulatory Requirements (Check):

List Guidelines on Report Do not list Guidelines on Report

PIRI

Tier 1 Res Pot Coarse

Tier 2 Com N/Pot Fine

Gas Fuel Lube

CCME

CDWQ

Industrial

NSEQS-Cont Sites

Commercial

HRM 101

Res/Park

Storm Water

Agricultural

Waste Water

FWAL

Sediment

Other _____

Report Format

Single Sample per page

Multiple Sample per page

Excel Format Included

Export:

Turnaround Time Required (TAT)

Regular TAT 5 to 7 working days

Rush TAT Same day 1 day

2 days 3 days

Date Required: _____

Drinking Water Sample: Yes No Salt Water Sample: Yes No

Reg. No.: _____

Invoice To

Same Yes / No

Company: _____

Contact: _____

Address: _____

Phone: _____ Fax: _____

PO/Credit Card#: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments - Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals: <input type="checkbox"/> Total <input checked="" type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury (Total + Dissolved)	Free DOC DOC + DOC	pH	<input checked="" type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> YSS	TKN	Total Phosphorus + Dissolved Miss.	Phenols	Tier 1: TPH/BTEX (PIRI) <input type="checkbox"/> low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC+EC <input type="checkbox"/> P/A <input type="checkbox"/> MPN <input type="checkbox"/> MF	<input type="checkbox"/> HPC <input type="checkbox"/> Pseudomonas	Fecal Coliform <input type="checkbox"/> MPN <input type="checkbox"/> MF	Other: Total and Free Cyanide	Other: Radium-226	Hazardous (Y/N)
FMS-HG18-15B	Aug 6/18 - 4:00PM	GW	13	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>											<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
FMS-HG18-16A	Aug 6/18 - 10:00AM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>											<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
FMS-HG18-16B	Aug 6/18 - 10:30AM	GW	13	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>											<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
DUP-A	Aug 5/18 - 1:00PM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>											<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
DUP-B	Aug 5/18 - 5:00PM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>											<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
DUP-C	Aug 6/18 - 11:00AM	GW	11	Field filtered for dissolved metals		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>											<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Samples Relinquished By (Print Name):

Glen Merkley

Date/Time:

Aug. 7/18

Samples Received By (Print Name):

Imo Dorell

Date/Time:

07 Sept

Samples Relinquished By (Sign):

[Signature]

Date/Time:

10:20am

Samples Received By (Sign):

Date/Time:

10:20

Pink Copy - Client

Yellow Copy - AGAT

White Copy - AGAT

Page 3 of 3

Nº: _____

Copper RDL - 1.0 ug/L, Mercury RDL - 0.016 ug/L

SRC Group # 2018-11183

Oct 03, 2018

AGAT Laboratories
122-11 Morris Drive
Dartmouth, NS B3B 1M2
Attn: Janetta Fraser

Date Samples Received: Sep-11-2018

Client P.O.: 120349

All results have been reviewed and approved by a Qualified Person in accordance with the Saskatchewan Environmental Code, Corrective Action Plan Chapter, for the purposes of certifying a laboratory analysis

Results from Lab Sections 1 and 2 have been authorized by Keith Gipman, Supervisor
Results from Lab Section 3 have been authorized by Pat Moser, Supervisor
Results from Lab Sections 4 and 5 have been authorized by Vicky Snook, Supervisor
Results from Lab Section 6 have been authorized by Marion McConnell, Supervisor

-
- * Test methods and data are validated by the laboratory's Quality Assurance Program.
 - * Routine methods follow recognized procedures from sources such as
 - * Standard Methods for the Examination of Water and Wastewater APHA AWWA WEF
 - * Environment Canada
 - * US EPA
 - * CANMET
 - * The results reported relate only to the test samples as provided by the client.
 - * Samples will be kept for 30 days after the final report is sent. Please contact the lab if you have any special requirements.
 - * Additional information is available upon request.

This is a final report.

SRC Group # 2018-11183

Oct 03, 2018

AGAT Laboratories
122-11 Morris Drive
Dartmouth, NS B3B 1M2
Attn: Janetta Fraser

Date Samples Received: Sep-11-2018

Client P.O.: 120349

35577 09/05/2018 18X382529-9528572J/K: FMS-HG18-02A *WATER*
35578 09/05/2018 18X382529-9528577J/K: FMS-HG18-02B *WATER*
35579 09/05/2018 18X382529-9528578J/K: FMS-HG18-03A *WATER*

Analyte	Units	35577	35578	35579
Lab Section 4 (Radiochemistry)				
Radium-226	Bq/L	0.009	0.01	0.01

SRC Group # 2018-11183

Oct 03, 2018

AGAT Laboratories

35580	09/05/2018	18X382529-9528579J/K: FMS-HG18-03B	*WATER*
35581	09/06/2018	18X382529-9528580J/K: FMS-HG18-04A	*WATER*
35582	09/06/2018	18X382529-9528581J/K: FMS-HG18-04B	*WATER*

Analyte	Units	35580	35581	35582
Lab Section 4 (Radiochemistry)				
Radium-226	Bq/L	0.01	0.006	0.006

SRC Group # 2018-11183

Oct 03, 2018

AGAT Laboratories

35583	09/05/2018	18X382529-9528582J/K: FMS-HG18-05A	*WATER*
35584	09/06/2018	18X382529-9528583J/K: FMS-HG18-05B	*WATER*
35585	09/05/2018	18X382529-9528584J/K: FMS-HG18-06A	*WATER*

Analyte	Units	35583	35584	35585
Lab Section 4 (Radiochemistry)				
Radium-226	Bq/L	0.01	0.03	0.01

SRC Group # 2018-11183

Oct 03, 2018

AGAT Laboratories

35586	09/06/2018	18X382529-9528585J/K: FMS-HG18-07A	*WATER*
35587	09/06/2018	18X382529-9528586J/K: FMS-HG18-07B	*WATER*
35588	09/05/2018	18X382529-9528587J/K: FMS-HG18-08A	*WATER*

Analyte	Units	35586	35587	35588
Lab Section 4 (Radiochemistry)				
Radium-226	Bq/L	0.01	0.01	0.01

SRC Group # 2018-11183

Oct 03, 2018

AGAT Laboratories

35589 09/05/2018 18X382529-9528604J/K: FMS-HG18-08B *WATER*
 35590 09/06/2018 18X382529-9528605J/K: FMS-HG18-09A *WATER*
 35591 09/06/2018 18X382529-9528606J/K: FMS-HG18-09B *WATER*

Analyte	Units	35589	35590	35591
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Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	0.008	0.02	<0.005
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Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

SRC Group # 2018-11183

Oct 03, 2018

AGAT Laboratories

35592 09/05/2018 18X382529-9528607J/K: FMS-HG18-10A *WATER*
 35593 09/05/2018 18X382529-9528608J/K: FMS-HG18-10B *WATER*
 35594 09/04/2018 18X382529-9528609J/K: FMS-HG18-11A *WATER*

Analyte	Units	35592	35593	35594
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Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	0.01	<0.005	0.01
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Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

SRC Group # 2018-11183

Oct 03, 2018

AGAT Laboratories

35595	09/04/2018	18X382529-9528610J/K: FMS-HG18-11B	*WATER*
35596	09/05/2018	18X382529-9528611J/K: FMS-HG18-13A	*WATER*
35597	09/05/2018	18X382529-9528612J/K: FMS-HG18-13B	*WATER*

Analyte	Units	35595	35596	35597
Lab Section 4 (Radiochemistry)				
Radium-226	Bq/L	0.01	0.007	0.01

SRC Group # 2018-11183

Oct 03, 2018

AGAT Laboratories

35598	09/05/2018	18X382529-9528613J/K: FMS-HG18-14A	*WATER*
35599	09/05/2018	18X382529-9528614J/K: FMS-HG18-14B	*WATER*
35600	09/06/2018	18X382529-9528615J/K: FMS-HG18-15A	*WATER*

Analyte	Units	35598	35599	35600
---------	-------	-------	-------	-------

Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	<0.005	0.007	0.01
------------	------	--------	-------	------

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

SRC Group # 2018-11183

Oct 03, 2018

AGAT Laboratories

35601 09/06/2018 18X382529-9528771J/K: FMS-HG18-15B *WATER*
 35602 09/06/2018 18X382529-9528772J/K: FMS-HG18-16A *WATER*
 35603 09/06/2018 18X382529-9528773J/K: FMS-HG18-16B *WATER*

Analyte	Units	35601	35602	35603
Lab Section 4 (Radiochemistry)				
Radium-226	Bq/L	0.03	0.01	0.01

SRC Group # 2018-11183

Oct 03, 2018

AGAT Laboratories

35604 09/05/2018 18X382529-9528776J/K: DUP-A *WATER*
35605 09/05/2018 18X382529-9528777J/K: DUP-B *WATER*
35606 09/06/2018 18X382529-9528778J/K: DUP-C *WATER*

Analyte	Units	35604	35605	35606
Lab Section 4 (Radiochemistry)				
Radium-226	Bq/L	0.005	0.01	0.02

CLIENT NAME: GOLDER ASSOCIATES
201 Brownlow Avenue, Suite 26
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(902) 466-1668

ATTENTION TO: Sheri Burton

PROJECT:

AGAT WORK ORDER: 18X411370

MISCELLANEOUS ANALYSIS REVIEWED BY: Jason Coughtrey, Inorganics Supervisor

TRACE ORGANICS REVIEWED BY: Amy Hunter, Trace Organics Supervisor, B.Sc.

WATER ANALYSIS REVIEWED BY: Jason Coughtrey, Inorganics Supervisor

DATE REPORTED: Dec 07, 2018

PAGES (INCLUDING COVER): 35

VERSION*: 2

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

*NOTES

VERSION 2:Version 2.0 supersedes version 1.0 - complete report

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



Certificate of Analysis

AGAT WORK ORDER: 18X411370

PROJECT:

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Subcontracted Data Received											
DATE RECEIVED: 2018-11-20					DATE REPORTED: 2018-12-07						
SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A FMS-HG18-05B											
SAMPLE TYPE: Water Water Water Water Water Water Water Water											
DATE SAMPLED: 2018-11-19 2018-11-19 2018-11-19 2018-11-19 2018-11-20 2018-11-20 2018-11-19 2018-11-19											
Parameter	Unit	G / S	RDL	9717442	9717446	9717447	9717448	9717449	9717450	9717451	9717452
Subcontracted Data		y y y y y y y y									
SAMPLE DESCRIPTION: FMS-HG18-06A FMS-HG18-07A FMS-HG18-07B FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A FMS-HG18-09B FMS-HG18-10A											
SAMPLE TYPE: Water Water Water Water Water Water Water Water											
DATE SAMPLED: 2018-11-19 2018-11-20 2018-11-20 2018-11-19 2018-11-19 2018-11-20 2018-11-20 2018-11-19											
Parameter	Unit	G / S	RDL	9717453	9717454	9717455	9717459	9717460	9717461	9717462	9717463
Subcontracted Data		y y y y y y y y									
SAMPLE DESCRIPTION: FMS-HG18-1010B FMS-HG18-1011A FMS-HG18-1011B FMS-HG18-1013A FMS-HG18-1013B FMS-HG18-1014A FMS-HG18-1014B FMS-HG18-1015A											
SAMPLE TYPE: Water Water Water Water Water Water Water Water											
DATE SAMPLED: 2018-11-19 2018-11-19 2018-11-19 2018-11-19 2018-11-19 2018-11-19 2018-11-19 2018-11-20											
Parameter	Unit	G / S	RDL	9717464	9717465	9717466	9717467	9717468	9717469	9717470	9717471
Subcontracted Data		y y y y y y y y									
SAMPLE DESCRIPTION: FMS-HG18-015B FMS-HG18-016A FMS-HG18-016B DUP-1 DUP-2 DUP-3											
SAMPLE TYPE: Water Water Water Water Water Water											
DATE SAMPLED: 2018-11-20 2018-11-19 2018-11-19 2018-11-19 2018-11-19 2018-11-19											
Parameter	Unit	G / S	RDL	9717631	9717633	9717634	9717636	9717637	9717638		
Subcontracted Data		y y y y y y									

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard
 Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X411370

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A											
		G / S: A		G / S: B		RDL		DATE SAMPLED: 2018-11-19		DATE SAMPLED: 2018-11-19		DATE SAMPLED: 2018-11-19	
		Water		Water		Water		Water		Water		Water	
Benzene	mg/L	0.005	2.1	0.001	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	
Toluene	mg/L	0.06, 0.024	0.77	0.001	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	
Ethylbenzene	mg/L	0.14, 0.0016	0.32	0.001	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	
Xylene (Total)	mg/L	0.09, 0.02	0.33	0.002	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	
C6-C10 (less BTEX)	mg/L			0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
>C10-C16 Hydrocarbons	mg/L			0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
>C16-C21 Hydrocarbons	mg/L			0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
>C21-C32 Hydrocarbons	mg/L			0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Modified TPH (Tier 1)	mg/L		0.1	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	
Resemblance Comment					NR	NR	NR	NR	NR	NR	NR	NR	
Return to Baseline at C32					Y	Y	Y	Y	Y	Y	Y	Y	
Surrogate	Unit	Acceptable Limits											
Isobutylbenzene - EPH	%		70-130		94	91	91	91	90	106	113		
Isobutylbenzene - VPH	%		70-130		73	70	111	71	111	70	75		
n-Dotriacontane - EPH	%		70-130		93	89	86	88	82	103	105		

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X411370

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-05B FMS-HG18-06A FMS-HG18-07A FMS-HG18-07B FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A													
		G / S: A		G / S: B		RDL		DATE SAMPLED: 2018-11-19		DATE SAMPLED: 2018-11-20		DATE SAMPLED: 2018-11-20			
		0.005		2.1		0.001		9717452		9717453		9717454			
Benzene	mg/L	0.005		2.1		0.001		<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]
Toluene	mg/L	0.06, 0.024		0.77		0.001		<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]
Ethylbenzene	mg/L	0.14, 0.0016		0.32		0.001		<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]
Xylene (Total)	mg/L	0.09, 0.02		0.33		0.002		<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]
C6-C10 (less BTEX)	mg/L					0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
>C10-C16 Hydrocarbons	mg/L					0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
>C16-C21 Hydrocarbons	mg/L					0.10		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
>C21-C32 Hydrocarbons	mg/L					0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Modified TPH (Tier 1)	mg/L			0.1		0.1		<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]
Resemblance Comment						NR		NR	NR	NR	NR	NR	NR	NR	NR
Return to Baseline at C32						Y		Y	Y	Y	Y	Y	Y	Y	Y
Surrogate	Unit	Acceptable Limits													
Isobutylbenzene - EPH	%			70-130		95		91	87	96	109	112	120		
Isobutylbenzene - VPH	%			70-130		77		115	76	113	70	101	87		
n-Dotriacontane - EPH	%			70-130		90		86	81	89	104	112	116		

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

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Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-09B FMS-HG18-010A FMS-HG18-010B FMS-HG18-011A FMS-HG18-011B FMS-HG18-013A FMS-HG18-013B													
		G / S: A		G / S: B		RDL		DATE SAMPLED: 2018-11-20		DATE SAMPLED: 2018-11-19		DATE SAMPLED: 2018-11-19			
		0.005		2.1		0.001		9717462		9717463		9717464			
Benzene	mg/L	0.005		2.1		0.001		<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]
Toluene	mg/L	0.06, 0.024		0.77		0.001		<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]
Ethylbenzene	mg/L	0.14, 0.0016		0.32		0.001		<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]
Xylene (Total)	mg/L	0.09, 0.02		0.33		0.002		<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]
C6-C10 (less BTEX)	mg/L					0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
>C10-C16 Hydrocarbons	mg/L					0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
>C16-C21 Hydrocarbons	mg/L					0.10		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
>C21-C32 Hydrocarbons	mg/L					0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Modified TPH (Tier 1)	mg/L			0.1		0.1		<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]
Resemblance Comment								NR	NR	NR	NR	NR	NR	NR	NR
Return to Baseline at C32								Y	Y	Y	Y	Y	Y	Y	Y
Surrogate	Unit	Acceptable Limits													
Isobutylbenzene - EPH	%			70-130				111	110	117	114	116	97	126	
Isobutylbenzene - VPH	%			70-130				124	124	70	70	96	95	104	
n-Dotriacontane - EPH	%			70-130				108	108	116	116	114	90	128	

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X411370

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-014A FMS-HG18-014B FMS-HG18-015A FMS-HG18-015B FMS-HG18-016A FMS-HG18-016B DUP-1										
		G / S: A		G / S: B		RDL		Water		Water		Water
		DATE SAMPLED:		DATE SAMPLED:		DATE SAMPLED:		DATE SAMPLED:		DATE SAMPLED:		DATE SAMPLED:
		0.005	2.1	0.001	9717469	9717470	9717471	9717631	9717633	9717634	9717636	
Benzene	mg/L	0.005	2.1	0.001	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	
Toluene	mg/L	0.06, 0.024	0.77	0.001	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	
Ethylbenzene	mg/L	0.14, 0.0016	0.32	0.001	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	
Xylene (Total)	mg/L	0.09, 0.02	0.33	0.002	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	
C6-C10 (less BTEX)	mg/L			0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
>C10-C16 Hydrocarbons	mg/L			0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
>C16-C21 Hydrocarbons	mg/L			0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
>C21-C32 Hydrocarbons	mg/L			0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Modified TPH (Tier 1)	mg/L		0.1	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	
Resemblance Comment					NR	NR	NR	NR	NR	NR	NR	
Return to Baseline at C32					Y	Y	Y	Y	Y	Y	Y	
Surrogate	Unit	Acceptable Limits										
Isobutylbenzene - EPH	%		70-130		124	105	111	111	124	127	120	
Isobutylbenzene - VPH	%		70-130		102	106	109	100	104	107	108	
n-Dotriacontane - EPH	%		70-130		128	107	113	114	124	127	124	

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X411370

PROJECT:

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

Parameter	Unit	SAMPLE DESCRIPTION:			DUP-2	DUP-3
		G / S: A	G / S: B	RDL	9717637	9717638
					2018-11-19	2018-11-19
					9717637	9717638
Benzene	mg/L	0.005	2.1	0.001	<0.001[<A]	<0.001[<A]
Toluene	mg/L	0.06, 0.024	0.77	0.001	<0.001[<B]	<0.001[<B]
Ethylbenzene	mg/L	0.14, 0.0016	0.32	0.001	<0.001[<B]	<0.001[<B]
Xylene (Total)	mg/L	0.09, 0.02	0.33	0.002	<0.002[<B]	<0.002[<B]
C6-C10 (less BTEX)	mg/L			0.01	<0.01	<0.01
>C10-C16 Hydrocarbons	mg/L			0.05	<0.05	<0.05
>C16-C21 Hydrocarbons	mg/L			0.10	<0.10	<0.10
>C21-C32 Hydrocarbons	mg/L			0.1	<0.1	<0.1
Modified TPH (Tier 1)	mg/L		0.1	0.1	<0.1[<B]	<0.1[<B]
Resemblance Comment					NR	NR
Return to Baseline at C32					Y	Y
Surrogate	Unit	Acceptable Limits				
Isobutylbenzene - EPH	%		70-130		109	118
Isobutylbenzene - VPH	%		70-130		110	103
n-Dotriacontane - EPH	%		70-130		113	122

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Canadian Drinking Water Quality - updated 2017-05, B Refers to EQS Surface water - Fresh, TPH (Fuel, Lube) - 2016
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9717442-9717638 Resemblance Comment Key:
 GF - Gasoline Fraction
 WGF - Weathered Gasoline Fraction
 GR - Product in Gasoline Range
 FOF - Fuel Oil Fraction
 WFOF - Weathered Fuel Oil Fraction
 FR - Product in Fuel Oil Range
 LOF - Lube Oil Fraction
 LR - Lube Range
 UC - Unidentified Compounds
 NR - No Resemblance
 NA - Not Applicable

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X411370

PROJECT:

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Free & Total CN (Water)

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

SAMPLE DESCRIPTION: FMS-HG18-07B FMS-HG18-015B FMS-HG18-016B

SAMPLE TYPE: Water Water Water

DATE SAMPLED: 2018-11-20 2018-11-20 2018-11-19

Parameter	Unit	G / S	RDL	9717455	9717631	9717634
Cyanide, Free	mg/L	0.002	<0.002	<0.002	<0.002	<0.002
Total Cyanide	mg/L	0.005	0.002	<0.002	<0.002	<0.002

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to EQS Surface water - Fresh, TPH (Fuel, Lube) - 2016
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X411370

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Mercury Analysis in Water (Dissolved)

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

		SAMPLE DESCRIPTION: FMS-HG18-02A			FMS-HG18-02B	FMS-HG18-03A	FMS-HG18-03B	FMS-HG18-04A	FMS-HG18-04B	FMS-HG18-05A
Parameter		Unit	G / S: A	G / S: B	RDL					
Dissolved Mercury		ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]
		SAMPLE DESCRIPTION: FMS-HG18-05B			FMS-HG18-06A	FMS-HG18-07A	FMS-HG18-07B	FMS-HG18-08A	FMS-HG18-08B	FMS-HG18-09A
Parameter		Unit	G / S: A	G / S: B	RDL					
Dissolved Mercury		ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]
		SAMPLE DESCRIPTION: FMS-HG18-09B			FMS-HG18-010A	FMS-HG18-010B	FMS-HG18-011A	FMS-HG18-011B	FMS-HG18-013A	FMS-HG18-013B
Parameter		Unit	G / S: A	G / S: B	RDL					
Dissolved Mercury		ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]
		SAMPLE DESCRIPTION: FMS-HG18-014A			FMS-HG18-014B	FMS-HG18-015A	FMS-HG18-015B	FMS-HG18-016A	FMS-HG18-016B	DUP-1
Parameter		Unit	G / S: A	G / S: B	RDL					Water
Dissolved Mercury		ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	0.062[B-A]	<0.016[<B]	<0.016[<B]
		SAMPLE DESCRIPTION: DUP-2			DUP-3					
Parameter		Unit	G / S: A	G / S: B	RDL					
Dissolved Mercury		ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]			

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Canadian Drinking Water Quality - updated 2017-05, B Refers to EQS Surface water - Fresh, TPH (Fuel, Lube) - 2016
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X411370

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CLIENT NAME: GOLDER ASSOCIATES

SAMPLING SITE:

ATTENTION TO: Sheri Burton

SAMPLED BY:

Mercury Analysis in Water (Total)

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

		SAMPLE DESCRIPTION: FMS-HG18-02A		FMS-HG18-02B	FMS-HG18-03A	FMS-HG18-03B	FMS-HG18-04A	FMS-HG18-04B	FMS-HG18-05A	
Parameter		Unit	G / S: A	G / S: B	RDL					
Total Mercury		ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	
		SAMPLE DESCRIPTION: FMS-HG18-05B		FMS-HG18-06A	FMS-HG18-07A	FMS-HG18-07B	FMS-HG18-08A	FMS-HG18-08B	FMS-HG18-09A	
Total Mercury		ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	
		SAMPLE DESCRIPTION: FMS-HG18-09B		FMS-HG18-010A	FMS-HG18-010B	FMS-HG18-011A	FMS-HG18-011B	FMS-HG18-013A	FMS-HG18-013B	
Total Mercury		ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	
		SAMPLE DESCRIPTION: FMS-HG18-014A		FMS-HG18-014B	FMS-HG18-015A	FMS-HG18-015B	FMS-HG18-016A	FMS-HG18-016B	DUP-1	
Total Mercury		ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	0.164[B-A]	<0.016[<B]	
		SAMPLE DESCRIPTION: DUP-2		DUP-3						
Total Mercury		ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]			

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Canadian Drinking Water Quality - updated 2017-05, B Refers to EQS Surface water - Fresh, TPH (Fuel, Lube) - 2016
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A											
		G / S: A		G / S: B		RDL		RDL		RDL		RDL	
		2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-20	2018-11-20	2018-11-19	2018-11-19	2018-11-20	2018-11-20	2018-11-19	2018-11-19
pH		7.0-10.5 OG				8.05	6.32	7.56	7.08	8.21	7.02	6.58	
Reactive Silica as SiO2	mg/L			0.5	9.5	3.8	13.0	5.3	10.5	8.1	8.1		
Chloride	mg/L	250 AO		1	4	4	3	2	2	3	3		
Fluoride	mg/L	1.5		0.12	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	0.16[<A]	<0.12[<A]	<0.12[<A]		
Sulphate	mg/L	500 AO		2	15	<2	9	<2	7	<2	3		
Alkalinity	mg/L			5	69	<5	33	12	141	39	11		
True Color	TCU	15 AO		5	<5	<5	7	<5	5	<5	7		
Turbidity	NTU	0.1-1		0.1	6.8	28.1	9.8	185	5.5	78.8	11.1		
Electrical Conductivity	umho/cm			1	179	34	102	42	292	91	56		
Nitrate + Nitrite as N	mg/L			0.05	0.06	<0.05	0.11	0.06	<0.05	<0.05	0.38		
Nitrate as N	mg/L	10		0.05	0.06[<A]	<0.05[<A]	0.11[<A]	0.06[<A]	<0.05[<A]	<0.05[<A]	0.38[<A]		
Nitrite as N	mg/L	1.0		0.05	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]		
Ammonia as N	mg/L			0.03	0.05	0.03	0.03	0.05	0.04	0.07	0.04		
Total Organic Carbon	mg/L			0.5	0.8	1.2	2.0	1.0	<0.5	<0.5	1.4		
Ortho-Phosphate as P	mg/L			0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Dissolved Sodium	mg/L	200 AO		0.1	6.0	3.2	8.1	5.8	43.1	5.8	2.9		
Dissolved Potassium	mg/L			0.1	1.7	0.7	1.4	0.8	2.4	1.2	3.2		
Dissolved Calcium	mg/L			0.1	21.7	1.0	10.0	1.2	21.5	4.5	4.3		
Dissolved Magnesium	mg/L			0.1	2.3	0.5	0.7	0.3	3.8	1.1	0.9		
Bicarb. Alkalinity (as CaCO3)	mg/L			5	69	<5	33	12	141	39	11		
Carb. Alkalinity (as CaCO3)	mg/L			10	<10	<10	<10	<10	<10	<10	<10		
Hydroxide	mg/L			5	<5	<5	<5	<5	<5	<5	<5		
Calculated TDS	mg/L	500 AO		1	93	10	53	18	165	47	26		
Hardness	mg/L				63.7	4.6	27.9	4.2	69.3	15.8	14.4		
Langelier Index (@20C)	NA				-0.36	-4.49	-1.48	-3.27	0.08	-2.29	-3.27		
Langelier Index (@ 4C)	NA				-0.68	-4.81	-1.80	-3.59	-0.24	-2.61	-3.59		
Saturation pH (@ 20C)	NA				8.41	10.8	9.04	10.4	8.13	9.31	9.85		
Saturation pH (@ 4C)	NA				8.73	11.1	9.36	10.7	8.45	9.63	10.2		
Anion Sum	me/L				1.81	0.11	0.94	0.30	3.02	0.86	0.39		
Cation sum	me/L				1.59	0.27	0.99	0.39	3.34	0.88	0.50		

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X411370

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CLIENT NAME: GOLDER ASSOCIATES

SAMPLING SITE:

ATTENTION TO: Sheri Burton

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A											
		G / S: A		G / S: B		RDL		RDL		RDL		RDL	
		2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-20	2018-11-20	2018-11-19	2018-11-19	2018-11-20	2018-11-20	2018-11-19	2018-11-19
% Difference/ Ion Balance	%					6.6	41.1	2.6	13.1	4.9	0.6	11.9	
Dissolved Aluminum	ug/L	100 OG AO	5	5	6[>B]	88[>B]	295[>B]	224[>B]	6[>B]	<5[<B]	7[>B]		
Dissolved Antimony	ug/L	6	20	2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]		
Dissolved Arsenic	ug/L	10	5.0	2	10[A]	<2[<B]	23[>A]	<2[<B]	38[>A]	<2[<B]	15[>A]		
Dissolved Barium	ug/L	1000	1000	5	8[<A]	14[<A]	7[<A]	5[<A]	9[<A]	19[<A]	11[<A]		
Dissolved Beryllium	ug/L		5.3	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]		
Dissolved Bismuth	ug/L			2	<2	<2	<2	<2	<2	<2	<2		
Dissolved Boron	ug/L	5000	1200	5	13[<B]	<5[<B]	6[<B]	5[<B]	18[<B]	<5[<B]	8[<B]		
Dissolved Cadmium	ug/L	5	0.01	0.017	<0.017[<A]	0.017[B-A]	<0.017[<A]	<0.017[<A]	<0.017[<A]	0.060[B-A]	<0.017[<A]		
Dissolved Chromium	ug/L	50	-	1	<1[<A]	<1[<A]	<1[<A]	<1[<A]	2[<A]	1[<A]	1[<A]		
Dissolved Cobalt	ug/L		10	1	<1[<B]	2[<B]	<1[<B]	2[<B]	<1[<B]	6[<B]	<1[<B]		
Dissolved Copper	ug/L	1000 AO	2	1	2[B]	9[>B]	<1[<B]	1[<B]	<1[<B]	<1[<B]	<1[<B]		
Dissolved Iron	ug/L	300 AO	300	50	<50[<B]	68[<B]	86[<B]	52[<B]	<50[<B]	1750[>B]	<50[<B]		
Dissolved Lead	ug/L	10	1	0.5	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]		
Dissolved Manganese	ug/L	50 AO	820	2	112[<B]	193[<B]	201[<B]	92[<B]	288[<B]	1470[>B]	5[<B]		
Dissolved Molybdenum	ug/L		73	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	8[<B]	<2[<B]	<2[<B]		
Dissolved Nickel	ug/L		25	2	<2[<B]	7[<B]	<2[<B]	8[<B]	<2[<B]	5[<B]	2[<B]		
Dissolved Phosphorus	mg/L			0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		
Dissolved Selenium	ug/L	50	1.0	1	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]		
Dissolved Silver	ug/L		0.1	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]		
Dissolved Strontium	ug/L		21000	5	175[<B]	11[<B]	47[<B]	9[<B]	136[<B]	21[<B]	25[<B]		
Dissolved Thallium	ug/L		0.8	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]		
Dissolved Tin	ug/L		-	2	<2	<2	<2	<2	<2	<2	<2		
Dissolved Titanium	ug/L			2	<2	<2	7	3	<2	<2	<2		
Dissolved Uranium	ug/L	20	300	0.1	2.6[<A]	<0.1[<A]	0.9[<A]	<0.1[<A]	9.3[<A]	<0.1[<A]	<0.1[<A]		
Dissolved Vanadium	ug/L		6	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]		
Dissolved Zinc	ug/L	5000 AO	30	5	<5[<B]	<5[<B]	<5[<B]	10[<B]	<5[<B]	5150[>B]	<5[<B]		

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X411370

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-05B FMS-HG18-06A FMS-HG18-07A FMS-HG18-07B FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A											
		G / S: A		G / S: B		RDL		RDL		RDL		RDL	
		2018-11-19	2018-11-19	2018-11-20	2018-11-20	2018-11-19	2018-11-19	2018-11-20	2018-11-20	2018-11-19	2018-11-19	2018-11-20	2018-11-20
pH		7.0-10.5 OG				6.67	6.34	8.00	6.49	7.33	6.27	7.74	
Reactive Silica as SiO2	mg/L			0.5	6.0	11.4	13.9	6.2	8.3	3.5	17.4		
Chloride	mg/L	250 AO		1	2	8	3	4	2	3	3		
Fluoride	mg/L	1.5		0.12	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]		
Sulphate	mg/L	500 AO		2	3	12	2	<2	2	<2	3		
Alkalinity	mg/L			5	10	10	98	14	28	5	75		
True Color	TCU	15 AO		5	23	<5	<5	434	11	17	<5		
Turbidity	NTU	0.1-1		0.1	51.8	5.2	5.2	40.3	39.6	48.2	5.0		
Electrical Conductivity	umho/cm			1	56	102	207	60	71	32	171		
Nitrate + Nitrite as N	mg/L			0.05	2.18	0.19	<0.05	<0.05	<0.05	0.10	<0.05		
Nitrate as N	mg/L	10		0.05	2.18[<A]	0.19[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	0.10[<A]	<0.05[<A]		
Nitrite as N	mg/L	1.0		0.05	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]		
Ammonia as N	mg/L			0.03	0.03	0.04	0.03	0.11	0.04	0.03	0.04		
Total Organic Carbon	mg/L			0.5	1.8	1.3	2.8	26.8	1.3	2.9	<0.5		
Ortho-Phosphate as P	mg/L			0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Dissolved Sodium	mg/L	200 AO		0.1	5.5	4.5	7.5	6.9	3.3	3.6	5.1		
Dissolved Potassium	mg/L			0.1	1.5	1.9	2.1	0.7	0.8	0.5	1.4		
Dissolved Calcium	mg/L			0.1	2.7	10.1	30.3	3.4	7.4	1.2	27.5		
Dissolved Magnesium	mg/L			0.1	0.4	0.8	2.1	0.6	0.7	0.3	1.0		
Bicarb. Alkalinity (as CaCO3)	mg/L			5	10	10	98	14	28	5	75		
Carb. Alkalinity (as CaCO3)	mg/L			10	<10	<10	<10	<10	<10	<10	<10		
Hydroxide	mg/L			5	<5	<5	<5	<5	<5	<5	<5		
Calculated TDS	mg/L	500 AO		1	31	45	106	35	33	12	86		
Hardness	mg/L				8.4	28.5	84.3	11.0	21.4	4.2	72.8		
Langelier Index (@20C)	NA				-3.43	-3.21	-0.12	-3.37	-1.89	-4.45	-0.53		
Langelier Index (@ 4C)	NA				-3.75	-3.53	-0.44	-3.69	-2.21	-4.77	-0.85		
Saturation pH (@ 20C)	NA				10.1	9.55	8.12	9.86	9.22	10.7	8.27		
Saturation pH (@ 4C)	NA				10.4	9.87	8.44	10.2	9.54	11.0	8.59		
Anion Sum	me/L				0.47	0.69	2.09	0.39	0.66	0.19	1.65		
Cation sum	me/L				0.45	0.83	2.09	0.98	0.60	0.27	1.73		

Certified By:



Certificate of Analysis

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-05B FMS-HG18-06A FMS-HG18-07A FMS-HG18-07B FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A											
		G / S: A		G / S: B		RDL		Water		Water		Water	
		2018-11-19	2018-11-19	2018-11-20	2018-11-20	2018-11-19	2018-11-19	2018-11-20	2018-11-20	2018-11-19	2018-11-19	2018-11-20	2018-11-20
% Difference/ Ion Balance	%					2.4	9.3	0.1	42.8	5.0	16.5	2.6	
Dissolved Aluminum	ug/L	100 OG AO	5	5	10[>B]	14[>B]	<5[<B]	820[>B]	<5[<B]	58[>B]	<5[<B]	<5[<B]	
Dissolved Antimony	ug/L	6	20	2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	
Dissolved Arsenic	ug/L	10	5.0	2	4[<B]	<2[<B]	16[>A]	25[>A]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	
Dissolved Barium	ug/L	1000	1000	5	5[<A]	18[<A]	20[<A]	13[<A]	5[<A]	6[<A]	16[<A]	16[<A]	
Dissolved Beryllium	ug/L		5.3	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	
Dissolved Bismuth	ug/L			2	<2	<2	<2	<2	<2	<2	<2	<2	
Dissolved Boron	ug/L	5000	1200	5	6[<B]	9[<B]	14[<B]	6[<B]	7[<B]	5[<B]	8[<B]	8[<B]	
Dissolved Cadmium	ug/L	5	0.01	0.017	0.030[B-A]	0.094[B-A]	<0.017[<A]	<0.017[<A]	<0.017[<A]	0.029[B-A]	<0.017[<A]	<0.017[<A]	
Dissolved Chromium	ug/L	50	-	1	<1[<A]	<1[<A]	2[<A]	2[<A]	<1[<A]	<1[<A]	1[<A]	1[<A]	
Dissolved Cobalt	ug/L		10	1	3[<B]	9[<B]	<1[<B]	2[<B]	<1[<B]	2[<B]	<1[<B]	<1[<B]	
Dissolved Copper	ug/L	1000 AO	2	1	4[>B]	1[<B]	<1[<B]	2[B]	1[<B]	1[<B]	<1[<B]	<1[<B]	
Dissolved Iron	ug/L	300 AO	300	50	<50[<B]	<50[<B]	<50[<B]	9160[>B]	<50[<B]	<50[<B]	<50[<B]	<50[<B]	
Dissolved Lead	ug/L	10	1	0.5	<0.5[<B]	<0.5[<B]	<0.5[<B]	0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	
Dissolved Manganese	ug/L	50 AO	820	2	92[<B]	306[<B]	613[<B]	402[<B]	32[<B]	129[<B]	442[<B]	442[<B]	
Dissolved Molybdenum	ug/L		73	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	
Dissolved Nickel	ug/L		25	2	14[<B]	7[<B]	3[<B]	3[<B]	<2[<B]	2[<B]	2[<B]	2[<B]	
Dissolved Phosphorus	mg/L			0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	
Dissolved Selenium	ug/L	50	1.0	1	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	
Dissolved Silver	ug/L		0.1	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	0.1[B]	<0.1[<B]	<0.1[<B]	
Dissolved Strontium	ug/L		21000	5	17[<B]	47[<B]	192[<B]	18[<B]	36[<B]	10[<B]	97[<B]	97[<B]	
Dissolved Thallium	ug/L		0.8	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	
Dissolved Tin	ug/L		-	2	<2	<2	<2	<2	<2	<2	<2	<2	
Dissolved Titanium	ug/L			2	<2	<2	<2	12	<2	<2	<2	<2	
Dissolved Uranium	ug/L	20	300	0.1	<0.1[<A]	<0.1[<A]	2.3[<A]	0.3[<A]	0.2[<A]	<0.1[<A]	0.9[<A]	0.9[<A]	
Dissolved Vanadium	ug/L		6	2	<2[<B]	<2[<B]	<2[<B]	4[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	
Dissolved Zinc	ug/L	5000 AO	30	5	16[<B]	5[<B]	<5[<B]	6[<B]	<5[<B]	<5[<B]	<5[<B]	<5[<B]	

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X411370

PROJECT:

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-09B FMS-HG18-010A FMS-HG18-010B FMS-HG18-011A FMS-HG18-011B FMS-HG18-013A FMS-HG18-013B											
		G / S: A		G / S: B		RDL		Water		Water		Water	
		2018-11-20	2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-19	
pH		7.0-10.5 OG				6.78	8.03	6.61	6.69	6.11	6.71	6.49	
Reactive Silica as SiO2	mg/L			0.5	10.4	10.7	4.5	8.2	3.9	6.9	3.8		
Chloride	mg/L	250 AO		1	5	3	4	4	9	3	3		
Fluoride	mg/L	1.5		0.12	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]		
Sulphate	mg/L	500 AO		2	3	12	2	4	11	2	<2		
Alkalinity	mg/L			5	23	66	8	50	36	11	5		
True Color	TCU	15 AO		5	13	<5	6	18	5	5	6		
Turbidity	NTU	0.1-1		0.1	41.7	16.5	21.4	3.2	17.8	3.7	30.4		
Electrical Conductivity	umho/cm			1	68	174	43	132	145	41	30		
Nitrate + Nitrite as N	mg/L			0.05	0.09	<0.05	0.18	0.40	0.30	0.10	0.09		
Nitrate as N	mg/L	10		0.05	0.09[<A]	<0.05[<A]	0.18[<A]	0.40[<A]	0.30[<A]	0.10[<A]	0.09[<A]		
Nitrite as N	mg/L	1.0		0.05	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]		
Ammonia as N	mg/L			0.03	<0.03	0.05	0.03	<0.03	<0.03	0.03	0.03		
Total Organic Carbon	mg/L			0.5	1.2	<0.5	0.8	1.1	4.2	0.8	0.8		
Ortho-Phosphate as P	mg/L			0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Dissolved Sodium	mg/L	200 AO		0.1	3.7	6.2	2.9	5.0	3.1	3.1	2.4		
Dissolved Potassium	mg/L			0.1	0.8	1.4	0.3	1.1	0.2	0.5	0.4		
Dissolved Calcium	mg/L			0.1	4.5	22.6	3.8	15.8	2.6	3.3	1.4		
Dissolved Magnesium	mg/L			0.1	0.6	1.6	0.5	1.4	1.6	0.5	0.5		
Bicarb. Alkalinity (as CaCO3)	mg/L			5	23	66	8	50	36	11	5		
Carb. Alkalinity (as CaCO3)	mg/L			10	<10	<10	<10	<10	<10	<10	<10		
Hydroxide	mg/L			5	<5	<5	<5	<5	<5	<5	<5		
Calculated TDS	mg/L	500 AO		1	32	87	19	66	72	19	11		
Hardness	mg/L				13.7	63.0	11.5	45.2	13.1	10.3	5.6		
Langelier Index (@20C)	NA				-2.74	-0.38	-3.42	-1.98	-3.49	-3.25	-4.16		
Langelier Index (@ 4C)	NA				-3.06	-0.70	-3.74	-2.30	-3.81	-3.57	-4.48		
Saturation pH (@ 20C)	NA				9.52	8.41	10.0	8.67	9.60	9.96	10.6		
Saturation pH (@ 4C)	NA				9.84	8.73	10.4	8.99	9.92	10.3	11.0		
Anion Sum	me/L				0.67	1.65	0.33	1.22	1.22	0.35	0.19		
Cation sum	me/L				0.47	1.57	0.37	1.25	1.20	0.36	0.24		

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-09B FMS-HG18-010A FMS-HG18-010B FMS-HG18-011A FMS-HG18-011B FMS-HG18-013A FMS-HG18-013B											
		G / S: A		G / S: B		RDL		Water		Water		Water	
		2018-11-20	2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-19	
% Difference/ Ion Balance	%				17.9	2.5	6.6	0.9	1.0	0.5	11.0		
Dissolved Aluminum	ug/L	100 OG AO	5	5	<5[<B]	10[>B]	55[>B]	<5[<B]	334[>B]	10[>B]	77[>B]		
Dissolved Antimony	ug/L	6	20	2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]		
Dissolved Arsenic	ug/L	10	5.0	2	<2[<B]	3[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]		
Dissolved Barium	ug/L	1000	1000	5	10[<A]	10[<A]	<5[<A]	6[<A]	13[<A]	<5[<A]	8[<A]		
Dissolved Beryllium	ug/L		5.3	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]		
Dissolved Bismuth	ug/L			2	<2	<2	<2	<2	<2	<2	<2		
Dissolved Boron	ug/L	5000	1200	5	<5[<B]	19[<B]	5[<B]	7[<B]	5[<B]	<5[<B]	6[<B]		
Dissolved Cadmium	ug/L	5	0.01	0.017	0.038[B-A]	<0.017[<A]	<0.017[<A]	0.087[B-A]	0.197[B-A]	<0.017[<A]	<0.017[<A]		
Dissolved Chromium	ug/L	50	-	1	1[<A]	1[<A]	<1[<A]	2[<A]	6[<A]	<1[<A]	<1[<A]		
Dissolved Cobalt	ug/L		10	1	<1[<B]	<1[<B]	<1[<B]	<1[<B]	28[>B]	<1[<B]	<1[<B]		
Dissolved Copper	ug/L	1000 AO	2	1	21[>B]	<1[<B]	1[<B]	<1[<B]	6[>B]	<1[<B]	3[>B]		
Dissolved Iron	ug/L	300 AO	300	50	<50[<B]	<50[<B]	<50[<B]	<50[<B]	3770[>B]	<50[<B]	<50[<B]		
Dissolved Lead	ug/L	10	1	0.5	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	0.9[<B]	<0.5[<B]	<0.5[<B]		
Dissolved Manganese	ug/L	50 AO	820	2	283[<B]	95[<B]	17[<B]	2670[>B]	17200[>B]	8[<B]	47[<B]		
Dissolved Molybdenum	ug/L		73	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]		
Dissolved Nickel	ug/L		25	2	4[<B]	<2[<B]	<2[<B]	<2[<B]	4[<B]	<2[<B]	<2[<B]		
Dissolved Phosphorus	mg/L			0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		
Dissolved Selenium	ug/L	50	1.0	1	<1[<B]	<1[<B]	<1[<B]	1[B]	<1[<B]	<1[<B]	<1[<B]		
Dissolved Silver	ug/L		0.1	0.1	<0.1[<B]	<0.1[<B]	0.1[B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	0.6[>B]		
Dissolved Strontium	ug/L		21000	5	35[<B]	127[<B]	14[<B]	82[<B]	15[<B]	26[<B]	14[<B]		
Dissolved Thallium	ug/L		0.8	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]		
Dissolved Tin	ug/L		-	2	<2	<2	<2	<2	<2	<2	<2		
Dissolved Titanium	ug/L			2	<2	<2	<2	<2	<2	<2	<2		
Dissolved Uranium	ug/L	20	300	0.1	<0.1[<A]	0.6[<A]	<0.1[<A]	0.4[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]		
Dissolved Vanadium	ug/L		6	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]		
Dissolved Zinc	ug/L	5000 AO	30	5	10[<B]	<5[<B]	<5[<B]	<5[<B]	12[<B]	<5[<B]	<5[<B]		

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X411370

PROJECT:

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-014A FMS-HG18-014B FMS-HG18-015A FMS-HG18-015B FMS-HG18-016A FMS-HG18-016B								DUP-1		
		G / S: A		G / S: B		RDL						
		2018-11-19	2018-11-19	2018-11-20	2018-11-20	2018-11-19	2018-11-19	2018-11-19	2018-11-19			
pH		7.0-10.5 OG				7.48	6.54	8.08	7.84	7.97	6.11	7.59
Reactive Silica as SiO2	mg/L			0.5		6.8	5.0	8.8	9.5	14.7	4.3	7.2
Chloride		250 AO		1		11	9	3	3	3	5	10
Fluoride	mg/L	1.5		0.12		<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]
Sulphate	mg/L	500 AO		2		8	3	11	8	9	2	8
Alkalinity	mg/L			5		62	11	80	61	56	<5	62
True Color	TCU	15 AO		5		<5	<5	<5	<5	13	<5	10
Turbidity	NTU	0.1-1		0.1		14.2	19.5	2.2	20.8	17.9	29.1	14.5
Electrical Conductivity	umho/cm			1		191	75	197	153	150	36	195
Nitrate + Nitrite as N	mg/L			0.05		0.10	0.14	<0.05	<0.05	<0.05	<0.05	0.09
Nitrate as N	mg/L	10		0.05		0.10[<A]	0.14[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	0.09[<A]
Nitrite as N	mg/L	1.0		0.05		<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]
Ammonia as N	mg/L			0.03		0.03	<0.03	0.03	0.03	0.03	0.03	0.03
Total Organic Carbon	mg/L			0.5		<0.5	0.9	<0.5	<0.5	<0.5	1.0	<0.5
Ortho-Phosphate as P	mg/L			0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Sodium	mg/L	200 AO		0.1		6.0	5.9	6.7	4.9	5.3	3.8	5.6
Dissolved Potassium	mg/L			0.1		1.5	0.9	1.0	0.9	1.4	0.7	1.4
Dissolved Calcium	mg/L			0.1		29.6	4.3	31.7	23.2	17.6	1.0	24.0
Dissolved Magnesium	mg/L			0.1		1.5	0.9	2.1	1.1	2.0	0.6	1.4
Bicarb. Alkalinity (as CaCO3)	mg/L			5		62	11	80	61	56	<5	62
Carb. Alkalinity (as CaCO3)	mg/L			10		<10	<10	<10	<10	<10	<10	<10
Hydroxide	mg/L			5		<5	<5	<5	<5	<5	<5	<5
Calculated TDS	mg/L	500 AO		1		95	32	104	78	72	13	88
Hardness	mg/L					80.1	14.4	87.8	62.5	52.2	5.0	65.7
Langelier Index (@20C)	NA					-0.84	-3.32	-0.10	-0.59	-0.61	-4.70	-0.82
Langelier Index (@ 4C)	NA					-1.16	-3.64	-0.42	-0.91	-0.93	-5.02	-1.14
Saturation pH (@ 20C)	NA					8.32	9.86	8.18	8.43	8.58	10.8	8.41
Saturation pH (@ 4C)	NA					8.64	10.2	8.50	8.75	8.90	11.1	8.73
Anion Sum	me/L					1.72	0.55	1.91	1.47	1.39	0.18	1.70
Cation sum	me/L					1.91	0.59	2.08	1.50	1.32	0.31	1.60

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ATTENTION TO: Sheri Burton

SAMPLING SITE:

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Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-11-20

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Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-014A FMS-HG18-014B FMS-HG18-015A FMS-HG18-015B FMS-HG18-016A FMS-HG18-016B DUP-1											
		G / S: A		G / S: B		RDL		Water		Water		Water	
% Difference/ Ion Balance	%					5.0	4.1	4.3	1.0	2.7	25.9	2.9	
Dissolved Aluminum	ug/L	100 OG AO	5	5	<5[<B]	191[>B]	16[>B]	<5[<B]	5[B]	211[>B]	6[>B]		
Dissolved Antimony	ug/L	6	20	2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]		
Dissolved Arsenic	ug/L	10	5.0	2	4[<B]	<2[<B]	16[>A]	4[<B]	<2[<B]	<2[<B]	4[<B]		
Dissolved Barium	ug/L	1000	1000	5	6[<A]	22[<A]	<5[<A]	8[<A]	<5[<A]	16[<A]	6[<A]		
Dissolved Beryllium	ug/L		5.3	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]		
Dissolved Bismuth	ug/L			2	<2	<2	<2	<2	<2	<2	<2		
Dissolved Boron	ug/L	5000	1200	5	6[<B]	6[<B]	7[<B]	6[<B]	8[<B]	6[<B]	5[<B]		
Dissolved Cadmium	ug/L	5	0.01	0.017	0.029[B-A]	0.083[B-A]	<0.017[<A]	<0.017[<A]	<0.017[<A]	0.019[B-A]	0.023[B-A]		
Dissolved Chromium	ug/L	50	-	1	1[<A]	1[<A]	1[<A]	1[<A]	<1[<A]	<1[<A]	2[<A]		
Dissolved Cobalt	ug/L		10	1	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]		
Dissolved Copper	ug/L	1000 AO	2	1	<1[<B]	3[>B]	<1[<B]	2[B]	<1[<B]	4[>B]	1[<B]		
Dissolved Iron	ug/L	300 AO	300	50	<50[<B]	<50[<B]	<50[<B]	<50[<B]	<50[<B]	<50[<B]	<50[<B]		
Dissolved Lead	ug/L	10	1	0.5	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]		
Dissolved Manganese	ug/L	50 AO	820	2	29[<B]	86[<B]	176[<B]	358[<B]	177[<B]	43[<B]	29[<B]		
Dissolved Molybdenum	ug/L		73	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]		
Dissolved Nickel	ug/L		25	2	3[<B]	5[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	3[<B]		
Dissolved Phosphorus	mg/L			0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		
Dissolved Selenium	ug/L	50	1.0	1	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]		
Dissolved Silver	ug/L		0.1	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	1.7[>B]	<0.1[<B]		
Dissolved Strontium	ug/L		21000	5	74[<B]	24[<B]	92[<B]	47[<B]	78[<B]	17[<B]	74[<B]		
Dissolved Thallium	ug/L		0.8	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]		
Dissolved Tin	ug/L		-	2	<2	<2	<2	<2	<2	<2	<2		
Dissolved Titanium	ug/L			2	<2	<2	<2	<2	<2	<2	<2		
Dissolved Uranium	ug/L	20	300	0.1	0.2[<A]	<0.1[<A]	1.2[<A]	0.3[<A]	0.3[<A]	<0.1[<A]	0.2[<A]		
Dissolved Vanadium	ug/L		6	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]		
Dissolved Zinc	ug/L	5000 AO	30	5	<5[<B]	<5[<B]	<5[<B]	<5[<B]	<5[<B]	<5[<B]	<5[<B]		

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X411370

PROJECT:

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: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

Parameter	Unit	SAMPLE DESCRIPTION:			DUP-2	DUP-3
		SAMPLE TYPE:			Water	Water
		DATE SAMPLED:			2018-11-19	2018-11-19
		G / S: A	G / S: B	RDL	9717637	9717638
pH		7.0-10.5 OG			6.58	6.73
Reactive Silica as SiO2	mg/L			0.5	5.0	5.9
Chloride	mg/L	250 AO		1	9	2
Fluoride	mg/L	1.5		0.12	<0.12[<A]	<0.12[<A]
Sulphate	mg/L	500 AO		2	3	2
Alkalinity	mg/L			5	10	10
True Color	TCU	15 AO		5	8	<5
Turbidity	NTU	0.1-1		0.1	13.3	45.6
Electrical Conductivity	umho/cm			1	74	56
Nitrate + Nitrite as N	mg/L			0.05	0.13	1.57
Nitrate as N	mg/L	10		0.05	0.13[<A]	1.57[<A]
Nitrite as N	mg/L	1.0		0.05	<0.05[<A]	<0.05[<A]
Ammonia as N	mg/L			0.03	<0.03	0.03
Total Organic Carbon	mg/L			0.5	1.0	1.6
Ortho-Phosphate as P	mg/L			0.01	<0.01	<0.01
Dissolved Sodium	mg/L	200 AO		0.1	5.6	6.3
Dissolved Potassium	mg/L			0.1	0.9	1.8
Dissolved Calcium	mg/L			0.1	4.0	2.8
Dissolved Magnesium	mg/L			0.1	0.8	0.5
Bicarb. Alkalinity (as CaCO3)	mg/L			5	10	10
Carb. Alkalinity (as CaCO3)	mg/L			10	<10	<10
Hydroxide	mg/L			5	<5	<5
Calculated TDS	mg/L	500 AO		1	30	29
Hardness	mg/L				13.3	9.1
Langelier Index (@20C)	NA				-3.35	-3.36
Langelier Index (@ 4C)	NA				-3.67	-3.68
Saturation pH (@ 20C)	NA				9.93	10.1
Saturation pH (@ 4C)	NA				10.3	10.4
Anion Sum	me/L				0.53	0.41
Cation sum	me/L				0.56	0.51

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X411370

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

Parameter	Unit	SAMPLE DESCRIPTION:			DUP-2	DUP-3
		G / S: A	G / S: B	RDL	Water	Water
					DATE SAMPLED: 2018-11-19	2018-11-19
					9717637	9717638
% Difference/ Ion Balance	%				2.8	10.7
Dissolved Aluminum	ug/L	100 OG AO	5	5	185[>B]	11[>B]
Dissolved Antimony	ug/L	6	20	2	<2[<A]	<2[<A]
Dissolved Arsenic	ug/L	10	5.0	2	<2[<B]	5[B]
Dissolved Barium	ug/L	1000	1000	5	22[<A]	6[<A]
Dissolved Beryllium	ug/L		5.3	2	<2[<B]	<2[<B]
Dissolved Bismuth	ug/L			2	<2	<2
Dissolved Boron	ug/L	5000	1200	5	6[<B]	6[<B]
Dissolved Cadmium	ug/L	5	0.01	0.017	0.097[B-A]	0.037[B-A]
Dissolved Chromium	ug/L	50	-	1	2[<A]	<1[<A]
Dissolved Cobalt	ug/L		10	1	<1[<B]	3[<B]
Dissolved Copper	ug/L	1000 AO	2	1	2[B]	5[>B]
Dissolved Iron	ug/L	300 AO	300	50	<50[<B]	<50[<B]
Dissolved Lead	ug/L	10	1	0.5	<0.5[<B]	<0.5[<B]
Dissolved Manganese	ug/L	50 AO	820	2	84[<B]	96[<B]
Dissolved Molybdenum	ug/L		73	2	<2[<B]	<2[<B]
Dissolved Nickel	ug/L		25	2	5[<B]	15[<B]
Dissolved Phosphorus	mg/L			0.02	<0.02	<0.02
Dissolved Selenium	ug/L	50	1.0	1	<1[<B]	<1[<B]
Dissolved Silver	ug/L		0.1	0.1	<0.1[<B]	<0.1[<B]
Dissolved Strontium	ug/L		21000	5	24[<B]	18[<B]
Dissolved Thallium	ug/L		0.8	0.1	<0.1[<B]	<0.1[<B]
Dissolved Tin	ug/L		-	2	<2	<2
Dissolved Titanium	ug/L			2	<2	<2
Dissolved Uranium	ug/L	20	300	0.1	<0.1[<A]	<0.1[<A]
Dissolved Vanadium	ug/L		6	2	<2[<B]	<2[<B]
Dissolved Zinc	ug/L	5000 AO	30	5	<5[<B]	16[<B]

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X411370

PROJECT:

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Canadian Drinking Water Quality - updated 2017-05, B Refers to EQS Surface water - Fresh, TPH (Fuel, Lube) - 2016
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

- 9717442 Metals analysis completed on a filtered sample.
 - 9717446 Metals analysis completed on a filtered sample.
The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.
 - 9717447 Metals analysis completed on a filtered sample.
 - 9717448 Metals analysis completed on a filtered sample.
The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.
 - 9717449-9717450 Metals analysis completed on a filtered sample.
 - 9717451 Metals analysis completed on a filtered sample.
The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.
 - 9717452-9717454 Metals analysis completed on a filtered sample.
 - 9717455 Metals analysis completed on a filtered sample.
Ion Balance is biased high, contributing parameters have been confirmed.
 - 9717459 Metals analysis completed on a filtered sample.
 - 9717460 Metals analysis completed on a filtered sample.
The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.
 - 9717461 Metals analysis completed on a filtered sample.
 - 9717462 Metals analysis completed on a filtered sample.
The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.
 - 9717463-9717467 Metals analysis completed on a filtered sample.
 - 9717468 Metals analysis completed on a filtered sample.
The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.
 - 9717469-9717633 Metals analysis completed on a filtered sample.
 - 9717634 Metals analysis completed on a filtered sample.
The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.
 - 9717636-9717638 Metals analysis completed on a filtered sample.
- Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X411370

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<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

TP / Dissolved TP (Water)

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

		SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A FMS-HG18-05B											
		SAMPLE TYPE: Water Water Water Water Water Water Water Water Water Water											
		DATE SAMPLED: 2018-11-19 2018-11-19 2018-11-19 2018-11-19 2018-11-20 2018-11-20 2018-11-19 2018-11-19											
Parameter	Unit	G / S	RDL	9717442	9717446	9717447	9717448	9717449	9717450	9717451	9717452		
Total Phosphorus	mg/L		0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		
Total Dissolved Phosphorus	mg/L		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
		SAMPLE DESCRIPTION: FMS-HG18-06A FMS-HG18-07A FMS-HG18-07B FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A FMS-HG18-09B FMS-HG18-10A											
		SAMPLE TYPE: Water Water Water Water Water Water Water Water Water Water											
		DATE SAMPLED: 2018-11-19 2018-11-20 2018-11-20 2018-11-19 2018-11-19 2018-11-20 2018-11-20 2018-11-19											
Parameter	Unit	G / S	RDL	9717453	9717454	9717455	9717459	9717460	9717461	9717462	9717463		
Total Phosphorus	mg/L		0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		
Total Dissolved Phosphorus	mg/L		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
		SAMPLE DESCRIPTION: FMS-HG18-010B FMS-HG18-011A FMS-HG18-011B FMS-HG18-013A FMS-HG18-013B FMS-HG18-014A FMS-HG18-014B FMS-HG18-015A											
		SAMPLE TYPE: Water Water Water Water Water Water Water Water Water Water											
		DATE SAMPLED: 2018-11-19 2018-11-19 2018-11-19 2018-11-19 2018-11-19 2018-11-19 2018-11-19 2018-11-20											
Parameter	Unit	G / S	RDL	9717464	9717465	9717466	9717467	9717468	9717469	9717470	9717471		
Total Phosphorus	mg/L		0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		
Total Dissolved Phosphorus	mg/L		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
		SAMPLE DESCRIPTION: FMS-HG18-015B FMS-HG18-016A FMS-HG18-016B						DUP-1		DUP-2		DUP-3	
		SAMPLE TYPE: Water Water Water						Water		Water		Water	
		DATE SAMPLED: 2018-11-20 2018-11-19 2018-11-19						2018-11-19		2018-11-19		2018-11-19	
Parameter	Unit	G / S	RDL	9717631	9717633	9717634	9717636	9717637	9717638				
Total Phosphorus	mg/L		0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02				
Total Dissolved Phosphorus	mg/L		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05				

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

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18X411370

PROJECT:

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Various Inorganics (Water)

DATE RECEIVED: 2018-11-20

DATE REPORTED: 2018-12-07

		SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A FMS-HG18-05B									
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-20	2018-11-20	2018-11-19	2018-11-19
Parameter	Unit	G / S	RDL	9717442	9717446	9717447	9717448	9717449	9717450	9717451	9717452
Chemical Oxygen Demand	mg/L		3	<3	<3	<3	<3	<3	<3	<3	<3
Dissolved Organic Carbon	mg/L		0.5	0.6	1.1	1.7	1.0	<0.5	<0.5	1.1	1.7
Total Suspended Solids	mg/L		5	20	54	20	654	6	56	52	122
		SAMPLE DESCRIPTION: FMS-HG18-06A FMS-HG18-07A FMS-HG18-07B FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A FMS-HG18-09B FMS-HG18-010A									
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2018-11-19	2018-11-20	2018-11-20	2018-11-19	2018-11-19	2018-11-20	2018-11-20	2018-11-19
Parameter	Unit	G / S	RDL	9717453	9717454	9717455	9717459	9717460	9717461	9717462	9717463
Chemical Oxygen Demand	mg/L		3	<3	8	58	<3	5	<3	<3	<3
Dissolved Organic Carbon	mg/L		0.5	1.0	2.7	20.1	1.3	2.2	<0.5	1.2	<0.5
Total Suspended Solids	mg/L		5	<5	10	14	58	138	6	62	28
		SAMPLE DESCRIPTION: FMS-HG18-010B FMS-HG18-011A FMS-HG18-011B FMS-HG18-013A FMS-HG18-013B FMS-HG18-014A FMS-HG18-014B FMS-HG18-015A									
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-20
Parameter	Unit	G / S	RDL	9717464	9717465	9717466	9717467	9717468	9717469	9717470	9717471
Chemical Oxygen Demand	mg/L		3	<3	<3	12	<3	<3	<3	<3	<3
Dissolved Organic Carbon	mg/L		0.5	0.8	0.9	3.9	0.9	0.8	<0.5	0.8	<0.5
Total Suspended Solids	mg/L		5	110	6	8	10	72	34	6	<5
		SAMPLE DESCRIPTION: FMS-HG18-015B FMS-HG18-016A FMS-HG18-016B				DUP-1	DUP-2	DUP-3			
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water		
		DATE SAMPLED:		2018-11-20	2018-11-19	2018-11-19	2018-11-19	2018-11-19	2018-11-19		
Parameter	Unit	G / S	RDL	9717631	9717633	9717634	9717636	9717637	9717638		
Chemical Oxygen Demand	mg/L		3	<3	<3	<3	<3	<3	<3		
Dissolved Organic Carbon	mg/L		0.5	<0.5	<0.5	1.0	<0.5	1.0	1.5		
Total Suspended Solids	mg/L		5	32	28	100	40	16	120		

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

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Guideline Violation

AGAT WORK ORDER: 18X411370

PROJECT:

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9717442	FMS-HG18-02A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	112
9717442	FMS-HG18-02A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	6.8
9717442	FMS-HG18-02A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	6
9717442	FMS-HG18-02A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	10
9717446	FMS-HG18-02B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	193
9717446	FMS-HG18-02B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	28.1
9717446	FMS-HG18-02B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.32
9717446	FMS-HG18-02B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	88
9717446	FMS-HG18-02B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.017
9717446	FMS-HG18-02B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	9
9717447	FMS-HG18-03A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	100 OG AO	295
9717447	FMS-HG18-03A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	23
9717447	FMS-HG18-03A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	201
9717447	FMS-HG18-03A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	9.8
9717447	FMS-HG18-03A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	295
9717447	FMS-HG18-03A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	23
9717448	FMS-HG18-03B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	100 OG AO	224
9717448	FMS-HG18-03B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	92
9717448	FMS-HG18-03B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	185
9717448	FMS-HG18-03B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	224
9717449	FMS-HG18-04A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	38
9717449	FMS-HG18-04A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	288
9717449	FMS-HG18-04A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	5.5
9717449	FMS-HG18-04A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	6
9717449	FMS-HG18-04A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	38
9717450	FMS-HG18-04B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300 AO	1750
9717450	FMS-HG18-04B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	1470
9717450	FMS-HG18-04B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Zinc	ug/L	5000 AO	5150
9717450	FMS-HG18-04B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	78.8
9717450	FMS-HG18-04B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.060
9717450	FMS-HG18-04B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300	1750
9717450	FMS-HG18-04B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	820	1470



Guideline Violation

AGAT WORK ORDER: 18X411370

PROJECT:

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9717450	FMS-HG18-04B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Zinc	ug/L	30	5150
9717451	FMS-HG18-05A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	15
9717451	FMS-HG18-05A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	11.1
9717451	FMS-HG18-05A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.58
9717451	FMS-HG18-05A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	7
9717451	FMS-HG18-05A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	15
9717452	FMS-HG18-05B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	92
9717452	FMS-HG18-05B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	True Color	TCU	15 AO	23
9717452	FMS-HG18-05B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	51.8
9717452	FMS-HG18-05B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.67
9717452	FMS-HG18-05B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	10
9717452	FMS-HG18-05B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.030
9717452	FMS-HG18-05B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	4
9717453	FMS-HG18-06A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	306
9717453	FMS-HG18-06A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	5.2
9717453	FMS-HG18-06A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.34
9717453	FMS-HG18-06A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	14
9717453	FMS-HG18-06A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.094
9717454	FMS-HG18-07A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	16
9717454	FMS-HG18-07A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	613
9717454	FMS-HG18-07A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	5.2
9717454	FMS-HG18-07A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	16
9717455	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	100 OG AO	820
9717455	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	25
9717455	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300 AO	9160
9717455	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	402
9717455	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	True Color	TCU	15 AO	434
9717455	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	40.3
9717455	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.49
9717455	FMS-HG18-07B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	820
9717455	FMS-HG18-07B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	25
9717455	FMS-HG18-07B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300	9160
9717459	FMS-HG18-08A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	39.6



Guideline Violation

AGAT WORK ORDER: 18X411370

PROJECT:

11 Morris Drive, Unit 122
 Dartmouth, Nova Scotia
 CANADA B3B 1M2
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<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9717460	FMS-HG18-08B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	129
9717460	FMS-HG18-08B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	True Color	TCU	15 AO	17
9717460	FMS-HG18-08B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	48.2
9717460	FMS-HG18-08B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.27
9717460	FMS-HG18-08B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	58
9717460	FMS-HG18-08B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.029
9717461	FMS-HG18-09A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	442
9717461	FMS-HG18-09A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	5.0
9717462	FMS-HG18-09B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	283
9717462	FMS-HG18-09B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	41.7
9717462	FMS-HG18-09B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.78
9717462	FMS-HG18-09B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.038
9717462	FMS-HG18-09B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	21
9717463	FMS-HG18-010A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	95
9717463	FMS-HG18-010A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	16.5
9717463	FMS-HG18-010A	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	10
9717464	FMS-HG18-010B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	21.4
9717464	FMS-HG18-010B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.61
9717464	FMS-HG18-010B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	55
9717465	FMS-HG18-011A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	2670
9717465	FMS-HG18-011A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	True Color	TCU	15 AO	18
9717465	FMS-HG18-011A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	3.2
9717465	FMS-HG18-011A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.69
9717465	FMS-HG18-011A	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.087
9717465	FMS-HG18-011A	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	820	2670
9717466	FMS-HG18-011B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	100 OG AO	334
9717466	FMS-HG18-011B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300 AO	3770
9717466	FMS-HG18-011B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	17200
9717466	FMS-HG18-011B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	17.8
9717466	FMS-HG18-011B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.11
9717466	FMS-HG18-011B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	334
9717466	FMS-HG18-011B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.197
9717466	FMS-HG18-011B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cobalt	ug/L	10	28



Guideline Violation

AGAT WORK ORDER: 18X411370

PROJECT:

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9717466	FMS-HG18-011B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	6
9717466	FMS-HG18-011B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300	3770
9717466	FMS-HG18-011B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	820	17200
9717467	FMS-HG18-013A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	3.7
9717467	FMS-HG18-013A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.71
9717467	FMS-HG18-013A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	10
9717468	FMS-HG18-013B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	30.4
9717468	FMS-HG18-013B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.49
9717468	FMS-HG18-013B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	77
9717468	FMS-HG18-013B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	3
9717468	FMS-HG18-013B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Silver	ug/L	0.1	0.6
9717469	FMS-HG18-014A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	14.2
9717469	FMS-HG18-014A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.029
9717470	FMS-HG18-014B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	100 OG AO	191
9717470	FMS-HG18-014B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	86
9717470	FMS-HG18-014B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	19.5
9717470	FMS-HG18-014B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.54
9717470	FMS-HG18-014B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	191
9717470	FMS-HG18-014B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.083
9717470	FMS-HG18-014B	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	3
9717471	FMS-HG18-015A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	16
9717471	FMS-HG18-015A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	176
9717471	FMS-HG18-015A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	2.2
9717471	FMS-HG18-015A	NS- ContSiteSW_FW_FL	Mercury Analysis in Water (Dissolved)	Dissolved Mercury	ug/L	0.026	0.062
9717471	FMS-HG18-015A	NS- ContSiteSW_FW_FL	Mercury Analysis in Water (Total)	Total Mercury	ug/L	0.026	0.164
9717471	FMS-HG18-015A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	16
9717471	FMS-HG18-015A	NS- ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	16
9717631	FMS-HG18-015B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	358
9717631	FMS-HG18-015B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	20.8
9717633	FMS-HG18-016A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	177
9717633	FMS-HG18-016A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	17.9



Guideline Violation

AGAT WORK ORDER: 18X411370

PROJECT:

11 Morris Drive, Unit 122
 Dartmouth, Nova Scotia
 CANADA B3B 1M2
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<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9717634	FMS-HG18-016B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	100 OG AO	211
9717634	FMS-HG18-016B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	29.1
9717634	FMS-HG18-016B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.11
9717634	FMS-HG18-016B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	211
9717634	FMS-HG18-016B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.019
9717634	FMS-HG18-016B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	4
9717634	FMS-HG18-016B	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Silver	ug/L	0.1	1.7
9717636	DUP-1	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	14.5
9717636	DUP-1	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	6
9717636	DUP-1	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.023
9717637	DUP-2	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	100 OG AO	185
9717637	DUP-2	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	84
9717637	DUP-2	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	13.3
9717637	DUP-2	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.58
9717637	DUP-2	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	185
9717637	DUP-2	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.097
9717638	DUP-3	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	50 AO	96
9717638	DUP-3	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	45.6
9717638	DUP-3	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.73
9717638	DUP-3	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	11
9717638	DUP-3	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.037
9717638	DUP-3	NS-ContSiteSW_FW_FL	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	5

Quality Assurance

 CLIENT NAME: GOLDER ASSOCIATES
 PROJECT:
 SAMPLING SITE:

 AGAT WORK ORDER: 18X411370
 ATTENTION TO: Sheri Burton
 SAMPLED BY:

Trace Organics Analysis															
RPT Date: Dec 07, 2018			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

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

Benzene	1	9716618	< 0.001	< 0.001	NA	< 0.001	85%	70%	130%	119%	70%	130%			
Toluene	1	9716618	< 0.001	< 0.001	NA	< 0.001	98%	70%	130%	106%	70%	130%			
Ethylbenzene	1	9716618	< 0.001	< 0.001	NA	< 0.001	103%	70%	130%	116%	70%	130%			
Xylene (Total)	1	9716618	< 0.002	< 0.002	NA	< 0.002	105%	70%	130%	106%	70%	130%			
C6-C10 (less BTEX)	1	9716618	< 0.01	< 0.01	NA	< 0.01	103%	70%	130%	119%	70%	130%	119%	70%	130%
>C10-C16 Hydrocarbons	1	9715081	< 0.05	< 0.05	NA	< 0.05	98%	70%	130%	102%	70%	130%	NA	70%	130%
>C16-C21 Hydrocarbons	1	9715081	< 0.10	< 0.10	NA	< 0.10	95%	70%	130%	102%	70%	130%	NA	70%	130%
>C21-C32 Hydrocarbons	1	9715081	< 0.1	< 0.1	NA	< 0.1	92%	70%	130%	102%	70%	130%	NA	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
 If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

>C10-C16 Hydrocarbons	1	9717023	<0.05	<0.05	0	< 0.05	118%	70%	130%	84%	70%	130%	77%	70%	130%
>C16-C21 Hydrocarbons	1	9717023	<0.05	<0.05	0	< 0.10	115%	70%	130%	84%	70%	130%	77%	70%	130%
>C21-C32 Hydrocarbons	1	9717023	<0.01	<0.01	0	< 0.1	113%	70%	130%	84%	70%	130%	77%	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
 If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

Benzene	1	9717459	< 0.001	< 0.001	NA	< 0.001	91%	70%	130%	119%	70%	130%			
Toluene	1	9717459	< 0.001	< 0.001	NA	< 0.001	91%	70%	130%	106%	70%	130%			
Ethylbenzene	1	9717459	< 0.001	< 0.001	NA	< 0.001	101%	70%	130%	116%	70%	130%			
Xylene (Total)	1	9717459	< 0.002	< 0.002	NA	< 0.002	103%	70%	130%	106%	70%	130%			
C6-C10 (less BTEX)	1	9717459	< 0.01	< 0.01	NA	< 0.01	85%	70%	130%	129%	70%	130%	124%	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
 If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

>C10-C16 Hydrocarbons	1	9717460	< 0.05	< 0.05	NA	< 0.05	101%	70%	130%	113%	70%	130%	123%	70%	130%
>C16-C21 Hydrocarbons	1	9717460	< 0.10	< 0.10	NA	< 0.10	98%	70%	130%	113%	70%	130%	123%	70%	130%
>C21-C32 Hydrocarbons	1	9717460	< 0.1	< 0.1	NA	< 0.1	95%	70%	130%	113%	70%	130%	123%	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
 If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Certified By:



Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES

AGAT WORK ORDER: 18X411370

PROJECT:

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Water Analysis															
RPT Date: Dec 07, 2018			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

Standard Water Analysis + Dissolved Metals

pH	9717442	9717442	8.05	8.02	0.4%	<	102%	80%	120%	NA	80%	120%	NA	80%	120%
Reactive Silica as SiO2	1	9712152	18.3	18.6	1.6%	< 0.5	96%	80%	120%		80%	120%	100%	80%	120%
Chloride	9716380		89	89	0.0%	< 1	102%	80%	120%	NA	80%	120%	NA	80%	120%
Fluoride	9716380		<0.12	<0.12	NA	< 0.12	106%	80%	120%	NA	80%	120%	81%	80%	120%
Sulphate	9716380		11	11	0.4%	< 2	112%	80%	120%	NA	80%	120%	NA	80%	120%
Alkalinity	9717442	9717442	69	69	0.3%	< 5	92%	80%	120%	NA	80%	120%	NA	80%	120%
True Color	9715006		42	51	19.4%	< 5	105%	80%	120%	NA			NA		
Turbidity	9717455	9717455	40.3	39.6	1.8%	< 0.1	99%	80%	120%	NA			NA		
Electrical Conductivity	9717442	9717442	179	179	0.2%	< 1	102%	80%	120%	NA	80%	120%	NA	80%	120%
Nitrate as N	9716380		0.42	0.39	6.6%	< 0.05	101%	80%	120%	NA	80%	120%	89%	80%	120%
Nitrite as N	9716380		0.06	0.07	NA	< 0.05	108%	80%	120%	NA	80%	120%	109%	80%	120%
Ammonia as N	1	9714213	0.03	0.03	NA	< 0.03	94%	80%	120%		80%	120%	96%	80%	120%
Total Organic Carbon	9717289		<0.5	<0.5	NA	< 0.5	87%	80%	120%	NA	80%	120%	83%	80%	120%
Ortho-Phosphate as P	1	9712152	<0.01	<0.01	NA	< 0.01	90%	80%	120%		80%	120%	98%	80%	120%
Dissolved Sodium	9717467	9717467	3.1	3.3	7.4%	< 0.1	101%	80%	120%	98%	80%	120%	NA	70%	130%
Dissolved Potassium	9717467	9717467	0.5	0.5	11.3%	< 0.1	100%	80%	120%	98%	80%	120%	114%	70%	130%
Dissolved Calcium	9717467	9717467	3.3	3.4	3.3%	< 0.1	102%	80%	120%	103%	80%	120%	NA	70%	130%
Dissolved Magnesium	9717467	9717467	0.5	0.5	9.5%	< 0.1	100%	80%	120%	96%	80%	120%	110%	70%	130%
Bicarb. Alkalinity (as CaCO3)	9717442	9717442	69	69	0.3%	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Carb. Alkalinity (as CaCO3)	9717442	9717442	<10	<10	NA	< 10	NA	80%	120%	NA	80%	120%	NA	80%	120%
Hydroxide	9717442	9717442	<5	<5	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Dissolved Aluminum	9717467	9717467	10	10	NA	< 5	101%	80%	120%	101%	80%	120%	110%	70%	130%
Dissolved Antimony	9717467	9717467	<2	<2	NA	< 2	82%	80%	120%	101%	80%	120%	122%	70%	130%
Dissolved Arsenic	9717467	9717467	<2	<2	NA	< 2	92%	80%	120%	90%	80%	120%	116%	70%	130%
Dissolved Barium	9717467	9717467	<5	<5	NA	< 5	94%	80%	120%	93%	80%	120%	113%	70%	130%
Dissolved Beryllium	9717467	9717467	<2	<2	NA	< 2	104%	80%	120%	98%	80%	120%	121%	70%	130%
Dissolved Bismuth	9717467	9717467	<2	<2	NA	< 2	93%	80%	120%	95%	80%	120%	70%	70%	130%
Dissolved Boron	9717467	9717467	<5	<5	NA	< 5	101%	80%	120%	102%	80%	120%	122%	70%	130%
Dissolved Cadmium	9717467	9717467	<0.017	<0.017	NA	< 0.09	90%	80%	120%	92%	80%	120%	115%	70%	130%
Dissolved Chromium	9717467	9717467	<1	<1	NA	< 1	94%	80%	120%	96%	80%	120%	126%	70%	130%
Dissolved Cobalt	9717467	9717467	<1	<1	NA	< 1	91%	80%	120%	93%	80%	120%	116%	70%	130%
Dissolved Copper	9717467	9717467	<1	<1	NA	< 2	94%	80%	120%	94%	80%	120%	121%	70%	130%
Dissolved Iron	9717467	9717467	<50	<50	NA	< 50	92%	80%	120%	95%	80%	120%	105%	70%	130%
Dissolved Lead	9717467	9717467	<0.5	<0.5	NA	< 0.5	98%	80%	120%	96%	80%	120%	122%	70%	130%
Dissolved Manganese	9717467	9717467	8	8	NA	< 2	93%	80%	120%	93%	80%	120%	NA	70%	130%
Dissolved Molybdenum	9717467	9717467	<2	<2	NA	< 2	87%	80%	120%	90%	80%	120%	NA	70%	130%
Dissolved Nickel	9717467	9717467	<2	<2	NA	< 2	93%	80%	120%	94%	80%	120%	NA	70%	130%
Dissolved Phosphorus	9717467	9717467	<0.02	<0.02	NA	< 0.02	99%	80%	120%	99%	80%	120%	109%	70%	130%
Dissolved Selenium	9717467	9717467	<1	<1	NA	< 1	82%	80%	120%	85%	80%	120%	NA	70%	130%

Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES

AGAT WORK ORDER: 18X411370

PROJECT:

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Water Analysis (Continued)

RPT Date: Dec 07, 2018			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	
Dissolved Silver	9717467	9717467	<0.1	<0.1	NA	< 0.1	88%	80%	120%	89%	80%	120%	108%	70%	130%	
Dissolved Strontium	9717467	9717467	26	28	7.5%	< 5	94%	80%	120%	95%	80%	120%	NA	70%	130%	
Dissolved Thallium	9717467	9717467	<0.1	<0.1	NA	< 0.1	98%	80%	120%	95%	80%	120%	120%	70%	130%	
Dissolved Tin	9717467	9717467	<2	<2	NA	< 2	89%	80%	120%	91%	80%	120%	NA	70%	130%	
Dissolved Titanium	9717467	9717467	<2	<2	NA	< 2	98%	80%	120%	99%	80%	120%	NA	70%	130%	
Dissolved Uranium	9717467	9717467	<0.1	<0.1	NA	< 0.1	98%	80%	120%	94%	80%	120%	119%	70%	130%	
Dissolved Vanadium	9717467	9717467	<2	<2	NA	< 2	93%	80%	120%	92%	80%	120%	116%	70%	130%	
Dissolved Zinc	9717467	9717467	<5	<5	NA	< 5	94%	80%	120%	94%	80%	120%	124%	70%	130%	

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Various Inorganics (Water)

Chemical Oxygen Demand	9721388		426	365	15.4%	< 3	104%	80%	120%	NA			NA	80%	120%
Dissolved Organic Carbon	1		NA	NA	NA	< 0.5	87%	80%	120%	NA	80%	120%	NA	80%	120%
Total Suspended Solids	9708699		<5	<5	NA	< 5	103%	80%	120%	NA			100%	80%	120%

Standard Water Analysis + Dissolved Metals

pH	9717468	9717468	6.49	6.23	4.1%	<	102%	80%	120%	NA	80%	120%	NA	80%	120%
Chloride	9717450	9717450	3	3	NA	< 1	97%	80%	120%	NA	80%	120%	97%	80%	120%
Fluoride	9717450	9717450	<0.12	<0.12	NA	< 0.12	107%	80%	120%	NA	80%	120%	109%	80%	120%
Sulphate	9717450	9717450	<2	<2	NA	< 2	115%	80%	120%	NA	80%	120%	97%	80%	120%
Alkalinity	9717468	9717468	5	<5	NA	< 5	93%	80%	120%	NA	80%	120%	NA	80%	120%
Electrical Conductivity	9717468	9717468	30	28	5.0%	< 1	104%	80%	120%	NA	80%	120%	NA	80%	120%
Nitrate as N	9717450	9717450	<0.05	<0.05	NA	< 0.05	99%	80%	120%	NA	80%	120%	93%	80%	120%
Nitrite as N	9717450	9717450	<0.05	<0.05	NA	< 0.05	100%	80%	120%	NA	80%	120%	100%	80%	120%
Bicarb. Alkalinity (as CaCO3)	9717468	9717468	5	<5	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Carb. Alkalinity (as CaCO3)	9717468	9717468	<10	<10	NA	< 10	NA	80%	120%	NA	80%	120%	NA	80%	120%
Hydroxide	9717468	9717468	<5	<5	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Standard Water Analysis + Dissolved Metals

Chloride	9718051		123	124	1.0%	< 1	93%	80%	120%	NA	80%	120%	NA	80%	120%
Fluoride	9718051		<0.12	<0.12	NA	< 0.12	103%	80%	120%	NA	80%	120%	94%	80%	120%
Sulphate	9718051		<2	<2	NA	< 2	110%	80%	120%	NA	80%	120%	103%	80%	120%
Nitrate as N	9718051		0.78	0.76	1.9%	< 0.05	95%	80%	120%	NA	80%	120%	NA	80%	120%
Nitrite as N	9718051		<0.05	<0.05	NA	< 0.05	97%	80%	120%	NA	80%	120%	117%	80%	120%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Various Inorganics (Water)

Chemical Oxygen Demand	9717459	9717459	<3	<3	NA	< 3	108%	80%	120%	NA			101%	80%	120%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.



Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES
 PROJECT:
 SAMPLING SITE:

AGAT WORK ORDER: 18X411370
 ATTENTION TO: Sheri Burton
 SAMPLED BY:

Water Analysis (Continued)

RPT Date: Dec 07, 2018			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
TP / Dissolved TP (Water)															
Total Phosphorus	9714348		2.07	2.19	5.4%	< 0.02	98%	90%	110%	93%	90%	110%	98%	80%	120%
Total Dissolved Phosphorus	9717442		<0.05	<0.05	NA	< 0.05	104%	90%	110%	104%	90%	110%	100%	80%	120%
TP / Dissolved TP (Water)															
Total Phosphorus	9717460	9717460	<0.02	<0.02	NA	< 0.02	104%	90%	110%	108%	90%	110%	96%	80%	120%
Total Dissolved Phosphorus	9717468	9717468	<0.05	<0.05	NA	< 0.05	104%	90%	110%	104%	90%	110%	95%	80%	120%
Free & Total CN (Water)															
Cyanide, Free	9717631	9717631	<0.002	<0.002	NA	< 0.002	98%	90%	110%	97%	90%	110%	98%	70%	130%
Total Cyanide	9718252		<0.002	<0.002	NA	< 0.002	99%	80%	120%	103%	90%	110%	98%	70%	130%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Certified By: _____

Method Summary

CLIENT NAME: GOLDER ASSOCIATES

AGAT WORK ORDER: 18X411370

PROJECT:

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Miscellaneous Analysis			
Subcontracted Data			
Trace Organics Analysis			
Benzene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Toluene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Ethylbenzene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Xylene (Total)	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
C6-C10 (less BTEX)	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
>C10-C16 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
>C16-C21 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
>C21-C32 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Modified TPH (Tier 1)	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	CALCULATION
Resemblance Comment	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS/FID
Return to Baseline at C32	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Isobutylbenzene - EPH	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Isobutylbenzene - VPH	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
n-Dotriacontane - EPH	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID

Method Summary

 CLIENT NAME: GOLDER ASSOCIATES
 PROJECT:
 SAMPLING SITE:

 AGAT WORK ORDER: 18X411370
 ATTENTION TO: Sheri Burton
 SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Cyanide, Free	INOR-93-6052	MOE CN-3015 & SM 4500 CN- I	TECHNICON AUTO ANALYZER
Total Cyanide	INOR-93-6051	MOE 3015 & SM 4500 CN- A,B,C	TECHNICON AUTO ANALYZER
Dissolved Mercury	MET-121-6100 & MET-121-6107	SM 3112 B	CV/AA
Total Mercury	MET-121-6100 & MET-121-6107	SM 3112 B	CV/AA
pH	INOR-121-6001	SM 4500 H+B	PC TITRATE
Reactive Silica as SiO ₂	INOR-121-6027	SM 4110 B	COLORIMETER
Chloride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Fluoride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Alkalinity	INOR-121-6001	SM 2320 B	
True Color	INOR-121-6014	SM 2120 C	NEPHELOMETER
Turbidity	INOR-121-6022	SM 2130 B	NEPHELOMETER
Electrical Conductivity	INOR-121-6001	SM 2510 B	PC TITRATE
Nitrate + Nitrite as N	INORG-121-6005	SM 4110 B	CALCULATION
Nitrate as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-121-6047	SM 4500-NH ₃ G	COLORIMETER
Total Organic Carbon	INORG-121-6026	SM 5310 B	TOC ANALYZER
Ortho-Phosphate as P	INOR-121-6012	SM 4110 B	COLORIMETER
Dissolved Sodium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Potassium	MET121-6104 & MET-121-6105	SM 3125	ICP-MS
Dissolved Calcium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Magnesium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Bicarb. Alkalinity (as CaCO ₃)	INORG-121-6001	SM 2320 B	PC TITRATE
Carb. Alkalinity (as CaCO ₃)	INORG-121-6001	SM 2320 B	PC TITRATE
Hydroxide	INORG-121-6001	SM 2320 B	PC-TITRATE
Calculated TDS	CALCULATION	SM 1030E	CALCULATION
Hardness	CALCULATION	SM 2340B	CALCULATION
Langelier Index (@20C)	CALCULATION	CALCULATION	CALCULATION
Langelier Index (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 20C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Anion Sum	CALCULATION	SM 1030E	CALCULATION
Cation sum	CALCULATION	SM 1030E	CALCULATION
% Difference/ Ion Balance	CALCULATION	SM 1030E	CALCULATION
Dissolved Aluminum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Antimony	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Arsenic	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Barium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Beryllium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS

Method Summary

CLIENT NAME: GOLDER ASSOCIATES

AGAT WORK ORDER: 18X411370

PROJECT:

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Dissolved Bismuth	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Boron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Cadmium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Chromium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Cobalt	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Copper	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Iron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Lead	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Manganese	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Molybdenum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Nickel	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Phosphorus	MET-121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Selenium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Silver	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Strontium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Thallium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Tin	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Titanium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Uranium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Vanadium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Zinc	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Phosphorus	INOR-93-6022	SM 4500-P B&E	SPECTROPHOTOMETER
Total Dissolved Phosphorus	INOR 1022	SM 4500-P B&E	SPECTROPHOTOMETER
Chemical Oxygen Demand	INORG-121-6013	SM 5220 B	SPECTROPHOTOMETER
Dissolved Organic Carbon	INORG-121-6026	SM 5310 B	TOC ANALYZER
Total Suspended Solids	INOR-121-6024, 6025	SM 2540C, D	GRAVIMETRIC

SRC Group # 2018-14720

Dec 06, 2018

AGAT Laboratories
122-11 Morris Drive
Dartmouth, NS B3B 1M2
Attn: Janetta Fraser

Date Samples Received: Nov-22-2018

Client P.O.: 120349

All results have been reviewed and approved by a Qualified Person in accordance with the Saskatchewan Environmental Code, Corrective Action Plan Chapter, for the purposes of certifying a laboratory analysis

Results from Lab Sections 1 and 2 have been authorized by Keith Gipman, Supervisor

Results from Lab Section 3 have been authorized by Pat Moser, Supervisor

Results from Lab Sections 4 and 5 have been authorized by Vicky Snook, Supervisor

Results from Lab Section 6 have been authorized by Marion McConnell, Supervisor

-
- * Test methods and data are validated by the laboratory's Quality Assurance Program.
 - * Routine methods follow recognized procedures from sources such as
 - * Standard Methods for the Examination of Water and Wastewater APHA AWWA WEF
 - * Environment Canada
 - * US EPA
 - * CANMET
 - * The results reported relate only to the test samples as provided by the client.
 - * Samples will be kept for 30 days after the final report is sent. Please contact the lab if you have any special requirements.
 - * Additional information is available upon request.

This is a final report.

SRC Group # 2018-14720

Dec 06, 2018

AGAT Laboratories
122-11 Morris Drive
Dartmouth, NS B3B 1M2
Attn: Janetta Fraser

Date Samples Received: Nov-22-2018

Client P.O.: 120349

49154	11/19/2018 18X411370 - 9717442 - FMS-HG18-02A	*WATER*
49155	11/19/2018 18X411370 - 9717446 - FMS-HG18-02B	*WATER*
49156	11/19/2018 18X411370 - 9717447 - FMS-HG18-03A	*WATER*

Analyte	Units	49154	49155	49156
Lab Section 4 (Radiochemistry)				
Radium-226	Bq/L	0.01	0.01	0.009

SRC Group # 2018-14720

Dec 06, 2018

AGAT Laboratories

49157 11/19/2018 18X411370 - 9717448 - FMS-HG18-03B *WATER*
49158 11/20/2018 18X411370 - 9717449 - FMS-HG18-04A *WATER*
49159 11/20/2018 18X411370 - 9717450 - FMS-HG18-04B *WATER*

Analyte	Units	49157	49158	49159
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Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	<0.005	0.01	0.006
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Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

SRC Group # 2018-14720

Dec 06, 2018

AGAT Laboratories

49160	11/19/2018 18X411370 - 9717451 - FMS-HG18-05A	*WATER*			
49161	11/19/2018 18X411370 - 9717452 - FMS-HG18-05B	*WATER*			
49162	11/19/2018 18X411370 - 9717453 - FMS-HG18-06A	*WATER*			
Analyte	Units		49160	49161	49162
Lab Section 4 (Radiochemistry)					
Radium-226	Bq/L		0.01	0.007	0.006

SRC Group # 2018-14720

Dec 06, 2018

AGAT Laboratories

49163	11/20/2018	18X411370 - 9717454 - FMS-HG18-07A	*WATER*
49164	11/20/2018	18X411370 - 9717455 - FMS-HG18-07B	*WATER*
49165	11/19/2018	18X411370 - 9717459 - FMS-HG18-08A	*WATER*

Analyte	Units	49163	49164	49165
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Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	0.01	<0.005	<0.005
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Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

SRC Group # 2018-14720

Dec 06, 2018

AGAT Laboratories

49166	11/19/2018	18X411370 - 9717460 - FMS-HG18-08B	*WATER*
49167	11/20/2018	18X411370 - 9717461 - FMS-HG18-09A	*WATER*
49168	11/20/2018	18X411370 - 9717462 - FMS-HG18-09B	*WATER*

Analyte	Units	49166	49167	49168
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Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	<0.005	0.03	0.01
------------	------	--------	------	------

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

SRC Group # 2018-14720

Dec 06, 2018

AGAT Laboratories

49169	11/19/2018 18X411370 - 9717463 - FMS-HG18-010A	*WATER*
49170	11/19/2018 18X411370 - 9717464 - FMS-HG18-010B	*WATER*
49171	11/19/2018 18X411370 - 9717465 - FMS-HG18-011A	*WATER*

Analyte	Units	49169	49170	49171
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Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	0.01	<0.005	0.005
------------	------	------	--------	-------

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

SRC Group # 2018-14720

Dec 06, 2018

AGAT Laboratories

49172	11/19/2018 18X411370 - 9717466 - FMS-HG18-011B	*WATER*
49173	11/19/2018 18X411370 - 9717467 - FMS-HG18-013A	*WATER*
49174	11/19/2018 18X411370 - 9717468 - FMS-HG18-013B	*WATER*

Analyte	Units	49172	49173	49174
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Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	<0.005	0.007	<0.005
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Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

SRC Group # 2018-14720

Dec 06, 2018

AGAT Laboratories

49175	11/19/2018 18X411370 - 9717469 - FMS-HG18-014A	*WATER*
49176	11/19/2018 18X411370 - 9717470 - FMS-HG18-014B	*WATER*
49177	11/20/2018 18X411370 - 9717471 - FMS-HG18-015A	*WATER*

Analyte	Units	49175	49176	49177
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Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	<0.005	<0.005	0.02
------------	------	--------	--------	------

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

SRC Group # 2018-14720

Dec 06, 2018

AGAT Laboratories

49178	11/20/2018 18X411370 - 9717631 - FMS-HG18-015B	*WATER*			
49179	11/19/2018 18X411370 - 9717633 - FMS-HG18-016A	*WATER*			
49180	11/19/2018 18X411370 - 9717634 - FMS-HG18-016B	*WATER*			
Analyte	Units		49178	49179	49180
Lab Section 4 (Radiochemistry)					
Radium-226	Bq/L		0.008	0.01	0.009

SRC Group # 2018-14720

Dec 06, 2018

AGAT Laboratories

49181 11/19/2018 18X411370 - 9717636 - DUP-1 *WATER*
49182 11/19/2018 18X411370 - 9717637 - DUP-2 *WATER*
49183 11/19/2018 18X411370 - 9717638 - DUP-3 *WATER*

Analyte	Units	49181	49182	49183
Lab Section 4 (Radiochemistry)				
Radium-226	Bq/L	0.006	0.009	0.005

CLIENT NAME: GOLDER ASSOCIATES
201 Brownlow Avenue, Suite 26
DARTMOUTH, NS B3B 1W2
(902) 466-1668

ATTENTION TO: Glen Merkley

PROJECT: 1895674

AGAT WORK ORDER: 19X449221

MISCELLANEOUS ANALYSIS REVIEWED BY: Kelly Hogue, B.Sc, P.Chem, Operations Manager

TRACE ORGANICS REVIEWED BY: Amy Hunter, Trace Organics Supervisor, B.Sc.

WATER ANALYSIS REVIEWED BY: Courtney O'Brien, Data Reporter, B.Eng., EIT

DATE REPORTED: Apr 11, 2019

PAGES (INCLUDING COVER): 35

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.



Certificate of Analysis

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

11 Morris Drive, Unit 122
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 FAX (902)468-8924
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Subcontracted Data Received - Radium-226

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

		SAMPLE DESCRIPTION: FMS-HG18-02A		FMS-HG18-02B	FMS-HG18-03A	FMS-HG18-03B	FMS-HG18-04A	FMS-HG18-04B	FMS-HG18-05A	FMS-HG18-05B	
		SAMPLE TYPE: Water		Water	Water	Water	Water	Water	Water	Water	
		DATE SAMPLED: 2019-03-21		2019-03-21	2019-03-21	2019-03-21	2019-03-21	2019-03-21	2019-03-21	2019-03-21	
Parameter	Unit	G / S	RDL	9985275	9985282	9985283	9985284	9985285	9985286	9985287	9985288
Subcontracted Data				Y	Y	Y	Y	Y	Y	Y	Y
		SAMPLE DESCRIPTION: FMS-HG18-06A		FMS-HG18-08A	FMS-HG18-08B	FMS-HG18-09A	FMS-HG18-09B	FMS-HG18-10A	FMS-HG18-10B	FMS-HG18-11A	
		SAMPLE TYPE: Water		Water	Water	Water	Water	Water	Water	Water	
		DATE SAMPLED: 2019-03-21		2019-03-21	2019-03-21	2019-03-21	2019-03-22	2019-03-22	2019-03-22	2019-03-21	
Parameter	Unit	G / S	RDL	9985289	9985290	9985291	9985292	9985293	9985294	9985295	9985296
Subcontracted Data				Y	Y	Y	Y	Y	Y	Y	Y
		SAMPLE DESCRIPTION: FMS-HG18-11B		FMS-HG18-13A	FMS-HG18-13B	FMS-HG18-14A	FMS-HG18-14B	FMS-HG18-15B	FMS-HG18-16A	FMS-HG18-16B	
		SAMPLE TYPE: Water		Water	Water	Water	Water	Water	Water	Water	
		DATE SAMPLED: 2019-03-21		2019-03-21	2019-03-22	2019-03-22	2019-03-22	2019-03-22	2019-03-21	2019-03-21	
Parameter	Unit	G / S	RDL	9985297	9985298	9985299	9985300	9985301	9985339	9985357	9985361
Subcontracted Data				Y	Y	Y	Y	Y	Y	Y	Y
		SAMPLE DESCRIPTION: DUP-A		DUP-B	DUP-C						
		SAMPLE TYPE: Water		Water	Water						
		DATE SAMPLED: 2019-03-21		2019-03-21	2019-03-22						
Parameter	Unit	G / S	RDL	9985377	9985378	9985379					
Subcontracted Data				Y	Y	Y					

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

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:

Kelly Hogue



Certificate of Analysis

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A											
		G / S: A		G / S: B		RDL		RDL		RDL		RDL	
		2019-03-21	2019-03-21	2019-03-21	2019-03-21	2019-03-21	2019-03-21	2019-03-21	2019-03-21	2019-03-21	2019-03-21	2019-03-21	
Benzene	mg/L	0.005	2.1	0.001	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	
Toluene	mg/L	0.06, 0.024	0.77	0.001	0.002[<B]	0.002[<B]	0.002[<B]	0.002[<B]	0.002[<B]	0.002[<B]	0.002[<B]	0.002[<B]	
Ethylbenzene	mg/L	0.14, 0.0016	0.32	0.001	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	
Xylene (Total)	mg/L	0.09, 0.02	0.33	0.002	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	
C6-C10 (less BTEX)	mg/L			0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
>C10-C16 Hydrocarbons	mg/L			0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
>C16-C21 Hydrocarbons	mg/L			0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
>C21-C32 Hydrocarbons	mg/L			0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Modified TPH (Tier 1)	mg/L		1.5	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	
Resemblance Comment					GR	GR	GR	GR	NR	NR	NR	NR	
Return to Baseline at C32					Y	Y	Y	Y	Y	Y	Y	Y	
Surrogate	Unit	Acceptable Limits											
Isobutylbenzene - EPH	%		70-130		120	126	113	109	115	114	111		
Isobutylbenzene - VPH	%		70-130		99	97	99	98	100	97	96		
n-Dotriacontane - EPH	%		70-130		117	120	106	103	121	118	117		

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-05B FMS-HG18-06A FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A FMS-HG18-09B FMS-HG18-10A											
		G / S: A		G / S: B		RDL		RDL		RDL		RDL	
		2019-03-21	2019-03-21	2019-03-21	2019-03-21	2019-03-22	2019-03-22	2019-03-22	2019-03-22	2019-03-22	2019-03-22	2019-03-22	
Benzene	mg/L	0.005	2.1	0.001	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	
Toluene	mg/L	0.06, 0.024	0.77	0.001	<0.001[<B]	<0.001[<B]	0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	
Ethylbenzene	mg/L	0.14, 0.0016	0.32	0.001	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	
Xylene (Total)	mg/L	0.09, 0.02	0.33	0.002	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	
C6-C10 (less BTEX)	mg/L			0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
>C10-C16 Hydrocarbons	mg/L			0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
>C16-C21 Hydrocarbons	mg/L			0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
>C21-C32 Hydrocarbons	mg/L			0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Modified TPH (Tier 1)	mg/L		1.5	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	
Resemblance Comment					NR	NR	GR	NR	NR	NR	NR	NR	
Return to Baseline at C32					Y	Y	Y	Y	Y	Y	Y	Y	
Surrogate	Unit	Acceptable Limits											
Isobutylbenzene - EPH	%		70-130		105	108	112	106	123	104	117		
Isobutylbenzene - VPH	%		70-130		99	100	99	96	98	99	98		
n-Dotriacontane - EPH	%		70-130		110	115	118	110	130	111	123		

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-10B FMS-HG18-11A FMS-HG18-11B FMS-HG18-13A FMS-HG18-13B FMS-HG18-14A FMS-HG18-14B											
		G / S: A		G / S: B		RDL		DATE SAMPLED: 2019-03-22		DATE SAMPLED: 2019-03-21		DATE SAMPLED: 2019-03-21	
		Water		Water		Water		Water		Water		Water	
Benzene	mg/L	0.005	2.1	0.001	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	
Toluene	mg/L	0.06, 0.024	0.77	0.001	<0.001[<B]	0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	
Ethylbenzene	mg/L	0.14, 0.0016	0.32	0.001	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	
Xylene (Total)	mg/L	0.09, 0.02	0.33	0.002	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	
C6-C10 (less BTEX)	mg/L			0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
>C10-C16 Hydrocarbons	mg/L			0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
>C16-C21 Hydrocarbons	mg/L			0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
>C21-C32 Hydrocarbons	mg/L			0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Modified TPH (Tier 1)	mg/L		1.5	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	
Resemblance Comment					NR	GR	NR	NR	NR	NR	NR	NR	
Return to Baseline at C32					Y	Y	Y	Y	Y	Y	Y	Y	
Surrogate	Unit	Acceptable Limits											
Isobutylbenzene - EPH	%		70-130	106	107	108	107	108	115	103			
Isobutylbenzene - VPH	%		70-130	95	98	95	95	102	103	101			
n-Dotriacontane - EPH	%		70-130	110	112	118	114	115	119	107			

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-15B FMS-HG18-16A FMS-HG18-16B DUP-A DUP-B DUP-C								
		G / S: A		G / S: B		RDL				
		0.06, 0.024		0.32		0.001				
		0.14, 0.0016		0.033		0.002				
SAMPLE TYPE: Water		Water		Water		Water				
DATE SAMPLED: 2019-03-21		2019-03-21		2019-03-21		2019-03-21				
9985339		9985357		9985361		9985377				
9985378		9985379								
Benzene	mg/L	0.005	2.1	0.001	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]	<0.001[<A]
Toluene	mg/L	0.06, 0.024	0.77	0.001	<0.001[<B]	<0.001[<B]	<0.001[<B]	0.001[<B]	<0.001[<B]	<0.001[<B]
Ethylbenzene	mg/L	0.14, 0.0016	0.32	0.001	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]	<0.001[<B]
Xylene (Total)	mg/L	0.09, 0.02	0.33	0.002	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]	<0.002[<B]
C6-C10 (less BTEX)	mg/L			0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
>C10-C16 Hydrocarbons	mg/L			0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
>C16-C21 Hydrocarbons	mg/L			0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
>C21-C32 Hydrocarbons	mg/L			0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Modified TPH (Tier 1)	mg/L		1.5	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]
Resemblance Comment					NR	NR	NR	GR	NR	NR
Return to Baseline at C32					Y	Y	Y	Y	Y	Y
Surrogate	Unit	Acceptable Limits								
Isobutylbenzene - EPH	%		70-130		118	113	115	112	112	113
Isobutylbenzene - VPH	%		70-130		101	100	97	108	103	101
n-Dotriacontane - EPH	%		70-130		127	123	92	106	108	103

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Canadian Drinking Water Quality - updated 2019-03, B Refers to EQS Surface water - Fresh, TPH (Fuel, Lube) - 2016
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9985275-9985379 Resemblance Comment Key:
 GF - Gasoline Fraction
 WGF - Weathered Gasoline Fraction
 GR - Product in Gasoline Range
 FOF - Fuel Oil Fraction
 WFOF - Weathered Fuel Oil Fraction
 FR - Product in Fuel Oil Range
 LOF - Lube Oil Fraction
 LR - Lube Range
 UC - Unidentified Compounds
 NR - No Resemblance
 NA - Not Applicable

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

COD, DOC, TP											
DATE RECEIVED: 2019-03-22					DATE REPORTED: 2019-04-11						
SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A FMS-HG18-05B											
SAMPLE TYPE: Water Water Water Water Water Water Water Water Water Water											
DATE SAMPLED: 2019-03-21 2019-03-21 2019-03-21 2019-03-21 2019-03-21 2019-03-21 2019-03-21 2019-03-21 2019-03-21 2019-03-21											
Parameter	Unit	G / S	RDL	9985275	9985282	9985283	9985284	9985285	9985286	9985287	9985288
Chemical Oxygen Demand	mg/L			3	<3	<3	<3	<3	<3	<3	<3
Dissolved Organic Carbon	mg/L			0.5	<0.5	0.7	0.6	<0.5	<0.5	0.8	0.7
Total Phosphorous as P	mg/L			0.03	0.07	0.14	0.21	0.05	0.15	0.03	0.04
SAMPLE DESCRIPTION: FMS-HG18-06A FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A FMS-HG18-09B FMS-HG18-10A FMS-HG18-10B FMS-HG18-11A											
SAMPLE TYPE: Water Water Water Water Water Water Water Water Water Water											
DATE SAMPLED: 2019-03-21 2019-03-21 2019-03-21 2019-03-22 2019-03-22 2019-03-22 2019-03-22 2019-03-22 2019-03-22 2019-03-21											
Parameter	Unit	G / S	RDL	9985289	9985290	9985291	9985292	9985293	9985294	9985295	9985296
Chemical Oxygen Demand	mg/L			3	<3	<3	4	<3	<3	<3	4
Dissolved Organic Carbon	mg/L			0.5	1.0	<0.5	1.3	<0.5	<0.5	<0.5	2.0
Total Phosphorous as P	mg/L			0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.04
SAMPLE DESCRIPTION: FMS-HG18-11B FMS-HG18-13A FMS-HG18-13B FMS-HG18-14A FMS-HG18-14B FMS-HG18-16A DUP-A DUP-B											
SAMPLE TYPE: Water Water Water Water Water Water Water Water Water Water											
DATE SAMPLED: 2019-03-21 2019-03-22 2019-03-22 2019-03-22 2019-03-22 2019-03-21 2019-03-21 2019-03-21 2019-03-21 2019-03-21											
Parameter	Unit	G / S	RDL	9985297	9985298	9985299	9985300	9985301	9985357	9985377	9985378
Chemical Oxygen Demand	mg/L			3	8	<3	3	<3	4	<3	<3
Dissolved Organic Carbon	mg/L			0.5	2.0	<0.5	<0.5	<0.5	<0.5	<0.5	0.8
Total Phosphorous as P	mg/L			0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
SAMPLE DESCRIPTION: DUP-C											
SAMPLE TYPE: Water											
DATE SAMPLED: 2019-03-22											
Parameter	Unit	G / S	RDL	9985379							
Chemical Oxygen Demand	mg/L			3	<3						
Dissolved Organic Carbon	mg/L			0.5	0.5						
Total Phosphorous as P	mg/L			0.03	<0.03						

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

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

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<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

COD, DOC, TP, Total Cyanide

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-15B FMS-HG18-16B			
		G / S	RDL	9985339	9985361
Chemical Oxygen Demand	mg/L		3	<3	<3
Dissolved Organic Carbon	mg/L		0.5	<0.5	1.1
Total Phosphorous as P	mg/L		0.03	<0.03	<0.03
Total Cyanide	mg/L	0.2	0.005	0.038	<0.005

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Canadian Drinking Water Quality - updated 2019-03
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.
 Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



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PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Dissolved TP (Water)

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

		SAMPLE DESCRIPTION: FMS-HG18-02A		FMS-HG18-02B	FMS-HG18-03A	FMS-HG18-03B	FMS-HG18-04A	FMS-HG18-04B	FMS-HG18-05A	FMS-HG18-05B	
Parameter		Unit	G / S	RDL							
Total Phosphorus, Dissolved		mg/L									
			0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
		SAMPLE DESCRIPTION: FMS-HG18-06A		FMS-HG18-08A	FMS-HG18-08B	FMS-HG18-09A	FMS-HG18-09B	FMS-HG18-10A	FMS-HG18-10B	FMS-HG18-11A	
Parameter		Unit	G / S	RDL							
Total Phosphorus, Dissolved		mg/L									
			0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
		SAMPLE DESCRIPTION: FMS-HG18-11B		FMS-HG18-13A	FMS-HG18-13B	FMS-HG18-14A	FMS-HG18-14B	FMS-HG18-15B	FMS-HG18-16A	FMS-HG18-16B	
Parameter		Unit	G / S	RDL							
Total Phosphorus, Dissolved		mg/L									
			0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
		SAMPLE DESCRIPTION: DUP-A		DUP-B	DUP-C						
Parameter		Unit	G / S	RDL							
Total Phosphorus, Dissolved		mg/L									
			0.02	<0.02	<0.02	<0.02					

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

Certified By:



Certificate of Analysis

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Mercury Analysis in Water (Dissolved)

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

		SAMPLE DESCRIPTION: FMS-HG18-02A			FMS-HG18-02B	FMS-HG18-03A	FMS-HG18-03B	FMS-HG18-04A	FMS-HG18-04B	FMS-HG18-05A		
Parameter		Unit	G / S: A	G / S: B	RDL	9985275	9985282	9985283	9985284	9985285	9985286	9985287
Dissolved Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]
		SAMPLE DESCRIPTION: FMS-HG18-05B			FMS-HG18-06A	FMS-HG18-08A	FMS-HG18-08B	FMS-HG18-09A	FMS-HG18-09B	FMS-HG18-10A		
Parameter		Unit	G / S: A	G / S: B	RDL	9985288	9985289	9985290	9985291	9985292	9985293	9985294
Dissolved Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]
		SAMPLE DESCRIPTION: FMS-HG18-10B			FMS-HG18-11A	FMS-HG18-11B	FMS-HG18-13A	FMS-HG18-13B	FMS-HG18-14A	FMS-HG18-14B		
Parameter		Unit	G / S: A	G / S: B	RDL	9985295	9985296	9985297	9985298	9985299	9985300	9985301
Dissolved Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	0.017[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]
		SAMPLE DESCRIPTION: FMS-HG18-15B			FMS-HG18-16A	FMS-HG18-16B	DUP-A	DUP-B	DUP-C			
Parameter		Unit	G / S: A	G / S: B	RDL	9985339	9985357	9985361	9985377	9985378	9985379	
Dissolved Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Canadian Drinking Water Quality - updated 2019-03, B Refers to EQS Surface water - Fresh, TPH (Fuel, Lube) - 2016
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X449221

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Mercury Analysis in Water (Total)

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

		SAMPLE DESCRIPTION: FMS-HG18-02A			FMS-HG18-02B	FMS-HG18-03A	FMS-HG18-03B	FMS-HG18-04A	FMS-HG18-04B	FMS-HG18-05A		
Parameter		Unit	G / S: A	G / S: B	RDL	9985275	9985282	9985283	9985284	9985285	9985286	9985287
Total Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]
		SAMPLE DESCRIPTION: FMS-HG18-05B			FMS-HG18-06A	FMS-HG18-08A	FMS-HG18-08B	FMS-HG18-09A	FMS-HG18-09B	FMS-HG18-10A		
Total Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]
		SAMPLE DESCRIPTION: FMS-HG18-10B			FMS-HG18-11A	FMS-HG18-11B	FMS-HG18-13A	FMS-HG18-13B	FMS-HG18-14A	FMS-HG18-14B		
Total Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	0.018[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]
		SAMPLE DESCRIPTION: FMS-HG18-15B			FMS-HG18-16A	FMS-HG18-16B	DUP-A	DUP-B	DUP-C			
Total Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Canadian Drinking Water Quality - updated 2019-03, B Refers to EQS Surface water - Fresh, TPH (Fuel, Lube) - 2016
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals (FWAL)

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A																			
		G / S: A		G / S: B		RDL		9985275		9985282		9985283		9985284		9985285		9985286		9985287	
		Water		Water		Water		Water		Water		Water		Water		Water		Water		Water	
DATE SAMPLED:		2019-03-21		2019-03-21		2019-03-21		2019-03-21		2019-03-21		2019-03-21		2019-03-21		2019-03-21		2019-03-21		2019-03-21	
pH		7.0-10.5 OG					7.95	6.02	7.53	6.87	8.12	6.76	6.43								
Reactive Silica as SiO2	mg/L			0.5	9.5	3.2	12.8	7.2	10.9	8.0	9.0										
Chloride	mg/L	250 AO		1	4	3	4	3	3	3	4										
Fluoride	mg/L	1.5		0.12	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	0.24[<A]	<0.12[<A]	<0.12[<A]										
Sulphate	mg/L	500 AO		2	15	2	17	<2	7	3	3										
Alkalinity	mg/L			5	76	<5	38	9	154	24	11										
True Color	TCU	15 AO		5	<5	<5	<5	<5	<5	<5	5										
Turbidity	NTU	0.1-1		0.1	3.6	1.6	6.1	1.5	2.4	36.5	4.8										
Electrical Conductivity	umho/cm			1	181	25	132	36	288	65	55										
Nitrate + Nitrite as N	mg/L			0.05	0.07	<0.05	0.11	0.07	<0.05	<0.05	0.32[<A]										
Nitrate as N	mg/L	10		0.05	0.07[<A]	<0.05[<A]	0.11[<A]	0.07[<A]	<0.05[<A]	<0.05[<A]	0.32[<A]										
Nitrite as N	mg/L	1.0		0.05	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]										
Ammonia as N	mg/L			0.03	0.07	0.04	<0.03	<0.03	0.05	0.03	<0.03										
Total Organic Carbon	mg/L			0.5	<0.5	0.6	1.0	<0.5	<0.5	<0.5	<0.5										
Ortho-Phosphate as P	mg/L			0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01										
Dissolved Sodium	mg/L	200 AO		0.1	7.2	2.6	9.1	2.8	34.1	6.4	2.9										
Dissolved Potassium	mg/L			0.1	1.7	0.3	1.2	0.7	1.7	0.7	2.3										
Dissolved Calcium	mg/L			0.1	22.5	0.7	11.0	2.4	17.8	2.9	3.5										
Dissolved Magnesium	mg/L			0.1	2.3	0.3	0.8	0.5	3.1	0.7	0.7										
Bicarb. Alkalinity (as CaCO3)	mg/L			5	76	<5	38	9	154	24	11										
Carb. Alkalinity (as CaCO3)	mg/L			10	<10	<10	<10	<10	<10	<10	<10										
Hydroxide	mg/L			5	<5	<5	<5	<5	<5	<5	<5										
Calculated TDS	mg/L	500 AO		1	99	9	67	15	159	34	24										
Hardness	mg/L				65.7	3.0	30.8	8.1	57.2	10.1	11.6										
Langelier Index (@20C)	NA				-0.40	-4.93	-1.42	-3.30	-0.05	-2.94	-3.51										
Langelier Index (@ 4C)	NA				-0.72	-5.25	-1.74	-3.62	-0.37	-3.26	-3.83										
Saturation pH (@ 20C)	NA				8.35	11.0	8.95	10.2	8.17	9.70	9.94										
Saturation pH (@ 4C)	NA				8.67	11.3	9.27	10.5	8.49	10.0	10.3										
Anion Sum	me/L				1.95	0.13	1.23	0.27	3.31	0.63	0.42										
Cation sum	me/L				1.68	0.20	1.05	0.31	2.68	0.61	0.42										

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals (FWAL)

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A																			
		G / S: A		G / S: B		RDL		9985275		9985282		9985283		9985284		9985285		9985286		9985287	
		SAMPLE TYPE: Water		SAMPLE TYPE: Water		SAMPLE TYPE: Water		SAMPLE TYPE: Water		SAMPLE TYPE: Water		SAMPLE TYPE: Water		SAMPLE TYPE: Water		SAMPLE TYPE: Water		SAMPLE TYPE: Water		SAMPLE TYPE: Water	
DATE SAMPLED: 2019-03-21		DATE SAMPLED: 2019-03-21		DATE SAMPLED: 2019-03-21		DATE SAMPLED: 2019-03-21		DATE SAMPLED: 2019-03-21		DATE SAMPLED: 2019-03-21		DATE SAMPLED: 2019-03-21		DATE SAMPLED: 2019-03-21		DATE SAMPLED: 2019-03-21		DATE SAMPLED: 2019-03-21		DATE SAMPLED: 2019-03-21	
% Difference/ Ion Balance	%																				
Dissolved Aluminum	ug/L	100	OG AO	5		5		<5[<B]		89[>B]		<5[<B]		<5[<B]		<5[<B]		5[B]			
Dissolved Antimony	ug/L	6		20		2		<2[<A]		<2[<A]		<2[<A]		<2[<A]		<2[<A]		<2[<A]		<2[>A]	
Dissolved Arsenic	ug/L	10		5.0		2		11[>A]		<2[<B]		16[>A]		<2[<B]		31[>A]		<2[<B]		13[>A]	
Dissolved Barium	ug/L	1000		1000		5		9[<A]		9[<A]		8[<A]		7[<A]		7[<A]		18[<A]		10[<A]	
Dissolved Beryllium	ug/L			5.3		2		<2[<B]		<2[<B]		<2[<B]		<2[<B]		<2[<B]		<2[<B]		<2[<B]	
Dissolved Bismuth	ug/L					2		<2		<2		<2		<2		<2		<2		<2	
Dissolved Boron	ug/L	5000		1200		5		12[<B]		<5[<B]		6[<B]		<5[<B]		13[<B]		<5[<B]		<5[<B]	
Dissolved Cadmium	ug/L	5		0.01		0.017		<0.017[<A]		0.018[B-A]		<0.017[<A]		0.019[B-A]		<0.017[<A]		0.020[B-A]		<0.017[<A]	
Dissolved Chromium	ug/L	50		-		1		1[<A]		<1[<A]		<1[<A]		<1[<A]		2[<A]		1[<A]		1[<A]	
Dissolved Cobalt	ug/L			10		1		<1[<B]		<1[<B]		<1[<B]		3[<B]		<1[<B]		7[<B]		<1[<B]	
Dissolved Copper	ug/L	1000	AO	2		1		14[>B]		3[>B]		<1[<B]		3[>B]		<1[<B]		<1[<B]		2[B]	
Dissolved Iron	ug/L	300	AO	300		50		<50[<B]		<50[<B]		<50[<B]		<50[<B]		<50[<B]		574[>B]		<50[<B]	
Dissolved Lead	ug/L	5		1		0.5		<0.5[<B]		<0.5[<B]		<0.5[<B]		<0.5[<B]		<0.5[<B]		<0.5[<B]		<0.5[<B]	
Dissolved Manganese	ug/L	50	AO	820		2		70[<B]		31[<B]		144[<B]		143[<B]		293[<B]		897[>B]		9[<B]	
Dissolved Molybdenum	ug/L			73		2		<2[<B]		<2[<B]		<2[<B]		<2[<B]		7[<B]		<2[<B]		<2[<B]	
Dissolved Nickel	ug/L			25		2		<2[<B]		<2[<B]		<2[<B]		16[<B]		<2[<B]		5[<B]		<2[<B]	
Dissolved Phosphorus	mg/L					0.02		<0.02		<0.02		<0.02		<0.02		<0.02		<0.02		<0.02	
Dissolved Selenium	ug/L	50		1.0		1		<1[<B]		<1[<B]		<1[<B]		<1[<B]		<1[<B]		<1[<B]		<1[<B]	
Dissolved Silver	ug/L			0.1		0.1		<0.1[<B]		<0.1[<B]		<0.1[<B]		0.2[>B]		<0.1[<B]		<0.1[<B]		<0.1[<B]	
Dissolved Strontium	ug/L			21000		5		196[<B]		9[<B]		63[<B]		14[<B]		114[<B]		14[<B]		23[<B]	
Dissolved Thallium	ug/L			0.8		0.1		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]	
Dissolved Tin	ug/L			-		2		<2		<2		<2		<2		<2		<2		<2	
Dissolved Titanium	ug/L					2		<2		<2		<2		<2		<2		<2		<2	
Dissolved Uranium	ug/L	20		300		0.1		2.7[<A]		<0.1[<A]		0.8[<A]		<0.1[<A]		7.4[<A]		0.1[<A]		<0.1[<A]	
Dissolved Vanadium	ug/L			6		2		<2[<B]		<2[<B]		<2[<B]		<2[<B]		<2[<B]		<2[<B]		<2[<B]	
Dissolved Zinc	ug/L	5000	AO	30		5		6[<B]		<5[<B]		<5[<B]		22[<B]		<5[<B]		1680[>B]		13[<B]	

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals (FWAL)

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-05B FMS-HG18-06A FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A FMS-HG18-09B FMS-HG18-10A											
		G / S: A		G / S: B		RDL		RDL		RDL		RDL	
		2019-03-21	2019-03-21	2019-03-21	2019-03-21	2019-03-22	2019-03-22	2019-03-22	2019-03-22	2019-03-22	2019-03-22	2019-03-22	
pH		7.0-10.5 OG				6.69	6.88	7.49	6.63	7.58	6.50	7.99	
Reactive Silica as SiO2	mg/L			0.5		7.7	8.5	8.9	1.5	19.5	10.7	13.3	
Chloride	mg/L	250 AO		1		2	9	2	<1	3	3	3	
Fluoride	mg/L	1.5		0.12		<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	
Sulphate	mg/L	500 AO		2		3	14	3	<2	3	<2	10	
Alkalinity	mg/L			5		17	29	42	5	81	23	79	
True Color	TCU	15 AO		5		<5	<5	<5	6	<5	<5	<5	
Turbidity	NTU	0.1-1		0.1		99.6	35.7	18.6	32.7	3.0	35.9	8.5	
Electrical Conductivity	umho/cm			1		76	141	95	15	171	64	182	
Nitrate + Nitrite as N	mg/L			0.05		1.90	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	
Nitrate as N	mg/L	10		0.05		1.90[<A]	0.07[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	
Nitrite as N	mg/L	1.0		0.05		<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	
Ammonia as N	mg/L			0.03		0.06	0.06	<0.03	<0.03	0.05	<0.03	<0.03	
Total Organic Carbon	mg/L			0.5		0.9	1.2	<0.5	1.6	<0.5	<0.5	<0.5	
Ortho-Phosphate as P	mg/L			0.01		0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Dissolved Sodium	mg/L	200 AO		0.1		7.4	7.5	3.9	1.5	5.2	5.0	6.7	
Dissolved Potassium	mg/L			0.1		2.8	1.3	0.5	0.1	1.1	0.8	1.0	
Dissolved Calcium	mg/L			0.1		3.4	13.2	9.9	0.7	23.1	4.6	22.1	
Dissolved Magnesium	mg/L			0.1		0.6	0.9	0.6	0.2	0.8	0.7	1.5	
Bicarb. Alkalinity (as CaCO3)	mg/L			5		17	29	42	5	81	23	79	
Carb. Alkalinity (as CaCO3)	mg/L			10		<10	<10	<10	<10	<10	<10	<10	
Hydroxide	mg/L			5		<5	<5	<5	<5	<5	<5	<5	
Calculated TDS	mg/L	500 AO		1		39	66	45	6	85	29	92	
Hardness	mg/L					11.0	36.7	27.2	2.6	61.0	14.4	61.4	
Langelier Index (@20C)	NA					-3.09	-2.11	-1.44	-4.29	-0.73	-3.01	-0.35	
Langelier Index (@ 4C)	NA					-3.41	-2.43	-1.76	-4.61	-1.05	-3.33	-0.67	
Saturation pH (@ 20C)	NA					9.78	8.99	8.93	10.9	8.31	9.51	8.34	
Saturation pH (@ 4C)	NA					10.1	9.31	9.25	11.2	8.63	9.83	8.66	
Anion Sum	me/L					0.59	1.13	0.96	0.10	1.77	0.54	1.87	
Cation sum	me/L					0.68	1.20	0.73	0.13	1.49	0.57	1.55	

Certified By:

Cobrien



Certificate of Analysis

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals (FWAL)

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-05B FMS-HG18-06A FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A FMS-HG18-09B FMS-HG18-10A																			
		G / S: A		G / S: B		RDL		9985288		9985289		9985290		9985291		9985292		9985293		9985294	
		SAMPLE TYPE: Water		Water		Water		Water		Water		Water		Water		Water		Water		Water	
DATE SAMPLED: 2019-03-21		2019-03-21		2019-03-21		2019-03-21		2019-03-21		2019-03-21		2019-03-21		2019-03-21		2019-03-21		2019-03-21		2019-03-21	
% Difference/ Ion Balance	%					6.7		2.8		13.7		13.0		8.4		2.1		9.4			
Dissolved Aluminum	ug/L	100 OG AO		5		5		480[>B]		8[>B]		<5[<B]		87[>B]		<5[<B]		<5[<B]		9[>B]	
Dissolved Antimony	ug/L	6		20		2		<2[<A]		<2[<A]		<2[<A]		<2[<A]		<2[<A]		<2[<A]		<2[<A]	
Dissolved Arsenic	ug/L	10		5.0		2		5[B]		47[>A]		2[<B]		<2[<B]		<2[<B]		<2[<B]		2[<B]	
Dissolved Barium	ug/L	1000		1000		5		11[<A]		20[<A]		<5[<A]		<5[<A]		14[<A]		10[<A]		6[<A]	
Dissolved Beryllium	ug/L			5.3		2		<2[<B]		<2[<B]		<2[<B]		<2[<B]		<2[<B]		<2[<B]		<2[<B]	
Dissolved Bismuth	ug/L					2		<2		<2		<2		<2		<2		<2		<2	
Dissolved Boron	ug/L	5000		1200		5		6[<B]		8[<B]		<5[<B]		<5[<B]		5[<B]		<5[<B]		16[<B]	
Dissolved Cadmium	ug/L	5		0.01		0.017		0.033[B-A]		<0.017[<A]		<0.017[<A]		<0.017[<A]		<0.017[<A]		0.032[B-A]		<0.017[<A]	
Dissolved Chromium	ug/L	50		-		1		1[<A]		1[<A]		<1[<A]		<1[<A]		1[<A]		2[<A]		1[<A]	
Dissolved Cobalt	ug/L			10		1		4[<B]		3[<B]		<1[<B]		<1[<B]		<1[<B]		2[<B]		<1[<B]	
Dissolved Copper	ug/L	1000 AO		2		1		23[>B]		<1[<B]		2[B]		1[<B]		12[>B]		1[<B]		1[<B]	
Dissolved Iron	ug/L	300 AO		300		50		142[<B]		1990[>B]		<50[<B]		<50[<B]		<50[<B]		738[>B]		<50[<B]	
Dissolved Lead	ug/L	5		1		0.5		<0.5[<B]		<0.5[<B]		<0.5[<B]		<0.5[<B]		<0.5[<B]		<0.5[<B]		<0.5[<B]	
Dissolved Manganese	ug/L	50 AO		820		2		90[<B]		713[<B]		14[<B]		23[<B]		423[<B]		438[<B]		123[<B]	
Dissolved Molybdenum	ug/L			73		2		<2[<B]		<2[<B]		<2[<B]		<2[<B]		<2[<B]		<2[<B]		<2[<B]	
Dissolved Nickel	ug/L			25		2		14[<B]		3[<B]		<2[<B]		<2[<B]		<2[<B]		6[<B]		<2[<B]	
Dissolved Phosphorus	mg/L					0.02		<0.02		<0.02		<0.02		<0.02		<0.02		<0.02		<0.02	
Dissolved Selenium	ug/L	50		1.0		1		<1[<B]		<1[<B]		<1[<B]		<1[<B]		<1[<B]		<1[<B]		<1[<B]	
Dissolved Silver	ug/L			0.1		0.1		<0.1[<B]		<0.1[<B]		<0.1[<B]		0.1[B]		<0.1[<B]		<0.1[<B]		<0.1[<B]	
Dissolved Strontium	ug/L			21000		5		20[<B]		38[<B]		43[<B]		5[<B]		94[<B]		39[<B]		110[<B]	
Dissolved Thallium	ug/L			0.8		0.1		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]	
Dissolved Tin	ug/L			-		2		<2		<2		<2		<2		<2		<2		<2	
Dissolved Titanium	ug/L					2		3		<2		<2		<2		<2		<2		<2	
Dissolved Uranium	ug/L	20		300		0.1		<0.1[<A]		<0.1[<A]		0.2[<A]		<0.1[<A]		0.6[<A]		<0.1[<A]		0.5[<A]	
Dissolved Vanadium	ug/L			6		2		<2[<B]		<2[<B]		<2[<B]		<2[<B]		<2[<B]		<2[<B]		<2[<B]	
Dissolved Zinc	ug/L	5000 AO		30		5		17[<B]		6[<B]		<5[<B]		<5[<B]		<5[<B]		8[<B]		<5[<B]	

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X449221

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals (FWAL)

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-10B FMS-HG18-11A FMS-HG18-11B FMS-HG18-13A FMS-HG18-13B FMS-HG18-14A FMS-HG18-14B																			
		G / S: A		G / S: B		RDL		9985295		9985296		9985297		9985298		9985299		9985300		9985301	
		7.0-10.5 OG																			
pH		7.0-10.5 OG						7.46		6.88		6.42		6.73		6.02		7.40		6.36	
Reactive Silica as SiO2	mg/L					0.5		6.4		9.2		4.1		7.8		4.3		8.3		5.0	
Chloride	mg/L	250 AO				1		5		3		5		3		3		7		6	
Fluoride	mg/L	1.5				0.12		<0.12[<A]		<0.12[<A]		<0.12[<A]		<0.12[<A]		<0.12[<A]		<0.12[<A]		<0.12[<A]	
Sulphate	mg/L	500 AO				2		4		4		9		2		<2		7		3	
Alkalinity	mg/L					5		41		45		38		12		<5		71		6	
True Color	TCU	15 AO				5		<5		<5		8		<5		<5		<5		<5	
Turbidity	NTU	0.1-1				0.1		16.9		1.5		19.5		2.3		2.9		12.3		0.8	
Electrical Conductivity	umho/cm					1		103		111		126		44		28		183		52	
Nitrate + Nitrite as N	mg/L					0.05		0.23		0.18		0.47		0.09		0.07		0.12		0.05	
Nitrate as N	mg/L	10				0.05		0.23[<A]		0.18[<A]		0.47[<A]		0.09[<A]		0.07[<A]		0.12[<A]		0.05[<A]	
Nitrite as N	mg/L	1.0				0.05		<0.05[<A]		<0.05[<A]		<0.05[<A]		<0.05[<A]		<0.05[<A]		<0.05[<A]		<0.05[<A]	
Ammonia as N	mg/L					0.03		<0.03		<0.03		<0.03		<0.03		<0.03		<0.03		<0.03	
Total Organic Carbon	mg/L					0.5		<0.5		<0.5		2.3		<0.5		<0.5		<0.5		<0.5	
Ortho-Phosphate as P	mg/L					0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01	
Dissolved Sodium	mg/L	200 AO				0.1		2.7		4.6		3.2		3.5		1.9		10.0		3.9	
Dissolved Potassium	mg/L					0.1		0.1		0.7		0.1		0.3		<0.1		1.0		0.6	
Dissolved Calcium	mg/L					0.1		6.1		10.8		3.2		2.9		1.0		20.5		2.8	
Dissolved Magnesium	mg/L					0.1		0.4		0.9		1.4		0.4		0.3		1.1		0.6	
Bicarb. Alkalinity (as CaCO3)	mg/L					5		41		45		38		12		<5		71		6	
Carb. Alkalinity (as CaCO3)	mg/L					10		<10		<10		<10		<10		<10		<10		<10	
Hydroxide	mg/L					5		<5		<5		<5		<5		<5		<5		<5	
Calculated TDS	mg/L	500 AO				1		44		54		71		20		7		90		21	
Hardness	mg/L							16.9		30.7		13.8		8.9		3.7		55.7		9.5	
Langelier Index (@20C)	NA							-1.69		-1.99		-3.07		-3.25		-4.78		-1.02		-3.93	
Langelier Index (@ 4C)	NA							-2.01		-2.31		-3.39		-3.57		-5.10		-1.34		-4.25	
Saturation pH (@ 20C)	NA							9.15		8.87		9.49		9.98		10.8		8.42		10.3	
Saturation pH (@ 4C)	NA							9.47		9.19		9.81		10.3		11.1		8.74		10.6	
Anion Sum	me/L							1.06		1.08		1.12		0.37		0.09		1.77		0.36	
Cation sum	me/L							0.47		0.93		1.32		0.34		0.18		1.58		0.39	

Certified By:



Certificate of Analysis

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals (FWAL)

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-10B FMS-HG18-11A FMS-HG18-11B FMS-HG18-13A FMS-HG18-13B FMS-HG18-14A FMS-HG18-14B																			
		G / S: A		G / S: B		RDL		9985295		9985296		9985297		9985298		9985299		9985300		9985301	
		SAMPLE TYPE: Water		SAMPLE TYPE: Water		SAMPLE TYPE: Water		SAMPLE TYPE: Water		SAMPLE TYPE: Water		SAMPLE TYPE: Water		SAMPLE TYPE: Water		SAMPLE TYPE: Water		SAMPLE TYPE: Water		SAMPLE TYPE: Water	
DATE SAMPLED: 2019-03-22		DATE SAMPLED: 2019-03-21		DATE SAMPLED: 2019-03-21		DATE SAMPLED: 2019-03-22		DATE SAMPLED: 2019-03-22		DATE SAMPLED: 2019-03-22		DATE SAMPLED: 2019-03-22		DATE SAMPLED: 2019-03-22		DATE SAMPLED: 2019-03-22		DATE SAMPLED: 2019-03-22		DATE SAMPLED: 2019-03-22	
% Difference/ Ion Balance	%																				
Dissolved Aluminum	ug/L	100	OG AO	5		5		66[>B]	<5[<B]	208[>B]	<53[>B]	103[>B]	<5[<B]	113[>B]							
Dissolved Antimony	ug/L	6		20		2		<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]							
Dissolved Arsenic	ug/L	10		5.0		2		<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	4[<B]	<2[<B]							
Dissolved Barium	ug/L	1000		1000		5		<5[<A]	<5[<A]	10[<A]	<5[<A]	6[<A]	14[<A]	14[<A]							
Dissolved Beryllium	ug/L			5.3		2		<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]							
Dissolved Bismuth	ug/L					2		<2	<2	<2	<2	<2	<2	<2							
Dissolved Boron	ug/L	5000		1200		5		<5[<B]	<5[<B]	<5[<B]	<5[<B]	<5[<B]	<5[<B]	<5[<B]							
Dissolved Cadmium	ug/L	5		0.01		0.017		0.020[B-A]	0.077[B-A]	<0.017[<A]	<0.017[<A]	0.020[B-A]	0.027[B-A]	0.045[B-A]							
Dissolved Chromium	ug/L	50		-		1		1[<A]	2[<A]	4[<A]	1[<A]	<1[<A]	2[<A]	<1[<A]							
Dissolved Cobalt	ug/L			10		1		<1[<B]	<1[<B]	25[>B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]							
Dissolved Copper	ug/L		1000 AO	2		1		<1[<B]	<1[<B]	4[>B]	<1[<B]	3[>B]	<1[<B]	1[<B]							
Dissolved Iron	ug/L		300 AO	300		50		<50[<B]	<50[<B]	1050[>B]	<50[<B]	<50[<B]	<50[<B]	<50[<B]							
Dissolved Lead	ug/L	5		1		0.5		<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]							
Dissolved Manganese	ug/L		50 AO	820		2		15[<B]	2570[>B]	23200[>B]	19[<B]	148[<B]	33[<B]	37[<B]							
Dissolved Molybdenum	ug/L			73		2		<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]							
Dissolved Nickel	ug/L			25		2		<2[<B]	<2[<B]	5[<B]	<2[<B]	7[<B]	<2[<B]	3[<B]							
Dissolved Phosphorus	mg/L					0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02							
Dissolved Selenium	ug/L	50		1.0		1		<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]							
Dissolved Silver	ug/L			0.1		0.1		<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	0.3[>B]	<0.1[<B]	<0.1[<B]							
Dissolved Strontium	ug/L			21000		5		15[<B]	59[<B]	19[<B]	27[<B]	12[<B]	74[<B]	16[<B]							
Dissolved Thallium	ug/L			0.8		0.1		<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]							
Dissolved Tin	ug/L			-		2		<2	<2	<2	<2	<2	<2	<2							
Dissolved Titanium	ug/L					2		<2	<2	<2	<2	<2	<2	<2							
Dissolved Uranium	ug/L	20		300		0.1		<0.1[<A]	0.3[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	0.3[<A]	0.2[<A]							
Dissolved Vanadium	ug/L			6		2		<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]							
Dissolved Zinc	ug/L		5000 AO	30		5		<5[<B]	<5[<B]	<5[<B]	<5[<B]	<5[<B]	<5[<B]	<5[<B]							

Certified By:

Cobrien



Certificate of Analysis

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals (FWAL)

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-15B FMS-HG18-16A FMS-HG18-16B DUP-A DUP-B DUP-C									
		SAMPLE TYPE: Water			Water			Water			
		DATE SAMPLED: 2019-03-21			2019-03-21			2019-03-21			
		G / S: A	G / S: B	RDL	9985339	9985357	9985361	9985377	9985378	9985379	
pH		7.0-10.5 OG				7.69	7.92	5.98	7.95	7.07	6.86
Reactive Silica as SiO2	mg/L			0.5		9.4	17.3	4.0	9.1	8.9	9.6
Chloride	mg/L	250 AO		1		3	3	3	3	2	3
Fluoride	mg/L	1.5		0.12		<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]	<0.12[<A]
Sulphate	mg/L	500 AO		2		7	9	2	12	3	2
Alkalinity	mg/L			5		61	61	<5	75	18	12
True Color	TCU	15 AO		5		<5	<5	<5	5	<5	<5
Turbidity	NTU	0.1-1		0.1		103	5.0	11.9	3.9	78.7	2.5
Electrical Conductivity	umho/cm			1		145	150	28	187	77	44
Nitrate + Nitrite as N	mg/L			0.05		<0.05	<0.05	<0.05	<0.05	1.74	0.15
Nitrate as N	mg/L	10		0.05		<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	1.74[<A]	0.15[<A]
Nitrite as N	mg/L	1.0		0.05		<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]
Ammonia as N	mg/L			0.03		<0.03	<0.03	<0.03	<0.03	0.06	<0.03
Total Organic Carbon	mg/L			0.5		<0.5	<0.5	1.1	<0.5	1.0	0.6
Ortho-Phosphate as P	mg/L			0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Sodium	mg/L	200 AO		0.1		4.0	5.5	2.4	6.5	6.6	3.3
Dissolved Potassium	mg/L			0.1		0.7	1.5	0.4	2.0	3.2	0.5
Dissolved Calcium	mg/L			0.1		19.9	20.9	0.9	27.7	3.9	3.5
Dissolved Magnesium	mg/L			0.1		1.0	1.9	0.4	2.4	0.7	0.5
Bicarb. Alkalinity (as CaCO3)	mg/L			5		61	61	<5	75	18	12
Carb. Alkalinity (as CaCO3)	mg/L			10		<10	<10	<10	<10	<10	<10
Hydroxide	mg/L			5		<5	<5	<5	<5	<5	<5
Calculated TDS	mg/L	500 AO		1		73	79	9	99	39	21
Hardness	mg/L					53.8	60.0	3.9	79.1	12.6	10.8
Langelier Index (@20C)	NA					-0.80	-0.55	-4.86	-0.32	-2.63	-3.04
Langelier Index (@ 4C)	NA					-1.12	-0.87	-5.18	-0.64	-2.95	-3.36
Saturation pH (@ 20C)	NA					8.49	8.47	10.8	8.27	9.70	9.90
Saturation pH (@ 4C)	NA					8.81	8.79	11.2	8.59	10.0	10.2
Anion Sum	me/L					1.45	1.49	0.13	1.83	0.60	0.38
Cation sum	me/L					1.29	1.49	0.21	1.92	0.68	0.38

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

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<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES

SAMPLING SITE:

ATTENTION TO: Glen Merkley

SAMPLED BY:

Standard Water Analysis + Dissolved Metals (FWAL)

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-15B FMS-HG18-16A FMS-HG18-16B DUP-A DUP-B DUP-C								
		SAMPLE TYPE: Water			Water			Water		
		DATE SAMPLED: 2019-03-21			2019-03-21			2019-03-21		
		G / S: A	G / S: B	RDL	9985339	9985357	9985361	9985377	9985378	9985379
% Difference/ Ion Balance	%				5.8	0.2	26.0	2.3	5.9	0.5
Dissolved Aluminum	ug/L	100 OG AO	5	5	10[>B]	<5[<B]	178[>B]	5[B]	398[>B]	72[>B]
Dissolved Antimony	ug/L	6	20	2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]
Dissolved Arsenic	ug/L	10	5.0	2	3[<B]	<2[<B]	<2[<B]	11[>A]	5[B]	<2[<B]
Dissolved Barium	ug/L	1000	1000	5	7[<A]	<5[<A]	10[<A]	10[<A]	10[<A]	<5[<A]
Dissolved Beryllium	ug/L		5.3	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]
Dissolved Bismuth	ug/L			2	<2	<2	<2	<2	<2	<2
Dissolved Boron	ug/L	5000	1200	5	<5[<B]	8[<B]	<5[<B]	13[<B]	6[<B]	<5[<B]
Dissolved Cadmium	ug/L	5	0.01	0.017	<0.017[<A]	<0.017[<A]	<0.017[<A]	<0.017[<A]	0.038[B-A]	<0.017[<A]
Dissolved Chromium	ug/L	50	-	1	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]
Dissolved Cobalt	ug/L		10	1	<1[<B]	<1[<B]	<1[<B]	<1[<B]	3[<B]	<1[<B]
Dissolved Copper	ug/L	1000 AO	2	1	<1[<B]	<1[<B]	13[>B]	14[>B]	22[>B]	<1[<B]
Dissolved Iron	ug/L	300 AO	300	50	193[<B]	<50[<B]	<50[<B]	<50[<B]	120[<B]	<50[<B]
Dissolved Lead	ug/L	5	1	0.5	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]	<0.5[<B]
Dissolved Manganese	ug/L	50 AO	820	2	409[<B]	187[<B]	29[<B]	70[<B]	83[<B]	7[<B]
Dissolved Molybdenum	ug/L		73	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]
Dissolved Nickel	ug/L		25	2	<2[<B]	<2[<B]	3[<B]	<2[<B]	13[<B]	<2[<B]
Dissolved Phosphorus	mg/L			0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Dissolved Selenium	ug/L	50	1.0	1	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]
Dissolved Silver	ug/L		0.1	0.1	<0.1[<B]	0.4[>B]	0.5[>B]	<0.1[<B]	<0.1[<B]	<0.1[<B]
Dissolved Strontium	ug/L		21000	5	38[<B]	85[<B]	11[<B]	192[<B]	20[<B]	28[<B]
Dissolved Thallium	ug/L		0.8	0.1	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]
Dissolved Tin	ug/L		-	2	<2	<2	<2	<2	<2	<2
Dissolved Titanium	ug/L			2	<2	<2	<2	<2	3	<2
Dissolved Uranium	ug/L	20	300	0.1	0.2[<A]	0.3[<A]	<0.1[<A]	2.9[<A]	0.1[<A]	<0.1[<A]
Dissolved Vanadium	ug/L		6	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]
Dissolved Zinc	ug/L	5000 AO	30	5	<5[<B]	<5[<B]	10[<B]	5[<B]	13[<B]	<5[<B]

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals (FWAL)

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Canadian Drinking Water Quality - updated 2019-03, B Refers to EQS Surface water - Fresh, TPH (Fuel, Lube) - 2016
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9985275 Metals analysis completed on a filtered sample.

9985282 Metals analysis completed on a filtered sample.

The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.

9985283-9985284 Metals analysis completed on a filtered sample.

9985285 Metals analysis completed on a filtered sample.

Ion Balance is biased high, contributing parameters have been confirmed.

9985286-9985289 Metals analysis completed on a filtered sample.

9985290-9985291 Metals analysis completed on a filtered sample.

The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.

9985292-9985294 Metals analysis completed on a filtered sample.

9985295 Metals analysis completed on a filtered sample.

Ion Balance is biased high, contributing parameters have been confirmed.

9985296-9985298 Metals analysis completed on a filtered sample.

9985299 Metals analysis completed on a filtered sample.

The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.

9985300-9985357 Metals analysis completed on a filtered sample.

9985361 Metals analysis completed on a filtered sample.

The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.

9985377-9985379 Metals analysis completed on a filtered sample.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

TSS												
DATE RECEIVED: 2019-03-22					DATE REPORTED: 2019-04-11							
		SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A FMS-HG18-05B										
		SAMPLE TYPE: Water Water Water Water Water Water Water Water Water										
		DATE SAMPLED: 2019-03-21 2019-03-21 2019-03-21 2019-03-21 2019-03-21 2019-03-21 2019-03-21 2019-03-21 2019-03-21										
Parameter	Unit	G / S	RDL	9985275	9985282	9985283	9985284	9985285	9985286	9985287	9985288	
Total Suspended Solids	mg/L			5	<5	<5	6	<5	<5	9	19	201
		SAMPLE DESCRIPTION: FMS-HG18-06A FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A FMS-HG18-09B FMS-HG18-10A FMS-HG18-10B FMS-HG18-11A										
		SAMPLE TYPE: Water Water Water Water Water Water Water Water Water										
		DATE SAMPLED: 2019-03-21 2019-03-21 2019-03-21 2019-03-22 2019-03-22 2019-03-22 2019-03-22 2019-03-21 2019-03-21										
Parameter	Unit	G / S	RDL	9985289	9985290	9985291	9985292	9985293	9985294	9985295	9985296	
Total Suspended Solids	mg/L			5	10	26	137	<5	57	17	42	<5
		SAMPLE DESCRIPTION: FMS-HG18-11B FMS-HG18-13A FMS-HG18-13B FMS-HG18-14A FMS-HG18-14B FMS-HG18-15B FMS-HG18-16A FMS-HG18-16B										
		SAMPLE TYPE: Water Water Water Water Water Water Water Water Water										
		DATE SAMPLED: 2019-03-21 2019-03-22 2019-03-22 2019-03-22 2019-03-22 2019-03-21 2019-03-21 2019-03-21										
Parameter	Unit	G / S	RDL	9985297	9985298	9985299	9985300	9985301	9985339	9985357	9985361	
Total Suspended Solids	mg/L			5	17	<5	14	28	<5	192	7	26
		SAMPLE DESCRIPTION: DUP-A DUP-B DUP-C										
		SAMPLE TYPE: Water Water Water										
		DATE SAMPLED: 2019-03-21 2019-03-21 2019-03-22										
Parameter	Unit	G / S	RDL	9985377	9985378	9985379						
Total Suspended Solids	mg/L			5	7	161	18					

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard
 Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Water Analysis - Cyanide Water (Free)

DATE RECEIVED: 2019-03-22

DATE REPORTED: 2019-04-11

SAMPLE DESCRIPTION: FMS-HG18-15B FMS-HG18-16B

SAMPLE TYPE: Water Water

DATE SAMPLED: 2019-03-21 2019-03-21

Parameter	Unit	G / S	RDL	9985339	9985361
Free Cyanide	mg/L	0.2	0.002	<0.002	<0.002

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Canadian Drinking Water Quality - updated 2019-03
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Certified By:



Guideline Violation

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9985275	FMS-HG18-02A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Arsenic	ug/L	10	11
9985275	FMS-HG18-02A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	50 AO	70
9985275	FMS-HG18-02A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	3.6
9985275	FMS-HG18-02A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Arsenic	ug/L	5.0	11
9985275	FMS-HG18-02A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Copper	ug/L	2	14
9985282	FMS-HG18-02B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	1.6
9985282	FMS-HG18-02B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	pH		7.0-10.5 OG	6.02
9985282	FMS-HG18-02B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	5	89
9985282	FMS-HG18-02B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Cadmium	ug/L	0.01	0.018
9985282	FMS-HG18-02B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Copper	ug/L	2	3
9985283	FMS-HG18-03A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Arsenic	ug/L	10	16
9985283	FMS-HG18-03A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	50 AO	144
9985283	FMS-HG18-03A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	6.1
9985283	FMS-HG18-03A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Arsenic	ug/L	5.0	16
9985284	FMS-HG18-03B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	50 AO	143
9985284	FMS-HG18-03B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	1.5
9985284	FMS-HG18-03B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	pH		7.0-10.5 OG	6.87
9985284	FMS-HG18-03B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Cadmium	ug/L	0.01	0.019
9985284	FMS-HG18-03B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Copper	ug/L	2	3
9985284	FMS-HG18-03B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Silver	ug/L	0.1	0.2
9985285	FMS-HG18-04A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Arsenic	ug/L	10	31
9985285	FMS-HG18-04A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	50 AO	293
9985285	FMS-HG18-04A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	2.4
9985285	FMS-HG18-04A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Arsenic	ug/L	5.0	31
9985286	FMS-HG18-04B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Iron	ug/L	300 AO	574
9985286	FMS-HG18-04B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	50 AO	897
9985286	FMS-HG18-04B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	36.5
9985286	FMS-HG18-04B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	pH		7.0-10.5 OG	6.76
9985286	FMS-HG18-04B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Cadmium	ug/L	0.01	0.020
9985286	FMS-HG18-04B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Iron	ug/L	300	574
9985286	FMS-HG18-04B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	820	897
9985286	FMS-HG18-04B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Zinc	ug/L	30	1680
9985287	FMS-HG18-05A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Arsenic	ug/L	10	13
9985287	FMS-HG18-05A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	4.8
9985287	FMS-HG18-05A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	pH		7.0-10.5 OG	6.43
9985287	FMS-HG18-05A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Arsenic	ug/L	5.0	13
9985288	FMS-HG18-05B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	100 OG AO	480
9985288	FMS-HG18-05B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	50 AO	90
9985288	FMS-HG18-05B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	99.6
9985288	FMS-HG18-05B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	pH		7.0-10.5 OG	6.69
9985288	FMS-HG18-05B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	5	480
9985288	FMS-HG18-05B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Cadmium	ug/L	0.01	0.033
9985288	FMS-HG18-05B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Copper	ug/L	2	23



Guideline Violation

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

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

CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9985289	FMS-HG18-06A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Arsenic	ug/L	10	47
9985289	FMS-HG18-06A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Iron	ug/L	300 AO	1990
9985289	FMS-HG18-06A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	50 AO	713
9985289	FMS-HG18-06A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	35.7
9985289	FMS-HG18-06A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	pH		7.0-10.5 OG	6.88
9985289	FMS-HG18-06A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	5	8
9985289	FMS-HG18-06A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Arsenic	ug/L	5.0	47
9985289	FMS-HG18-06A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Iron	ug/L	300	1990
9985290	FMS-HG18-08A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	18.6
9985291	FMS-HG18-08B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	32.7
9985291	FMS-HG18-08B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	pH		7.0-10.5 OG	6.63
9985291	FMS-HG18-08B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	5	87
9985292	FMS-HG18-09A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	50 AO	423
9985292	FMS-HG18-09A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	3.0
9985293	FMS-HG18-09B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Iron	ug/L	300 AO	738
9985293	FMS-HG18-09B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	50 AO	438
9985293	FMS-HG18-09B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	35.9
9985293	FMS-HG18-09B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	pH		7.0-10.5 OG	6.50
9985293	FMS-HG18-09B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Cadmium	ug/L	0.01	0.032
9985293	FMS-HG18-09B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Copper	ug/L	2	12
9985293	FMS-HG18-09B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Iron	ug/L	300	738
9985294	FMS-HG18-10A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	50 AO	123
9985294	FMS-HG18-10A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	8.5
9985294	FMS-HG18-10A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	5	9
9985295	FMS-HG18-10B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	16.9
9985295	FMS-HG18-10B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	5	66
9985295	FMS-HG18-10B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Cadmium	ug/L	0.01	0.020
9985296	FMS-HG18-11A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	50 AO	2570
9985296	FMS-HG18-11A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	1.5
9985296	FMS-HG18-11A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	pH		7.0-10.5 OG	6.88
9985296	FMS-HG18-11A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Cadmium	ug/L	0.01	0.077
9985296	FMS-HG18-11A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	820	2570
9985297	FMS-HG18-11B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	100 OG AO	208
9985297	FMS-HG18-11B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Iron	ug/L	300 AO	1050
9985297	FMS-HG18-11B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	50 AO	23200
9985297	FMS-HG18-11B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	19.5
9985297	FMS-HG18-11B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	pH		7.0-10.5 OG	6.42
9985297	FMS-HG18-11B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	5	208
9985297	FMS-HG18-11B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Cobalt	ug/L	10	25
9985297	FMS-HG18-11B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Copper	ug/L	2	4
9985297	FMS-HG18-11B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Iron	ug/L	300	1050
9985297	FMS-HG18-11B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	820	23200
9985298	FMS-HG18-13A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	2.3



Guideline Violation

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

11 Morris Drive, Unit 122
 Dartmouth, Nova Scotia
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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Glen Merkley

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9985298	FMS-HG18-13A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	pH		7.0-10.5 OG	6.73
9985298	FMS-HG18-13A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	5	53
9985299	FMS-HG18-13B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	100 OG AO	103
9985299	FMS-HG18-13B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	50 AO	148
9985299	FMS-HG18-13B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	2.9
9985299	FMS-HG18-13B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	pH		7.0-10.5 OG	6.02
9985299	FMS-HG18-13B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	5	103
9985299	FMS-HG18-13B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Cadmium	ug/L	0.01	0.020
9985299	FMS-HG18-13B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Copper	ug/L	2	3
9985299	FMS-HG18-13B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Silver	ug/L	0.1	0.3
9985300	FMS-HG18-14A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	12.3
9985300	FMS-HG18-14A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Cadmium	ug/L	0.01	0.027
9985301	FMS-HG18-14B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	100 OG AO	113
9985301	FMS-HG18-14B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	pH		7.0-10.5 OG	6.36
9985301	FMS-HG18-14B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	5	113
9985301	FMS-HG18-14B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Cadmium	ug/L	0.01	0.045
9985339	FMS-HG18-15B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	50 AO	409
9985339	FMS-HG18-15B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	103
9985339	FMS-HG18-15B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	5	10
9985357	FMS-HG18-16A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	50 AO	187
9985357	FMS-HG18-16A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	5.0
9985357	FMS-HG18-16A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Silver	ug/L	0.1	0.4
9985361	FMS-HG18-16B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	100 OG AO	178
9985361	FMS-HG18-16B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	11.9
9985361	FMS-HG18-16B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	pH		7.0-10.5 OG	5.98
9985361	FMS-HG18-16B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	5	178
9985361	FMS-HG18-16B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Copper	ug/L	2	13
9985361	FMS-HG18-16B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Silver	ug/L	0.1	0.5
9985377	DUP-A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Arsenic	ug/L	10	11
9985377	DUP-A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	50 AO	70
9985377	DUP-A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	3.9
9985377	DUP-A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Arsenic	ug/L	5.0	11
9985377	DUP-A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Copper	ug/L	2	14
9985378	DUP-B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	100 OG AO	398
9985378	DUP-B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Manganese	ug/L	50 AO	83
9985378	DUP-B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	78.7
9985378	DUP-B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	5	398
9985378	DUP-B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Cadmium	ug/L	0.01	0.038
9985378	DUP-B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Copper	ug/L	2	22
9985379	DUP-C	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	Turbidity	NTU	0.1-1	2.5
9985379	DUP-C	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals (FWAL)	pH		7.0-10.5 OG	6.86
9985379	DUP-C	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals (FWAL)	Dissolved Aluminum	ug/L	5	72

Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis																
RPT Date: Apr 11, 2019			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	

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

Benzene	1	9989188	< 0.001	< 0.001	NA	< 0.001	81%	70%	130%	99%	70%	130%			
Toluene	1	9989188	< 0.001	< 0.001	NA	< 0.001	83%	70%	130%	105%	70%	130%			
Ethylbenzene	1	9989188	< 0.001	< 0.001	NA	< 0.001	85%	70%	130%	108%	70%	130%			
Xylene (Total)	1	9989188	< 0.002	< 0.002	NA	< 0.002	86%	70%	130%	106%	70%	130%			
C6-C10 (less BTEX)	1	9989188	< 0.01	< 0.01	NA	< 0.01	99%	70%	130%	121%	70%	130%	117%	70%	130%
>C10-C16 Hydrocarbons	1	BS Dup	1.15	1.12	2.6%	< 0.05	89%	70%	130%	90%	70%	130%	91%	70%	130%
>C16-C21 Hydrocarbons	1	BS Dup	4.36	4.32	0.9%	< 0.10	90%	70%	130%	90%	70%	130%	91%	70%	130%
>C21-C32 Hydrocarbons	1	BS Dup	2.33	2.33	0.0%	< 0.1	88%	70%	130%	90%	70%	130%	91%	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution. VPH matrix spike performed on different sample than duplicate.

If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

>C10-C16 Hydrocarbons	1	BS Dup	1.17	1.11	5.3%	< 0.05	95%	70%	130%	88%	70%	130%	90%	70%	130%
>C16-C21 Hydrocarbons	1	BS Dup	4.00	3.96	1.0%	< 0.10	94%	70%	130%	88%	70%	130%	90%	70%	130%
>C21-C32 Hydrocarbons	1	BS Dup	2.05	2.03	1.0%	< 0.1	100%	70%	130%	88%	70%	130%	90%	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.

If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

Benzene	1	9989833	< 0.001	< 0.001	NA	< 0.001	78%	70%	130%	84%	70%	130%			
Toluene	1	9989833	< 0.001	< 0.001	NA	< 0.001	80%	70%	130%	87%	70%	130%			
Ethylbenzene	1	9989833	< 0.001	< 0.001	NA	< 0.001	79%	70%	130%	89%	70%	130%			
Xylene (Total)	1	9989833	0.004	0.003	NA	< 0.002	81%	70%	130%	91%	70%	130%			
C6-C10 (less BTEX)	1	9989833	0.02	0.01	NA	< 0.01	88%	70%	130%	106%	70%	130%	120%	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution. VPH matrix spike performed on different sample than duplicate.

If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

>C10-C16 Hydrocarbons	1	BS Dup	1.47	1.44	2.1%	< 0.05	112%	70%	130%	108%	70%	130%	115%	70%	130%
>C16-C21 Hydrocarbons	1	BS Dup	5.45	5.54	1.6%	< 0.10	113%	70%	130%	108%	70%	130%	115%	70%	130%
>C21-C32 Hydrocarbons	1	BS Dup	3.03	2.94	3.0%	< 0.1	118%	70%	130%	108%	70%	130%	115%	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.

If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Certified By: 

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. RPDs calculated using raw data. The RPD may not be reflective of duplicate values shown, due to rounding of final results.

Results relate only to the items tested. Results apply to samples as received.

Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES
 PROJECT: 1895674
 SAMPLING SITE:

AGAT WORK ORDER: 19X449221
 ATTENTION TO: Glen Merklej
 SAMPLED BY:

Water Analysis															
RPT Date: Apr 11, 2019			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

Mercury Analysis in Water (Total)

Total Mercury	1	5379	< 0.026	< 0.026	NA	< 0.026	102%	80%	120%	94%	80%	120%	114%	80%	120%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

COD, DOC, TP

Chemical Oxygen Demand	9981836		<3	<3	NA	< 3	97%	80%	120%	NA			95%	80%	120%
Total Phosphorous as P	1	9982577	<0.03	<0.03	NA	< 0.03	94%	80%	120%		120%	120%	97%	80%	120%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Standard Water Analysis + Dissolved Metals (FWAL)

pH	9985275	9985275	7.95	7.96	0.1%	<	102%	80%	120%	NA	80%	120%	NA	80%	120%
Reactive Silica as SiO2	1	9978474	2.9	2.9	0.0%	< 0.5	96%	80%	120%		80%	120%	87%	80%	120%
Chloride	9984653		24	24	0.0%	< 1	95%	80%	120%	NA	80%	120%	NA	80%	120%
Fluoride	9984653		1.00	0.97	3.0%	< 0.12	109%	80%	120%	NA	80%	120%	NA	80%	120%
Sulphate	9984653		6	7	NA	< 2	108%	80%	120%	NA	80%	120%	95%	80%	120%
Alkalinity	9985275	9985275	76	76	0.0%	< 5	103%	80%	120%	NA	80%	120%	NA	80%	120%
True Color	9989158		17	16	NA	< 5	90%	80%	120%	NA			NA		
Turbidity	9985299	9985299	2.9	2.4	18.9%	< 0.1	100%	80%	120%	NA			NA		
Electrical Conductivity	9985275	9985275	181	181	0.0%	< 1	100%	80%	120%	NA	80%	120%	NA	80%	120%
Nitrate as N	9984653		0.23	0.22	NA	< 0.05	97%	80%	120%	NA	80%	120%	100%	80%	120%
Nitrite as N	9984653		<0.05	<0.05	NA	< 0.05	105%	80%	120%	NA	80%	120%	114%	80%	120%
Ammonia as N	1	9985275	0.07	0.02	NA	< 0.03	100%	80%	120%		80%	120%	88%	80%	120%
Total Organic Carbon	1		1.1	1.1	NA	< 0.5	85%	80%	120%	NA	80%	120%	92%	80%	120%
Ortho-Phosphate as P	1	9984747	0.21	0.22	4.7%	< 0.01	90%	80%	120%		80%	120%	102%	80%	120%
Dissolved Sodium	9985300	9985300	10.0	10.4	3.9%	< 0.1	102%	80%	120%	117%	80%	120%	NA	70%	130%
Dissolved Potassium	9985300	9985300	1.0	0.9	10.5%	< 0.1	89%	80%	120%	96%	80%	120%	85%	70%	130%
Dissolved Calcium	9985300	9985300	11.3	12.9	13.2%	< 0.1	94%	80%	120%	100%	80%	120%	NA	70%	130%
Dissolved Magnesium	9985300	9985300	1.1	1.0	9.5%	< 0.1	98%	80%	120%	103%	80%	120%	NA	70%	130%
Bicarb. Alkalinity (as CaCO3)	9985275	9985275	76	76	0.0%	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Carb. Alkalinity (as CaCO3)	9985275	9985275	<10	<10	NA	< 10	NA	80%	120%	NA	80%	120%	NA	80%	120%
Hydroxide	9985275	9985275	<5	<5	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Dissolved Aluminum	9985300	9985300	<5	6	NA	< 5	89%	80%	120%	95%	80%	120%	80%	70%	130%
Dissolved Antimony	9985300	9985300	<2	<2	NA	< 2	102%	80%	120%	120%	80%	120%	95%	70%	130%
Dissolved Arsenic	9985300	9985300	4	3	NA	< 2	92%	80%	120%	97%	80%	120%	91%	70%	130%
Dissolved Barium	9985300	9985300	14	13	NA	< 5	93%	80%	120%	102%	80%	120%	88%	70%	130%
Dissolved Beryllium	9985300	9985300	<2	<2	NA	< 2	93%	80%	120%	101%	80%	120%	101%	70%	130%
Dissolved Bismuth	9985300	9985300	<2	<2	NA	< 2	90%	80%	120%	104%	80%	120%	75%	70%	130%
Dissolved Boron	9985300	9985300	<5	5	NA	< 5	96%	80%	120%	102%	80%	120%	95%	70%	130%
Dissolved Cadmium	9985300	9985300	0.027	0.027	NA	< 0.09	91%	80%	120%	99%	80%	120%	97%	70%	130%
Dissolved Chromium	9985300	9985300	2	2	NA	< 1	99%	80%	120%	106%	80%	120%	119%	70%	130%

Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

Water Analysis (Continued)

RPT Date: Apr 11, 2019			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	
Dissolved Cobalt	9985300	9985300	<1	<1	NA	< 1	93%	80%	120%	102%	80%	120%	113%	70%	130%	
Dissolved Copper	9985300	9985300	<1	<1	NA	< 2	100%	80%	120%	108%	80%	120%	110%	70%	130%	
Dissolved Iron	9985300	9985300	<50	<50	NA	< 50	94%	80%	120%	101%	80%	120%	103%	70%	130%	
Dissolved Lead	9985300	9985300	<0.5	<0.5	NA	< 0.5	97%	80%	120%	102%	80%	120%	96%	70%	130%	
Dissolved Manganese	9985300	9985300	19	18	5.4%	< 2	95%	80%	120%	101%	80%	120%	NA	70%	130%	
Dissolved Molybdenum	9985300	9985300	<2	<2	NA	< 2	92%	80%	120%	99%	80%	120%	119%	70%	130%	
Dissolved Nickel	9985300	9985300	<2	5	NA	< 2	93%	80%	120%	101%	80%	120%	98%	70%	130%	
Dissolved Selenium	9985300	9985300	<1	<1	NA	< 1	95%	80%	120%	104%	80%	120%	95%	70%	130%	
Dissolved Silver	9985300	9985300	<0.1	<0.1	NA	< 0.1	86%	80%	120%	91%	80%	120%	86%	70%	130%	
Dissolved Strontium	9985300	9985300	74	72	2.7%	< 5	96%	80%	120%	100%	80%	120%	NA	70%	130%	
Dissolved Thallium	9985300	9985300	<0.1	<0.1	NA	< 0.1	94%	80%	120%	101%	80%	120%	96%	70%	130%	
Dissolved Tin	9985300	9985300	<2	<2	NA	< 2	95%	80%	120%	101%	80%	120%	120%	70%	130%	
Dissolved Titanium	9985300	9985300	<2	<2	NA	< 2	90%	80%	120%	100%	80%	120%	108%	70%	130%	
Dissolved Uranium	9985300	9985300	0.3	0.3	NA	< 0.1	91%	80%	120%	98%	80%	120%	96%	70%	130%	
Dissolved Vanadium	9985300	9985300	<2	<2	NA	< 2	93%	80%	120%	99%	80%	120%	112%	70%	130%	
Dissolved Zinc	9985300	9985300	<5	<5	NA	< 5	96%	80%	120%	100%	80%	120%	111%	70%	130%	

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Standard Water Analysis + Dissolved Metals (FWAL)

pH	9985291	9985291	6.63	6.33	4.6%	<	102%	80%	120%	NA	80%	120%	NA	80%	120%
Chloride	9989057		258	258	0.0%	< 1	88%	80%	120%	NA	80%	120%	NA	80%	120%
Fluoride	9989057		<0.12	<0.12	NA	< 0.12	93%	80%	120%	NA	80%	120%	106%	80%	120%
Sulphate	9989057		18	18	0.3%	< 2	109%	80%	120%	NA	80%	120%	NA	80%	120%
Alkalinity	9985291	9985291	5	<5	NA	< 5	103%	80%	120%	NA	80%	120%	NA	80%	120%
Electrical Conductivity	9985291	9985291	15	14	6.2%	< 1	101%	80%	120%	NA	80%	120%	NA	80%	120%
Nitrate as N	9989057		<0.05	<0.05	NA	< 0.05	99%	80%	120%	NA	80%	120%	92%	80%	120%
Nitrite as N	9989057		0.82	0.84	2.6%	< 0.05	105%	80%	120%	NA	80%	120%	NA	80%	120%
Total Organic Carbon	9985287	9985287	<0.5	0.6	NA	< 0.5	85%	80%	120%	NA	80%	120%	92%	80%	120%
Bicarb. Alkalinity (as CaCO3)	9985291	9985291	5	<5	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Carb. Alkalinity (as CaCO3)	9985291	9985291	<10	<10	NA	< 10	NA	80%	120%	NA	80%	120%	NA	80%	120%
Hydroxide	9985291	9985291	<5	<5	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Standard Water Analysis + Dissolved Metals (FWAL)

Total Organic Carbon	9985297	9985297	2.3	2.2	NA	< 0.5	93%	80%	120%	NA	80%	120%	86%	80%	120%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Standard Water Analysis + Dissolved Metals (FWAL)

Total Organic Carbon	9985379	9985379	0.6	0.5	NA	< 0.5	101%	80%	120%	NA	80%	120%	81%	80%	120%
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Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES
 PROJECT: 1895674
 SAMPLING SITE:

AGAT WORK ORDER: 19X449221
 ATTENTION TO: Glen Merkley
 SAMPLED BY:

Water Analysis (Continued)

RPT Date: Apr 11, 2019			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

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

TSS

Total Suspended Solids	9985069		11	11	NA	< 5	100%	80%	120%	NA			112%	80%	120%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Dissolved TP (Water)

Total Phosphorus, Dissolved	9985275	9985275	<0.02	<0.02	NA	< 0.02	97%	90%	110%	106%	90%	110%	92%	80%	120%
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Dissolved TP (Water)

Total Phosphorus, Dissolved	9985301	9985301	<0.02	<0.02	NA	< 0.02	94%	90%	110%	98%	90%	110%	98%	80%	120%
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Water Analysis - Cyanide Water (Free)

Free Cyanide	9985339	9985339	<0.002	<0.002	NA	< 0.002	85%	80%	120%	105%	80%	120%	105%	80%	120%
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Comments: If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.

Certified By: _____

Cobrien

Method Summary

CLIENT NAME: GOLDER ASSOCIATES

AGAT WORK ORDER: 19X449221

PROJECT: 1895674

ATTENTION TO: Glen Merkley

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Miscellaneous Analysis			
Subcontracted Data			
Trace Organics Analysis			
Benzene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Toluene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Ethylbenzene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Xylene (Total)	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
C6-C10 (less BTEX)	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
>C10-C16 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
>C16-C21 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
>C21-C32 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Modified TPH (Tier 1)	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	CALCULATION
Resemblance Comment	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS/FID
Return to Baseline at C32	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Isobutylbenzene - EPH	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Isobutylbenzene - VPH	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
n-Dotriacontane - EPH	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID

Method Summary

 CLIENT NAME: GOLDER ASSOCIATES
 PROJECT: 1895674
 SAMPLING SITE:

 AGAT WORK ORDER: 19X449221
 ATTENTION TO: Glen Merkley
 SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Chemical Oxygen Demand	INORG-121-6013	SM 5220 B	SPECTROPHOTOMETER
Dissolved Organic Carbon	INOR-121-6026	SM 5310 B	TOC ANALYZER
Total Phosphorous as P	INORG-121-6009	SM 365.2	COLORIMETER
Total Cyanide	INORG-121-		COLORIMETER
Total Phosphorus, Dissolved	INOR-93-6022	SM 4500-P B&E	SPECTROPHOTOMETER
Dissolved Mercury	MET-121-6100 & MET-121-6107	SM 3112 B	CV/AA
Total Mercury	MET-121-6100 & MET-121-6107	SM 3112 B	CV/AA
pH	INOR-121-6001	SM 4500 H+B	PC TITRATE
Reactive Silica as SiO ₂	INOR-121-6027	SM 4110 B	COLORIMETER
Chloride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Fluoride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Alkalinity	INOR-121-6001	SM 2320 B	
True Color	INOR-121-6014	SM 2120 C	NEPHELOMETER
Turbidity	INOR-121-6022	SM 2130 B	NEPHELOMETER
Electrical Conductivity	INOR-121-6001	SM 2510 B	PC TITRATE
Nitrate + Nitrite as N	INORG-121-6005	SM 4110 B	CALCULATION
Nitrate as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-121-6047	SM 4500-NH ₃ G	COLORIMETER
Total Organic Carbon	INOR-121-6026	SM 5310 B	TOC ANALYZER
Ortho-Phosphate as P	INOR-121-6012	SM 4110 B	COLORIMETER
Dissolved Sodium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Potassium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Calcium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Magnesium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Bicarb. Alkalinity (as CaCO ₃)	INORG-121-6001	SM 2320 B	PC TITRATE
Carb. Alkalinity (as CaCO ₃)	INORG-121-6001	SM 2320 B	PC TITRATE
Hydroxide	INORG-121-6001	SM 2320 B	PC-TITRATE
Calculated TDS	CALCULATION	SM 1030E	CALCULATION
Hardness	CALCULATION	SM 2340B	CALCULATION
Langelier Index (@20C)	CALCULATION	CALCULATION	CALCULATION
Langelier Index (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 20C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Anion Sum	CALCULATION	SM 1030E	CALCULATION
Cation sum	CALCULATION	SM 1030E	CALCULATION
% Difference/ Ion Balance	CALCULATION	SM 1030E	CALCULATION
Dissolved Aluminum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Antimony	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Arsenic	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS

Method Summary

 CLIENT NAME: GOLDER ASSOCIATES
 PROJECT: 1895674
 SAMPLING SITE:

 AGAT WORK ORDER: 19X449221
 ATTENTION TO: Glen Merkley
 SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Dissolved Barium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Beryllium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Bismuth	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Boron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Cadmium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Chromium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Cobalt	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Copper	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Iron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Lead	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Manganese	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Molybdenum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Nickel	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Phosphorus	MET-121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Selenium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Silver	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Strontium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Thallium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Tin	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Titanium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Uranium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Vanadium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Zinc	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Suspended Solids	INOR-121-6024, 6025	SM 2540C, D	GRAVIMETRIC
Free Cyanide	INST 0310	EPA 335.3	CONTINUOUS FLOW ANALYZER



AGAT Laboratories

Unit 122 • 11 Morris Drive
Dartmouth, NS
B3B 1M2

webearth.agatlabs.com • www.agatlabs.com

Laboratory Use Only

Arrival Condition: Good Poor (see notes)
Arrival Temperature: 6.0, 5.8, 2.1
Hold Time: _____
AGAT Job Number: 19x449221

Notes: No TSS bottles received.

Chain of Custody Record

P: 902.468.8718 • F: 902.468.8924

Report Information

Company: Golder Associates
Contact: Glen Merkley
Address: 201 Brownlow Avenue, Suite 26
Dartmouth, NS, B3B 1W2
Phone: 9024661668 Fax: 9024661669
Client Project #: 1895674
AGAT Quotation: 204505
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):

1. Name: Glen Merkley
Email: glen_merkley@golder.com
2. Name: Sheri Burton
Email: sheri_burton@golder.com

Report Format

Single Sample per page
 Multiple Sample per page
 Excel Format Included
 Export:

Turnaround Time Required (TAT)

Regular TAT 5 to 7 working days
Rush TAT Same day 1 day
 2 days 3 days

Date Required: _____

Invoice To

Same Yes / No

Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
PO/Credit Card#: _____

Regulatory Requirements (Check):

List Guidelines on Report Do not list Guidelines on Report
 PIRI
 Tier 1 Res Pot Coarse
 Tier 2 Com N/Pot Fine
 Gas Fuel Lube
 CCME CDWQ
 Industrial NSEQS-Cont Sites
 Commercial HRM 101
 Res/Park Storm Water
 Agricultural Waste Water
 FWAL Other
 Sediment NSE PSS - GW to SW <10m

Drinking Water Sample: Yes No Salt Water Sample: Yes No
Reg. No.: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments - Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals: <input type="checkbox"/> Total <input type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury <u>(Total + Diss.)</u>	<input type="checkbox"/> BOD <input type="checkbox"/> CBOD <u>DOL + LOD</u>	pH	<input checked="" type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus + Diss. <u>(Miss.)</u>	Phenols	Tier 1: TPH/BTEX (PIRI) <input type="checkbox"/> low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC <input type="checkbox"/> P/A <input type="checkbox"/> MPN <input type="checkbox"/> MF	HPC <input type="checkbox"/> Pseudomonas	Fecal Coliform <input type="checkbox"/> MPN <input type="checkbox"/> MF	Other: Total and Free Cyanide	Other: Radium-226	Hazardous (Y/N)
FMS-HG18-02A	Mar 21/19 - 10:15	GW	11 13	Field filtered for dissolved metals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
FMS-HG18-02B	Mar 21/19 - 10:45	GW	11	Field filtered for dissolved metals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
FMS-HG18-03A	Mar 21/19 - 11:30	GW	11	Field filtered for dissolved metals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
FMS-HG18-03B	Mar 21/19 - 11:45	GW	11	Field filtered for dissolved metals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
FMS-HG18-04A	Mar 21/19 - 15:10	GW	11	Field filtered for dissolved metals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
FMS-HG18-04B	Mar 21/19 - 15:25	GW	11	Field filtered for dissolved metals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
FMS-HG18-05A	Mar 21/19 - 14:15	GW	11	Field filtered for dissolved metals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
FMS-HG18-05B	Mar 21/19 - 14:30	GW	11	Field filtered for dissolved metals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
FMS-HG18-06A	Mar 21/19 - 16:30	GW	11	Field filtered for dissolved metals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
FMS-HG18-08A	Mar 21/19 - 13:30	GW	11	Field filtered for dissolved metals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
FMS-HG18-08B	Mar 21/19 - 13:45	GW	11	Field filtered for dissolved metals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
FMS-HG18-09A	Mar 22/19 - 10:15	GW	11	Field filtered for dissolved metals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Samples Relinquished By (Print Name): <u>Cody Mackenzie</u>	Date/Time: <u>21/19 12:22</u> <u>3:25 PM</u>	Samples Received By (Print Name): <u>C. Deamel</u>	Date/Time: <u>Mar 22/19</u>	Pink Copy - Client	Page <u>1</u> of <u>3</u>
Samples Relinquished By (Sign): <u>Cody Mackenzie</u>	Date/Time: <u>21/19 05/22</u> <u>3:25 PM</u>	Samples Received By (Sign): <u>[Signature]</u>	Date/Time: <u>15:40</u>	Yellow Copy - AGAT	N°:
				White Copy - AGAT	

Note: Copper RDL = 1.0 mg/L Mercury RDL = 0.016 mg/L



AGAT Laboratories

Unit 122 • 11 Morris Drive
Dartmouth, NS
B3B 1M2

webearth.agatlabs.com • www.agatlabs.com

P: 902.468.8718 • F: 902.468.8924

Laboratory Use Only

Arrival Condition: Good Poor (see notes)

Arrival Temperature: _____

Hold Time: _____

AGAT Job Number: 19x449221

Notes: _____

Chain of Custody Record

Report Information

Company: Golder Associates

Contact: Glen Merkley

Address: 201 Brownlow Avenue, Suite 26

Dartmouth, NS, B3B 1W2

Phone: 9024661668 Fax: 9024661669

Client Project #: 1895674

AGAT Quotation: 204505

Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):

1. Name: Glen Merkley

Email: glen_merkley@golder.com

2. Name: Sheri Burton

Email: sheri_burton@golder.com

Report Format

Single Sample per page

Multiple Sample per page

Excel Format Included

Export:

Regulatory Requirements (Check):

List Guidelines on Report Do not list Guidelines on Report

PIRI

Tier 1 Res Pot Coarse

Tier 2 Com N/Pot Fine

Gas Fuel Lube

CCME CDWQ

Industrial NSEQS-Cont Sites

Commercial

Res/Park

Agricultural

FWAL

Sediment

HRM 101

Storm Water

Waste Water

Other

NSE PSS - GW to SW <10m

Drinking Water Sample: Yes No **Salt Water Sample:** Yes No

Reg. No.: _____

Invoice To

Same Yes / No

Company: _____

Contact: _____

Address: _____

Phone: _____ Fax: _____

PO/Credit Card#: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments - Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals: <input type="checkbox"/> Total <input type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury (Total + Diss.)	<input type="checkbox"/> BOD <input type="checkbox"/> CBOD <input type="checkbox"/> DOC + LOD	pH	<input checked="" type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus + Diss. (Miss.)	Phenols	Tier 1: TPH/BTEX (PIRI) <input type="checkbox"/> low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC <input type="checkbox"/> P/A <input type="checkbox"/> MPN <input type="checkbox"/> MF	HPC <input type="checkbox"/> Pseudomonas	Fecal Coliform <input type="checkbox"/> MPN <input type="checkbox"/> MF	Other: Total and Free Cyanide	Other: Radium-226	Hazardous (Y/N)	
FMS-HG18-09B	Mar 22/19 - 10:30	GW	11 13	Field filtered for dissolved metals																									
FMS-HG18-10A	Mar 22/19 - 9:50	GW	11	Field filtered for dissolved metals																									
FMS-HG18-10B	Mar 22/19 - 10:00	GW	11	Field filtered for dissolved metals																									
FMS-HG18-11A	Mar 21/19 - 12:40	GW	1	Field filtered for dissolved metals																									
FMS-HG18-11B	Mar 21/19 - 13:00	GW	1	Field filtered for dissolved metals																									
FMS-HG18-13A	Mar 22/19 - 9:00	GW	11	Field filtered for dissolved metals																									
FMS-HG18-13B	Mar 22/19 - 9:20	GW	11	Field filtered for dissolved metals																									
FMS-HG18-14A	Mar 22/19 - 11:15	GW	11	Field filtered for dissolved metals																									
FMS-HG18-14B	Mar 22/19 - 11:30	GW	11 ✓	Field filtered for dissolved metals																									
FMS-HG18-15B	Mar 21/19 - 16:00	GW	13 15	Field filtered for dissolved metals																									
FMS-HG18-16A	Mar 21/19 - 9:30	GW	11 13	Field filtered for dissolved metals																									
FMS-HG18-16B	Mar 21/19 - 9:15	GW	11 15	Field filtered for dissolved metals																									

Samples Relinquished By (Print Name): <i>Cody Markley</i>	Date/Time: <i>Mar 22/19</i>	Samples Received By (Print Name): <i>C. Deamel</i>	Date/Time: <i>Mar 22/19</i>	Pink Copy - Client	Page <u>2</u> of <u>3</u>
Samples Relinquished By (Sign): <i>Cody Markley</i>	Date/Time: <i>15:40</i>	Samples Received By (Sign): <i>C. Deamel</i>	Date/Time: <i>15:40</i>	Yellow Copy - AGAT	N°:
				White Copy - AGAT	

Document ID: 019-153-1601.002

Note: Copper RDL = 1.0 mg/L Mercury RDL = 0.0016 mg/L

Date revised: January 2016



AGAT Laboratories

Unit 122 • 11 Morris Drive
Dartmouth, NS
B3B 1M2

webearth.agatlabs.com • www.agatlabs.com

P: 902.468.8718 • F: 902.468.8924

Laboratory Use Only

Arrival Condition: Good Poor (see notes)

Arrival Temperature: _____

Hold Time: _____

AGAT Job Number: 19x449221

Notes: _____

Chain of Custody Record

Report Information

Company: Golder Associates

Contact: Glen Merkley

Address: 201 Brownlow Avenue, Suite 26
Dartmouth, NS, B3B 1W2

Phone: 9024661668 Fax: 9024661669

Client Project #: 1895674

AGAT Quotation: 204505

Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):

1. Name: Glen Merkley

Email: glen_merkley@golder.com

2. Name: Sheri Burton

Email: sheri_burton@golder.com

Regulatory Requirements (Check):

List Guidelines on Report Do not list Guidelines on Report

PIRI

Tier 1 Res Pot Coarse

Tier 2 Com N/Pot Fine

Gas Fuel Lube

CCME CDWQ

Industrial NSEQS-Cont Sites

Commercial HRM 101

Res/Park Storm Water

Agricultural Waste Water

FWAL Other _____

Sediment NSE PSS - GW to SW <10m

Report Format

Single Sample per page

Multiple Sample per page

Excel Format Included

Export:

Turnaround Time Required (TAT)

Regular TAT 5 to 7 working days

Rush TAT Same day 1 day

2 days 3 days

Date Required: _____

Drinking Water Sample: Yes No Salt Water Sample: Yes No

Reg. No.: _____

Invoice To

Same Yes / No

Company: _____

Contact: _____

Address: _____

Phone: _____ Fax: _____

PO/Credit Card#: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments - Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals: <input type="checkbox"/> Total <input type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury (Total + Diss.)	<input type="checkbox"/> BOD <input type="checkbox"/> CBOD <u>DOL + COP</u>	pH	<input type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus + Diss. (Miss.)	Phenols	Tier 1: TPH/BTEX (PRI) <input type="checkbox"/> low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC <input type="checkbox"/> P/A <input type="checkbox"/> MPN <input type="checkbox"/> MF	<input type="checkbox"/> HPC <input type="checkbox"/> Pseudomonas	Fecal Coliform <input type="checkbox"/> MPN <input type="checkbox"/> MF	Other: Total and Free Cyanide	Other: Radium-226	Hazardous (Y/N)
DUP-A	Mar 21/19 - 10:15	GW	13	Field filtered for dissolved metals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DUP-B	Mar 21/19 - 14:30	GW	13	Field filtered for dissolved metals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DUP-C	Mar 22/19 - 9:00	GW	13	Field filtered for dissolved metals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Samples Relinquished By (Print Name): <i>Cory Markley</i>	Date/Time: _____	Samples Received By (Print Name): <i>C. Deamel</i>	Date/Time: <u>Mar 22/19</u>	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT	Page <u>3</u> of <u>3</u> N ^o : _____
Samples Relinquished By (Sign): <i>Cory Markley</i>	Date/Time: _____	Samples Received By (Sign): <i>C. Deamel</i>	Date/Time: <u>15:40</u>		

Document ID: DIV-135-1501.002

Note: Copper RDL = 1.0 mg/L Mercury RDL = 0.0016 mg/L

Date revised: January 2016

SRC Group # 2019-3388

Apr 05, 2019

AGAT Laboratories
122-11 Morris Drive
Dartmouth, NS B3B 1M2
Attn: Janetta Fraser

Date Samples Received: Mar-26-2019

Client P.O.: 136118

All results have been reviewed and approved by a Qualified Person in accordance with the Saskatchewan Environmental Code, Corrective Action Plan Chapter, for the purposes of certifying a laboratory analysis

Results from Lab Sections 1 and 2 have been authorized by Keith Gipman, Supervisor
Results from Lab Section 3 and 7 have been authorized by Pat Moser, Supervisor
Results from Lab Sections 4 and 5 have been authorized by Vicky Snook, Supervisor
Results from Lab Section 6 have been authorized by Marion McConnell, Supervisor

-
- * Test methods and data are validated by the laboratory's Quality Assurance Program.
 - * Routine methods follow recognized procedures from sources such as
 - * Standard Methods for the Examination of Water and Wastewater APHA AWWA WEF
 - * Environment Canada
 - * US EPA
 - * CANMET
 - * The results reported relate only to the test samples as provided by the client.
 - * Samples will be kept for 30 days after the final report is sent. Please contact the lab if you have any special requirements.
 - * Additional information is available upon request.

This is a final report.

SRC Group # 2019-3388

Apr 05, 2019

AGAT Laboratories
 122-11 Morris Drive
 Dartmouth, NS B3B 1M2
 Attn: Janetta Fraser

Date Samples Received: Mar-26-2019

Client P.O.: 136118

14426	03/21/2019	19X449221-9985275-FMS-HG18-02A	*WATER*
14427	03/21/2019	19X449221-9985282-FMS-HG18-02B	*WATER*
14428	03/21/2019	19X449221-9985283-FMS-HG18-03A	*WATER*

Analyte	Units	14426	14427	14428
Lab Section 4 (Radiochemistry)				
Radium-226	Bq/L	<0.005	<0.005	<0.005

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 12 °C upon receipt.

SRC Group # 2019-3388

Apr 05, 2019

AGAT Laboratories

14429	03/21/2019	19X449221-9985284-FMS-HG18-03B	*WATER*
14430	03/21/2019	19X449221-9985285-FMS-HG18-04A	*WATER*
14431	03/21/2019	19X449221-9985286-FMS-HG18-04B	*WATER*

Analyte	Units	14429	14430	14431
---------	-------	-------	-------	-------

Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	<0.005	0.008	<0.005
------------	------	--------	-------	--------

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 12 °C upon receipt.

SRC Group # 2019-3388

Apr 05, 2019

AGAT Laboratories

14432	03/21/2019	19X449221-9985287-FMS-HG18-05A	*WATER*
14433	03/21/2019	19X449221-9985288-FMS-HG18-05B	*WATER*
14434	03/21/2019	19X449221-9985289-FMS-HG18-06A	*WATER*

Analyte	Units	14432	14433	14434
---------	-------	-------	-------	-------

Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	0.005	0.006	<0.005
------------	------	-------	-------	--------

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 12 °C upon receipt.

SRC Group # 2019-3388

Apr 05, 2019

AGAT Laboratories

14435	03/21/2019	19X449221-9985290-FMS-HG18-08A	*WATER*
14436	03/21/2019	19X449221-9985291 FMS-HG18-08B	*WATER*
14437	03/22/2019	19X449221-9985292 FMS-HG18-09A	*WATER*

Analyte	Units	14435	14436	14437
---------	-------	-------	-------	-------

Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	<0.005	<0.005	0.02
------------	------	--------	--------	------

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Note for Sample # 14437

This sample was reanalyzed for Radium 226. Reanalysis confirms original results are within the expected measurement uncertainty.

The temperature of the cooler was 12 °C upon receipt.

SRC Group # 2019-3388

Apr 05, 2019

AGAT Laboratories

14438	03/22/2019	19X449221-9985293	FMS-HG18-09B	*WATER*
14439	03/22/2019	19X449221-9985294	FMS-HG18-10A	*WATER*
14440	03/22/2019	19X449221-9985295	FMS-HG18-10B	*WATER*

Analyte	Units	14438	14439	14440
---------	-------	-------	-------	-------

Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	<0.005	0.005	<0.005
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Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 12 °C upon receipt.

SRC Group # 2019-3388

Apr 05, 2019

AGAT Laboratories

14441	03/21/2019	19X449221-9985296	FMS-HG18-11A	*WATER*
14442	03/22/2019	19X449221-9985297	FMS-HG18-11B	*WATER*
14443	03/22/2019	19X449221-9985298	FMS-HG18-13A	*WATER*

Analyte	Units	14441	14442	14443
---------	-------	-------	-------	-------

Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	<0.005	<0.005	0.005
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Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 12 °C upon receipt.

SRC Group # 2019-3388

Apr 05, 2019

AGAT Laboratories

14444 03/22/2019 19X449221-9985299 FMS-HG18-13B *WATER*
 14445 03/22/2019 19X449221-9985300 FMS-HG18-14A *WATER*
 14446 03/22/2019 19X449221-9985301-FMS-HG18-14B *WATER*

Analyte	Units	14444	14445	14446
---------	-------	-------	-------	-------

Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	<0.005	0.006	<0.005
------------	------	--------	-------	--------

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 12 °C upon receipt.

SRC Group # 2019-3388

Apr 05, 2019

AGAT Laboratories

14447	03/21/2019	19X449221-9985339-FMS-HG18-15B	*WATER*
14448	03/21/2019	19X449221-9985357-FMS-HG18-16A	*WATER*
14449	03/21/2019	19X449221-9985361-FMS-HG18-16B	*WATER*

Analyte	Units	14447	14448	14449
---------	-------	-------	-------	-------

Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	<0.005	0.01	0.007
------------	------	--------	------	-------

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 12 °C upon receipt.

SRC Group # 2019-3388

Apr 05, 2019

AGAT Laboratories

14450	03/21/2019	19X449221-9985377-DUP-A	*WATER*
14451	03/21/2019	19X449221-9985378-DUP-B	*WATER*
14452	03/22/2019	19X449221-9985379-DUP-C	*WATER*

Analyte	Units	14450	14451	14452
---------	-------	-------	-------	-------

Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	<0.005	<0.005	<0.005
------------	------	--------	--------	--------

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 12 °C upon receipt.



CLIENT NAME: GOLDER ASSOCIATES
201 Brownlow Avenue, Suite 26
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(902) 466-1668

ATTENTION TO: Sheri Burton

PROJECT: 1895674

AGAT WORK ORDER: 19X477047

MISCELLANEOUS ANALYSIS REVIEWED BY: Courtney O'Brien, Data Reporter, B.Eng., EIT

TRACE ORGANICS REVIEWED BY: Amy Hunter, Trace Organics Supervisor, B.Sc.

WATER ANALYSIS REVIEWED BY: Courtney O'Brien, Data Reporter, B.Eng., EIT

DATE REPORTED: Jun 27, 2019

PAGES (INCLUDING COVER): 42

VERSION*: 2

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

*NOTES

VERSION 2: Version 2.0 supersedes version 1.0; updated Strontium guideline

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



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Subcontracted Data Received

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Parameter	Unit	G / S	RDL	255833	255872	255873	255874	255875	255876	255877	255878
Subcontracted Data				Y	Y	Y	Y	Y	Y	Y	Y
Subcontracted Data				Y	Y	Y	Y	Y	Y	Y	Y
Subcontracted Data				Y	Y	Y	Y	Y	Y	Y	Y
Subcontracted Data				Y	Y	Y	Y	Y	Y	Y	Y

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

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A																			
		G / S: A		G / S: B		RDL		255833		255872		255873		255874		255875		255876		255877	
		DATE SAMPLED: 2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05	
Benzene	mg/L	0.005		2.1		0.001		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]	
Toluene	mg/L	0.06, 0.024		0.77		0.001		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]	
Ethylbenzene	mg/L	0.14, 0.0016		0.32		0.001		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]	
Xylene (Total)	mg/L	0.09, 0.02		0.33		0.002		<0.002[<B]		<0.002[<B]		<0.002[<B]		<0.002[<B]		<0.002[<B]		<0.002[<B]		<0.002[<B]	
C6-C10 (less BTEX)	mg/L					0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01	
>C10-C16 Hydrocarbons	mg/L					0.05		<0.05		<0.05		<0.05		<0.05		<0.05		<0.05		<0.05	
>C16-C21 Hydrocarbons	mg/L					0.10		<0.10		<0.10		<0.10		<0.10		<0.10		<0.10		<0.10	
>C21-C32 Hydrocarbons	mg/L					0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1	
Modified TPH (Tier 1)	mg/L			1.5		0.1		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]	
Resemblance Comment						NR		NR		NR		NR		NR		NR		NR		NR	
Return to Baseline at C32						Y		Y		Y		Y		Y		Y		Y		Y	
Surrogate	Unit	Acceptable Limits																			
Isobutylbenzene - EPH	%			70-130		94		95		101		99		111		110		103			
Isobutylbenzene - VPH	%			70-130		81		83		86		71		85		89		89			
n-Dotriacontane - EPH	%			70-130		95		96		99		99		110		107		106			

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-05B FMS-HG18-06A FMS-HG18-07A FMS-HG18-07B FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A																			
		G / S: A		G / S: B		RDL		255878		255879		255880		255881		255882		255883		255884	
		0.005		2.1		0.001		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]	
Benzene	mg/L	0.005		2.1		0.001		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]	
Toluene	mg/L	0.06, 0.024		0.77		0.001		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]	
Ethylbenzene	mg/L	0.14, 0.0016		0.32		0.001		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]	
Xylene (Total)	mg/L	0.09, 0.02		0.33		0.002		<0.002[<B]		<0.002[<B]		<0.002[<B]		<0.002[<B]		<0.002[<B]		<0.002[<B]		<0.002[<B]	
C6-C10 (less BTEX)	mg/L					0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01	
>C10-C16 Hydrocarbons	mg/L					0.05		<0.05		<0.05		<0.05		<0.05		<0.05		<0.05		<0.05	
>C16-C21 Hydrocarbons	mg/L					0.10		<0.10		<0.10		<0.10		<0.10		<0.10		<0.10		<0.10	
>C21-C32 Hydrocarbons	mg/L					0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1	
Modified TPH (Tier 1)	mg/L			1.5		0.1		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]	
Resemblance Comment						NR		NR		NR		NR		NR		NR		NR		NR	
Return to Baseline at C32						Y		Y		Y		Y		Y		Y		Y		Y	
Surrogate	Unit			Acceptable Limits																	
Isobutylbenzene - EPH	%			70-130		98		112		103		97		113		105		113		113	
Isobutylbenzene - VPH	%			70-130		86		86		88		87		83		88		85		85	
n-Dotriacontane - EPH	%			70-130		100		115		106		101		112		109		113		113	

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-09B FMS-HG18-10A FMS-HG18-10B FMS-HG18-11A FMS-HG18-11B FMS-HG18-13A FMS-HG18-13B																			
		G / S: A		G / S: B		RDL		255885		255886		255887		255888		255889		255890		255891	
		0.005		2.1		0.001		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]	
Benzene	mg/L	0.005		2.1		0.001		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]	
Toluene	mg/L	0.06, 0.024		0.77		0.001		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]	
Ethylbenzene	mg/L	0.14, 0.0016		0.32		0.001		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]	
Xylene (Total)	mg/L	0.09, 0.02		0.33		0.002		<0.002[<B]		<0.002[<B]		<0.002[<B]		<0.002[<B]		<0.002[<B]		<0.002[<B]		<0.002[<B]	
C6-C10 (less BTEX)	mg/L					0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01	
>C10-C16 Hydrocarbons	mg/L					0.05		<0.05		<0.05		<0.05		<0.05		<0.05		<0.05		<0.05	
>C16-C21 Hydrocarbons	mg/L					0.10		<0.10		<0.10		<0.10		<0.10		<0.10		<0.10		<0.10	
>C21-C32 Hydrocarbons	mg/L					0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1	
Modified TPH (Tier 1)	mg/L			1.5		0.1		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]	
Resemblance Comment						NR		NR		NR		NR		NR		NR		NR		NR	
Return to Baseline at C32						Y		Y		Y		Y		Y		Y		Y		Y	
Surrogate	Unit			Acceptable Limits																	
Isobutylbenzene - EPH	%			70-130		98		104		110		115		94		101		108			
Isobutylbenzene - VPH	%			70-130		85		85		85		83		85		81		80			
n-Dotriacontane - EPH	%			70-130		103		106		110		116		100		104		109			

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-14A FMS-HG18-14B FMS-HG18-15A FMS-HG18-15B FMS-HG18-16A FMS-HG18-16B DUP-A																			
		G / S: A		G / S: B		RDL		255892		255893		255894		255895		255896		255897		255898	
		0.005		2.1		0.001		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]	
Benzene	mg/L	0.005		2.1		0.001		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]		<0.001[<A]	
Toluene	mg/L	0.06, 0.024		0.77		0.001		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]	
Ethylbenzene	mg/L	0.14, 0.0016		0.32		0.001		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]		<0.001[<B]	
Xylene (Total)	mg/L	0.09, 0.02		0.33		0.002		<0.002[<B]		<0.002[<B]		<0.002[<B]		<0.002[<B]		<0.002[<B]		<0.002[<B]		<0.002[<B]	
C6-C10 (less BTEX)	mg/L					0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01	
>C10-C16 Hydrocarbons	mg/L					0.05		<0.05		<0.05		<0.05		<0.05		<0.05		<0.05		<0.05	
>C16-C21 Hydrocarbons	mg/L					0.10		<0.10		<0.10		<0.10		<0.10		<0.10		<0.10		<0.10	
>C21-C32 Hydrocarbons	mg/L					0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1	
Modified TPH (Tier 1)	mg/L			1.5		0.1		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]		<0.1[<B]	
Resemblance Comment						NR		NR		NR		NR		NR		NR		NR		NR	
Return to Baseline at C32						Y		Y		Y		Y		Y		Y		Y		Y	
Surrogate	Unit			Acceptable Limits																	
Isobutylbenzene - EPH	%			70-130		107		109		91		108		107		96		95		95	
Isobutylbenzene - VPH	%			70-130		85		85		86		85		83		82		73		73	
n-Dotriacontane - EPH	%			70-130		111		107		88		111		109		96		94		94	

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Parameter	Unit	SAMPLE DESCRIPTION:			DUP-B	DUP-C
		G / S: A	G / S: B	RDL	255899	255900
					255899	255900
Benzene	mg/L	0.005	2.1	0.001	<0.001[<A]	<0.001[<A]
Toluene	mg/L	0.06, 0.024	0.77	0.001	<0.001[<B]	<0.001[<B]
Ethylbenzene	mg/L	0.14, 0.0016	0.32	0.001	<0.001[<B]	<0.001[<B]
Xylene (Total)	mg/L	0.09, 0.02	0.33	0.002	<0.002[<B]	<0.002[<B]
C6-C10 (less BTEX)	mg/L			0.01	<0.01	<0.01
>C10-C16 Hydrocarbons	mg/L			0.05	<0.05	<0.05
>C16-C21 Hydrocarbons	mg/L			0.10	<0.10	<0.10
>C21-C32 Hydrocarbons	mg/L			0.1	<0.1	<0.1
Modified TPH (Tier 1)	mg/L		1.5	0.1	<0.1[<B]	<0.1[<B]
Resemblance Comment					NR	NR
Return to Baseline at C32					Y	Y
Surrogate	Unit	Acceptable Limits				
Isobutylbenzene - EPH	%		70-130		98	108
Isobutylbenzene - VPH	%		70-130		74	88
n-Dotriacontane - EPH	%		70-130		97	112

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Canadian Drinking Water Quality - updated 2019-05, B Refers to EQS Surface water - Fresh, TPH (Fuel, Lube) - 2016
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

255833-255900

Resemblance Comment Key:
GF - Gasoline Fraction
WGF - Weathered Gasoline Fraction
GR - Product in Gasoline Range
FOF - Fuel Oil Fraction
WFOF - Weathered Fuel Oil Fraction
FR - Product in Fuel Oil Range
LOF - Lube Oil Fraction
LR - Lube Range
UC - Unidentified Compounds
NR - No Resemblance
NA - Not Applicable

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Cyanide (Water)

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-07B FMS-HG18-15B FMS-HG18-16B				
		SAMPLE TYPE: Water		Water		Water
		DATE SAMPLED: 2019-06-05		2019-06-05		2019-06-05
		G / S	RDL	255881	255895	255897
Free Cyanide	µg/L		2	<2	<2	<2
Total Cyanide	mg/L	0.005	0.002	<0.002	<0.002	<0.002

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to EQS Surface water - Fresh, TPH (Fuel, Lube) - 2016
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Dissolved Total Phosphorus (Water)

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

		SAMPLE DESCRIPTION:		FMS-HG18-02A	FMS-HG18-02B	FMS-HG18-03A	FMS-HG18-03B	FMS-HG18-04A	FMS-HG18-04B	FMS-HG18-05A	FMS-HG18-05B
Parameter		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
Unit		DATE SAMPLED:		2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05
		G / S	RDL	255833	255872	255873	255874	255875	255876	255877	255878
Total Phosphorus, Dissolved	mg/L		0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
		SAMPLE DESCRIPTION:		FMS-HG18-06A	FMS-HG18-07A	FMS-HG18-07B	FMS-HG18-08A	FMS-HG18-08B	FMS-HG18-09A	FMS-HG18-09B	FMS-HG18-10A
Parameter		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
Unit		DATE SAMPLED:		2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05
		G / S	RDL	255879	255880	255881	255882	255883	255884	255885	255886
Total Phosphorus, Dissolved	mg/L		0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
		SAMPLE DESCRIPTION:		FMS-HG18-10B	FMS-HG18-11A	FMS-HG18-11B	FMS-HG18-13A	FMS-HG18-13B	FMS-HG18-14A	FMS-HG18-14B	FMS-HG18-15A
Parameter		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
Unit		DATE SAMPLED:		2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05
		G / S	RDL	255887	255888	255889	255890	255891	255892	255893	255894
Total Phosphorus, Dissolved	mg/L		0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
		SAMPLE DESCRIPTION:		FMS-HG18-15B	FMS-HG18-16A	FMS-HG18-16B	DUP-A	DUP-B	DUP-C		
Parameter		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water		
Unit		DATE SAMPLED:		2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05		
		G / S	RDL	255895	255896	255897	255898	255899	255900		
Total Phosphorus, Dissolved	mg/L		0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		

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

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Mercury Analysis in Water (Dissolved)

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

		SAMPLE DESCRIPTION: FMS-HG18-02A		FMS-HG18-02B	FMS-HG18-03A	FMS-HG18-03B	FMS-HG18-04A	FMS-HG18-04B	FMS-HG18-05A				
Parameter		Unit	G / S: A	G / S: B	RDL	255833	255872	255873	255874	255875	255876	255877	
Dissolved Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	
		SAMPLE DESCRIPTION: FMS-HG18-05B		FMS-HG18-06A	FMS-HG18-07A	FMS-HG18-07B	FMS-HG18-08A	FMS-HG18-08B	FMS-HG18-09A				
Dissolved Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	
		SAMPLE DESCRIPTION: FMS-HG18-09B		FMS-HG18-10A	FMS-HG18-10B	FMS-HG18-11A	FMS-HG18-11B	FMS-HG18-13A	FMS-HG18-13B				
Dissolved Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	
		SAMPLE DESCRIPTION: FMS-HG18-14A		FMS-HG18-14B	FMS-HG18-15A	FMS-HG18-15B	FMS-HG18-16A	FMS-HG18-16B	DUP-A				
Dissolved Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	
		SAMPLE DESCRIPTION: DUP-B		DUP-C									
Dissolved Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]							

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Canadian Drinking Water Quality - updated 2019-05, B Refers to EQS Surface water - Fresh, TPH (Fuel, Lube) - 2016
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Mercury Analysis in Water (Total)

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Parameter	Unit	G / S: A	G / S: B	RDL	FMS-HG18-02A	FMS-HG18-02B	FMS-HG18-03A	FMS-HG18-03B	FMS-HG18-04A	FMS-HG18-04B	FMS-HG18-05A
SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A											
SAMPLE TYPE: Water Water Water Water Water Water Water											
DATE SAMPLED: 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05											
Total Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]
SAMPLE DESCRIPTION: FMS-HG18-05B FMS-HG18-06A FMS-HG18-07A FMS-HG18-07B FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A											
SAMPLE TYPE: Water Water Water Water Water Water Water											
DATE SAMPLED: 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05											
Total Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]
SAMPLE DESCRIPTION: FMS-HG18-09B FMS-HG18-10A FMS-HG18-10B FMS-HG18-11A FMS-HG18-11B FMS-HG18-13A FMS-HG18-13B											
SAMPLE TYPE: Water Water Water Water Water Water Water											
DATE SAMPLED: 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05											
Total Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]
SAMPLE DESCRIPTION: FMS-HG18-14A FMS-HG18-14B FMS-HG18-15A FMS-HG18-15B FMS-HG18-16A FMS-HG18-16B DUP-A											
SAMPLE TYPE: Water Water Water Water Water Water Water											
DATE SAMPLED: 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05											
Total Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]	<0.016[<B]
SAMPLE DESCRIPTION: DUP-B DUP-C											
SAMPLE TYPE: Water Water											
DATE SAMPLED: 2019-06-05 2019-06-05											
Total Mercury	ug/L	1	0.026	0.016	<0.016[<B]	<0.016[<B]					

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Canadian Drinking Water Quality - updated 2019-05, B Refers to EQS Surface water - Fresh, TPH (Fuel, Lube) - 2016
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A																			
		G / S: A		G / S: B		RDL		255833		255872		255873		255874		255875		255876		255877	
		7.0-10.5 OG																			
pH																					
Reactive Silica as SiO2	mg/L																				
Chloride	mg/L	250 AO		1		3		3		4		2		2		3		3		3	
Fluoride	mg/L	1.5		0.12		<0.12[<B]		<0.12[<B]		<0.12[<B]		<0.12[<B]		<0.12[<B]		<0.12[<B]		<0.12[<B]		<0.12[<B]	
Sulphate	mg/L	500 AO		2		12		2		21		<2		6		3		2		2	
Alkalinity	mg/L			5		69		<5		35		<5		142		11		10		10	
True Color	TCU	15 AO		5		<5		<5		<5		<5		<5		8		<5		<5	
Turbidity	NTU	0.1-1		0.1		3.2		9.4		9.0		9.6		3.1		10.9		1.9		1.9	
Electrical Conductivity	umho/cm			1		177		47		145		28		283		46		52		52	
Nitrate + Nitrite as N	mg/L			0.05		0.08		1.08		0.11		0.32		<0.05		<0.05		0.41		0.41	
Nitrate as N	mg/L	10		0.05		0.08[<B]		1.08[<B]		0.11[<B]		0.32[<B]		<0.05[<B]		<0.05[<B]		0.41[<B]		0.41[<B]	
Nitrite as N	mg/L	1.0		0.05		<0.05[<B]		<0.05[<B]		<0.05[<B]		<0.05[<B]		<0.05[<B]		<0.05[<B]		<0.05[<B]		<0.05[<B]	
Ammonia as N	mg/L			0.03		0.04		0.04		<0.03		0.03		0.07		<0.03		0.04		0.04	
Ortho-Phosphate as P	mg/L			0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01	
Dissolved Sodium	mg/L	200 AO		0.1		6.7		2.6		9.2		1.9		29.8		4.4		2.5		2.5	
Dissolved Potassium	mg/L			0.1		1.9		0.4		1.0		0.6		2.1		0.6		2.5		2.5	
Dissolved Calcium	mg/L			0.1		25.5		0.8		9.5		2.0		16.0		1.8		3.6		3.6	
Dissolved Magnesium	mg/L			0.1		2.5		0.5		0.8		0.4		3.6		0.7		0.8		0.8	
Bicarb. Alkalinity (as CaCO3)	mg/L			5		69		<5		35		<5		142		11		10		10	
Carb. Alkalinity (as CaCO3)	mg/L			10		<10		<10		<10		<10		<10		<10		<10		<10	
Hydroxide	mg/L			5		<5		<5		<5		<5		<5		<5		<5		<5	
Calculated TDS	mg/L	500 AO		1		93		14		67		8		145		21		22		22	
Hardness	mg/L			74.0		4.1		27.0		6.6		54.8		7.4		12.3		12.3		12.3	
Langelier Index (@20C)	NA			-0.38		-5.72		-1.45		-3.93		-0.15		-3.52		-3.25		-3.25		-3.25	
Langelier Index (@ 4C)	NA			-0.70		-6.04		-1.77		-4.25		-0.47		-3.84		-3.57		-3.57		-3.57	
Saturation pH (@ 20C)	NA			8.34		10.9		9.05		10.5		8.25		10.2		9.97		9.97		9.97	
Saturation pH (@ 4C)	NA			8.66		11.2		9.37		10.8		8.57		10.5		10.3		10.3		10.3	
Anion Sum	me/L			1.72		0.20		1.26		0.08		3.02		0.37		0.36		0.36		0.36	
Cation sum	me/L			1.82		0.22		0.98		0.23		2.46		0.38		0.42		0.42		0.42	
% Difference/ Ion Balance	%			3.0		4.7		12.5		49.5		10.3		2.0		8.5		8.5		8.5	

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A																			
		G / S: A		G / S: B		RDL		255833		255872		255873		255874		255875		255876		255877	
		SAMPLE TYPE: Water Water Water Water Water Water Water																			
		DATE SAMPLED: 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05																			
Dissolved Aluminum	ug/L	5	100 OG AO	5	<5[<A]	77[>A]	14[>A]	<5[<A]	6[>A]	<5[<A]	5[A]										
Dissolved Antimony	ug/L	20	6	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]										
Dissolved Arsenic	ug/L	5.0	10	2	12[>B]	<2[<A]	8[A-B]	<2[<A]	33[>B]	<2[<A]	12[>B]										
Dissolved Barium	ug/L	1000	1000	5	10[<A]	10[<A]	7[<A]	5[<A]	7[<A]	10[<A]	9[<A]										
Dissolved Beryllium	ug/L	5.3		2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]										
Dissolved Bismuth	ug/L			2	<2	<2	<2	<2	<2	<2	<2										
Dissolved Boron	ug/L	1200	5000	5	12[<A]	<5[<A]	<5[<A]	<5[<A]	16[<A]	<5[<A]	<5[<A]										
Dissolved Cadmium	ug/L	0.01	5	0.017	<0.017[<B]	<0.017[<B]	<0.017[<B]	<0.017[<B]	<0.017[<B]	0.043[A-B]	<0.017[<B]										
Dissolved Chromium	ug/L	-	50	1	<1[<B]	<1[<B]	<1[<B]	<1[<B]	2[<B]	<1[<B]	<1[<B]										
Dissolved Cobalt	ug/L	10		1	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	8[<A]	<1[<A]										
Dissolved Copper	ug/L	2	1000 AO	1	15[>A]	8[>A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]										
Dissolved Iron	ug/L	300	300 AO	50	<50[<A]	<50[<A]	<50[<A]	<50[<A]	<50[<A]	69[<A]	<50[<A]										
Dissolved Lead	ug/L	1	5	0.5	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]										
Dissolved Manganese	ug/L	820	20 AO	2	47[<A]	32[<A]	316[<A]	42[<A]	242[<A]	463[<A]	3[<A]										
Dissolved Molybdenum	ug/L	73		2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	7[<A]	<2[<A]	<2[<A]										
Dissolved Nickel	ug/L	25		2	<2[<A]	<2[<A]	<2[<A]	3[<A]	<2[<A]	15[<A]	<2[<A]										
Dissolved Phosphorus	mg/L			0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02										
Dissolved Selenium	ug/L	1.0	50	1	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]										
Dissolved Silver	ug/L	0.1		0.1	<0.1[<A]	<0.1[<A]	<0.1[<A]	0.4[>A]	<0.1[<A]	<0.1[<A]	<0.1[<A]										
Dissolved Strontium	ug/L	21000	7000	5	189[<B]	8[<B]	52[<B]	10[<B]	112[<B]	9[<B]	20[<B]										
Dissolved Thallium	ug/L	0.8		0.1	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]										
Dissolved Tin	ug/L	-		2	<2	<2	<2	<2	<2	<2	<2										
Dissolved Titanium	ug/L			2	<2	<2	<2	<2	<2	<2	<2										
Dissolved Uranium	ug/L	300	20	0.1	2.6[<B]	<0.1[<B]	0.6[<B]	<0.1[<B]	7.8[<B]	<0.1[<B]	<0.1[<B]										
Dissolved Vanadium	ug/L	6		2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]										
Dissolved Zinc	ug/L	30	5000 AO	5	<5[<A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]	268[>A]	<5[<A]										

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-05B FMS-HG18-06A FMS-HG18-07A FMS-HG18-07B FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A																			
		G / S: A		G / S: B		RDL		255878		255879		255880		255881		255882		255883		255884	
		7.0-10.5 OG																			
pH																					
Reactive Silica as SiO2	mg/L																				
Chloride	mg/L																				
Fluoride	mg/L																				
Sulphate	mg/L																				
Alkalinity	mg/L																				
True Color	TCU																				
Turbidity	NTU																				
Electrical Conductivity	umho/cm																				
Nitrate + Nitrite as N	mg/L																				
Nitrate as N	mg/L																				
Nitrite as N	mg/L																				
Ammonia as N	mg/L																				
Ortho-Phosphate as P	mg/L																				
Dissolved Sodium	mg/L																				
Dissolved Potassium	mg/L																				
Dissolved Calcium	mg/L																				
Dissolved Magnesium	mg/L																				
Bicarb. Alkalinity (as CaCO3)	mg/L																				
Carb. Alkalinity (as CaCO3)	mg/L																				
Hydroxide	mg/L																				
Calculated TDS	mg/L																				
Hardness	mg/L																				
Langelier Index (@20C)	NA																				
Langelier Index (@ 4C)	NA																				
Saturation pH (@ 20C)	NA																				
Saturation pH (@ 4C)	NA																				
Anion Sum	me/L																				
Cation sum	me/L																				
% Difference/ Ion Balance	%																				

Certified By:

Cobrien



Certificate of Analysis

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PROJECT: 1895674

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SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-05B FMS-HG18-06A FMS-HG18-07A FMS-HG18-07B FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A																			
		G / S: A		G / S: B		RDL		255878		255879		255880		255881		255882		255883		255884	
		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05	
Dissolved Aluminum	ug/L	5	100 OG AO	5	14[>A]	8[>A]	<5[<A]	608[>A]	<5[<A]	117[>A]	<5[<A]										
Dissolved Antimony	ug/L	20	6	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	
Dissolved Arsenic	ug/L	5.0	10	2	5[A]	<2[<A]	13[>B]	20[>B]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	
Dissolved Barium	ug/L	1000	1000	5	7[<A]	21[<A]	14[<A]	12[<A]	<5[<A]	6[<A]	13[<A]										
Dissolved Beryllium	ug/L	5.3		2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	
Dissolved Bismuth	ug/L			2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Dissolved Boron	ug/L	1200	5000	5	<5[<A]	<5[<A]	9[<A]	6[<A]	<5[<A]	<5[<A]	6[<A]										
Dissolved Cadmium	ug/L	0.01	5	0.017	0.034[A-B]	0.064[A-B]	<0.017[<B]	<0.017[<B]	<0.017[<B]	0.026[A-B]	<0.017[<B]										
Dissolved Chromium	ug/L	-	50	1	<1[<B]	<1[<B]	1[<B]	2[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	
Dissolved Cobalt	ug/L	10		1	2[<A]	6[<A]	<1[<A]	2[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	
Dissolved Copper	ug/L	2	1000 AO	1	5[>A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	
Dissolved Iron	ug/L	300	300 AO	50	<50[<A]	<50[<A]	105[<A]	7230[>A]	<50[<A]	<50[<A]	<50[<A]	<50[<A]	<50[<A]	<50[<A]	<50[<A]	<50[<A]	<50[<A]	<50[<A]	<50[<A]	<50[<A]	
Dissolved Lead	ug/L	1	5	0.5	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	
Dissolved Manganese	ug/L	820	20 AO	2	47[<A]	288[<A]	568[<A]	331[<A]	5[<A]	61[<A]	323[<A]										
Dissolved Molybdenum	ug/L	73		2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	
Dissolved Nickel	ug/L	25		2	10[<A]	7[<A]	<2[<A]	3[<A]	<2[<A]	2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	
Dissolved Phosphorus	mg/L			0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
Dissolved Selenium	ug/L	1.0	50	1	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	
Dissolved Silver	ug/L	0.1		0.1	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	0.2[>A]	<0.1[<A]										
Dissolved Strontium	ug/L	21000	7000	5	16[<B]	38[<B]	155[<B]	14[<B]	39[<B]	7[<B]	83[<B]										
Dissolved Thallium	ug/L	0.8		0.1	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	
Dissolved Tin	ug/L	-		2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Dissolved Titanium	ug/L			2	<2	<2	<2	7	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Dissolved Uranium	ug/L	300	20	0.1	<0.1[<B]	<0.1[<B]	1.2[<B]	0.3[<B]	0.3[<B]	<0.1[<B]	0.5[<B]										
Dissolved Vanadium	ug/L	6		2	<2[<A]	<2[<A]	<2[<A]	3[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	
Dissolved Zinc	ug/L	30	5000 AO	5	12[<A]	8[<A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]	

Certified By:

Cobrien



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-09B FMS-HG18-10A FMS-HG18-10B FMS-HG18-11A FMS-HG18-11B FMS-HG18-13A FMS-HG18-13B																			
		G / S: A		G / S: B		RDL		255885		255886		255887		255888		255889		255890		255891	
		7.0-10.5 OG																			
pH																					
Reactive Silica as SiO2	mg/L																				
Chloride	mg/L	250 AO		1		3		3		3		3		6		3		3		2	
Fluoride	mg/L	1.5		0.12		<0.12[<B]		<0.12[<B]		<0.12[<B]		<0.12[<B]		<0.12[<B]		<0.12[<B]		<0.12[<B]		<0.12[<B]	
Sulphate	mg/L	500 AO		2		<2		11		2		4		9		2		<2		<2	
Alkalinity	mg/L			5		17		71		6		43		28		10		<5		<5	
True Color	TCU	15 AO		5		<5		<5		<5		7		7		<5		<5		<5	
Turbidity	NTU	0.1-1		0.1		8.2		12.5		2.1		12.6		28.2		2.0		11.7		11.7	
Electrical Conductivity	umho/cm			1		56		179		34		115		116		42		24		24	
Nitrate + Nitrite as N	mg/L			0.05		<0.05		<0.05		0.10		0.31		0.43		0.12		0.06		0.06	
Nitrate as N	mg/L	10		0.05		<0.05[<B]		<0.05[<B]		0.10[<B]		0.31[<B]		0.43[<B]		0.12[<B]		0.06[<B]		0.06[<B]	
Nitrite as N	mg/L	1.0		0.05		<0.05[<B]		<0.05[<B]		<0.05[<B]		<0.05[<B]		<0.05[<B]		<0.05[<B]		<0.05[<B]		<0.05[<B]	
Ammonia as N	mg/L			0.03		0.03		<0.03		0.04		<0.03		<0.03		<0.03		<0.03		<0.03	
Ortho-Phosphate as P	mg/L			0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01	
Dissolved Sodium	mg/L	200 AO		0.1		4.8		6.2		2.4		4.8		3.3		3.5		2.3		2.3	
Dissolved Potassium	mg/L			0.1		1.0		1.0		0.2		0.8		0.3		0.5		0.4		0.4	
Dissolved Calcium	mg/L			0.1		4.7		23.9		2.7		10.4		3.1		3.9		1.3		1.3	
Dissolved Magnesium	mg/L			0.1		0.8		1.7		0.4		1.3		1.3		0.6		0.5		0.5	
Bicarb. Alkalinity (as CaCO3)	mg/L			5		17		71		6		43		28		10		<5		<5	
Carb. Alkalinity (as CaCO3)	mg/L			10		<10		<10		<10		<10		<10		<10		<10		<10	
Hydroxide	mg/L			5		<5		<5		<5		<5		<5		<5		<5		<5	
Calculated TDS	mg/L	500 AO		1		26		90		15		54		63		20		7		7	
Hardness	mg/L			15.0		66.7		8.4		31.3		13.1		12.2		5.3		5.3		5.3	
Langelier Index (@20C)	NA			-2.95		-0.37		-3.61		-1.87		-3.27		-2.98		-4.42		-4.42		-4.42	
Langelier Index (@ 4C)	NA			-3.27		-0.69		-3.93		-2.19		-3.59		-3.30		-4.74		-4.74		-4.74	
Saturation pH (@ 20C)	NA			9.63		8.35		10.3		8.91		9.63		9.93		10.7		10.7		10.7	
Saturation pH (@ 4C)	NA			9.95		8.67		10.6		9.23		9.95		10.2		11.0		11.0		11.0	
Anion Sum	me/L			0.42		1.73		0.25		1.05		0.95		0.33		0.06		0.06		0.06	
Cation sum	me/L			0.58		1.63		0.29		0.95		1.19		0.41		0.23		0.23		0.23	
% Difference/ Ion Balance	%			15.1		2.9		6.3		5.0		11.5		10.0		58.9		58.9		58.9	

Certified By:



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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-09B FMS-HG18-10A FMS-HG18-10B FMS-HG18-11A FMS-HG18-11B FMS-HG18-13A FMS-HG18-13B																			
		G / S: A		G / S: B		RDL		255885		255886		255887		255888		255889		255890		255891	
		SAMPLE TYPE: Water		Water		Water		Water		Water		Water		Water		Water		Water		Water	
		DATE SAMPLED: 2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05	
Dissolved Aluminum	ug/L	5	100 OG AO	5	6[>A]	9[>A]	63[>A]	<5[<A]	140[>A]	<5[<A]	152[>A]										
Dissolved Antimony	ug/L	20	6	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]										
Dissolved Arsenic	ug/L	5.0	10	2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]										
Dissolved Barium	ug/L	1000	1000	5	11[<A]	6[<A]	<5[<A]	<5[<A]	11[<A]	<5[<A]	8[<A]										
Dissolved Beryllium	ug/L	5.3		2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]										
Dissolved Bismuth	ug/L			2	<2	<2	<2	<2	<2	<2	<2										
Dissolved Boron	ug/L	1200	5000	5	<5[<A]	17[<A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]										
Dissolved Cadmium	ug/L	0.01	5	0.017	0.042[A-B]	<0.017[<B]	<0.017[<B]	0.074[A-B]	0.161[A-B]	<0.017[<B]	<0.017[<B]										
Dissolved Chromium	ug/L	-	50	1	1[<B]	<1[<B]	<1[<B]	1[<B]	4[<B]	<1[<B]	<1[<B]										
Dissolved Cobalt	ug/L	10		1	2[<A]	<1[<A]	<1[<A]	<1[<A]	28[>A]	<1[<A]	<1[<A]										
Dissolved Copper	ug/L	2	1000 AO	1	21[>A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]										
Dissolved Iron	ug/L	300	300 AO	50	676[>A]	<50[<A]	<50[<A]	<50[<A]	2450[>A]	<50[<A]	<50[<A]										
Dissolved Lead	ug/L	1	5	0.5	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]										
Dissolved Manganese	ug/L	820	20 AO	2	350[<A]	111[<A]	9[<A]	2590[>A]	18600[>A]	4[<A]	36[<A]										
Dissolved Molybdenum	ug/L	73		2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]										
Dissolved Nickel	ug/L	25		2	6[<A]	<2[<A]	<2[<A]	4[<A]	4[<A]	<2[<A]	<2[<A]										
Dissolved Phosphorus	mg/L			0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02										
Dissolved Selenium	ug/L	1.0	50	1	<1[<A]	<1[<A]	<1[<A]	<1[<A]	2[A-B]	<1[<A]	<1[<A]										
Dissolved Silver	ug/L	0.1		0.1	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]										
Dissolved Strontium	ug/L	21000	7000	5	38[<B]	94[<B]	9[<B]	58[<B]	16[<B]	28[<B]	14[<B]										
Dissolved Thallium	ug/L	0.8		0.1	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]										
Dissolved Tin	ug/L	-		2	<2	<2	<2	<2	<2	<2	<2										
Dissolved Titanium	ug/L			2	<2	<2	<2	<2	<2	<2	<2										
Dissolved Uranium	ug/L	300	20	0.1	<0.1[<B]	0.5[<B]	<0.1[<B]	0.3[<B]	<0.1[<B]	<0.1[<B]	<0.1[<B]										
Dissolved Vanadium	ug/L	6		2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]										
Dissolved Zinc	ug/L	30	5000 AO	5	9[<A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]										

Certified By:



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ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-14A FMS-HG18-14B FMS-HG18-15A FMS-HG18-15B FMS-HG18-16A FMS-HG18-16B DUP-A																			
		G / S: A		G / S: B		RDL		255892		255893		255894		255895		255896		255897		255898	
		7.0-10.5 OG																			
pH																					
Reactive Silica as SiO2	mg/L																				
Chloride	mg/L		250 AO																		
Fluoride	mg/L		1.5		0.12		<0.12[<B]		<0.12[<B]		<0.12[<B]		<0.12[<B]		<0.12[<B]		<0.12[<B]		<0.12[<B]		<0.12[<B]
Sulphate	mg/L		500 AO				2		7		3		10		7		8		2		<2
Alkalinity	mg/L						5		60		7		78		56		57		<5		17
True Color	TCU		15 AO				5		5		<5		<5		6		7		8		14
Turbidity	NTU		0.1-1				0.1		20.2		1.0		3.1		10.2		11.6		12.6		8.4
Electrical Conductivity	umho/cm						1		167		54		189		140		147		34		56
Nitrate + Nitrite as N	mg/L						0.05		0.21		0.30		<0.05		<0.05		<0.05		0.07		<0.05
Nitrate as N	mg/L		10				0.05		0.21[<B]		0.30[<B]		<0.05[<B]		<0.05[<B]		<0.05[<B]		0.07[<B]		<0.05[<B]
Nitrite as N	mg/L		1.0				0.05		<0.05[<B]		<0.05[<B]		<0.05[<B]		<0.05[<B]		<0.05[<B]		<0.05[<B]		<0.05[<B]
Ammonia as N	mg/L						0.03		<0.03		0.04		<0.03		0.04		<0.03		0.04		<0.03
Ortho-Phosphate as P	mg/L						0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01
Dissolved Sodium	mg/L		200 AO				0.1		7.5		3.6		6.8		4.3		5.4		3.2		4.2
Dissolved Potassium	mg/L						0.1		1.1		0.5		1.1		0.9		1.4		0.6		0.9
Dissolved Calcium	mg/L						0.1		23.3		3.0		24.4		16.1		15.8		1.3		4.3
Dissolved Magnesium	mg/L						0.1		1.1		0.6		1.9		1.0		1.9		0.5		0.7
Bicarb. Alkalinity (as CaCO3)	mg/L						5		60		7		78		56		57		<5		17
Carb. Alkalinity (as CaCO3)	mg/L						10		<10		<10		<10		<10		<10		<10		<10
Hydroxide	mg/L						5		<5		<5		<5		<5		<5		<5		<5
Calculated TDS	mg/L		500 AO				1		83		21		94		65		70		11		24
Hardness	mg/L								62.7		10.0		68.8		44.3		47.3		5.3		13.6
Langelier Index (@20C)	NA								-1.03		-3.90		-0.32		-0.80		-0.69		-4.24		-2.91
Langelier Index (@ 4C)	NA								-1.35		-4.22		-0.64		-1.12		-1.01		-4.56		-3.23
Saturation pH (@ 20C)	NA								8.43		10.2		8.31		8.61		8.62		10.7		9.66
Saturation pH (@ 4C)	NA								8.75		10.5		8.63		8.93		8.94		11.0		9.98
Anion Sum	me/L								1.53		0.36		1.85		1.32		1.39		0.13		0.42
Cation sum	me/L								1.61		0.39		1.70		1.11		1.22		0.29		0.52
% Difference/ Ion Balance	%								2.6		2.7		4.2		8.6		6.5		37.9		9.8

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Parameter	Unit	SAMPLE DESCRIPTION: FMS-HG18-14A FMS-HG18-14B FMS-HG18-15A FMS-HG18-15B FMS-HG18-16A FMS-HG18-16B DUP-A																			
		G / S: A		G / S: B		RDL		255892		255893		255894		255895		255896		255897		255898	
		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05		2019-06-05	
Dissolved Aluminum	ug/L	5	100 OG AO	5	6[>A]	110[>A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]	214[>A]	7[>A]									
Dissolved Antimony	ug/L	20	6	2	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]	<2[<B]									
Dissolved Arsenic	ug/L	5.0	10	2	<2[<A]	<2[<A]	8[A-B]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]									
Dissolved Barium	ug/L	1000	1000	5	7[<A]	11[<A]	<5[<A]	8[<A]	<5[<A]	12[<A]	9[<A]										
Dissolved Beryllium	ug/L	5.3		2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]										
Dissolved Bismuth	ug/L			2	<2	<2	<2	<2	<2	<2	<2										
Dissolved Boron	ug/L	1200	5000	5	<5[<A]	<5[<A]	6[<A]	<5[<A]	7[<A]	<5[<A]	<5[<A]										
Dissolved Cadmium	ug/L	0.01	5	0.017	<0.017[<B]	0.050[A-B]	<0.017[<B]	<0.017[<B]	<0.017[<B]	0.021[A-B]	0.038[A-B]										
Dissolved Chromium	ug/L	-	50	1	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]	<1[<B]										
Dissolved Cobalt	ug/L	10		1	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	1[<A]	1[<A]										
Dissolved Copper	ug/L	2	1000 AO	1	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	15[>A]	14[>A]										
Dissolved Iron	ug/L	300	300 AO	50	<50[<A]	<50[<A]	<50[<A]	<50[<A]	<50[<A]	<50[<A]	741[>A]										
Dissolved Lead	ug/L	1	5	0.5	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]										
Dissolved Manganese	ug/L	820	20 AO	2	7[<A]	38[<A]	143[<A]	328[<A]	127[<A]	74[<A]	287[<A]										
Dissolved Molybdenum	ug/L	73		2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]										
Dissolved Nickel	ug/L	25		2	<2[<A]	3[<A]	<2[<A]	3[<A]	<2[<A]	6[<A]	6[<A]										
Dissolved Phosphorus	mg/L			0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02										
Dissolved Selenium	ug/L	1.0	50	1	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]	<1[<A]										
Dissolved Silver	ug/L	0.1		0.1	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	0.4[>A]	<0.1[<A]										
Dissolved Strontium	ug/L	21000	7000	5	58[<B]	15[<B]	87[<B]	37[<B]	86[<B]	13[<B]	34[<B]										
Dissolved Thallium	ug/L	0.8		0.1	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]	<0.1[<A]										
Dissolved Tin	ug/L	-		2	<2	<2	<2	<2	<2	<2	<2										
Dissolved Titanium	ug/L			2	<2	<2	<2	<2	<2	<2	<2										
Dissolved Uranium	ug/L	300	20	0.1	0.2[<B]	<0.1[<B]	1.0[<B]	0.1[<B]	0.2[<B]	<0.1[<B]	<0.1[<B]										
Dissolved Vanadium	ug/L	6		2	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]	<2[<A]										
Dissolved Zinc	ug/L	30	5000 AO	5	<5[<A]	<5[<A]	<5[<A]	<5[<A]	<5[<A]	19[<A]	8[<A]										

Certified By:

Cobrien



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Parameter	Unit	SAMPLE DESCRIPTION:			DUP-B	DUP-C
		G / S: A	G / S: B	RDL	255899	255900
			7.0-10.5 OG		6.55	6.08
					255899	255900
					2019-06-05	2019-06-05
					Water	Water
					DATE SAMPLED:	DATE SAMPLED:
pH						
Reactive Silica as SiO2	mg/L			0.5	3.9	3.5
Chloride	mg/L		250 AO	1	3	2
Fluoride	mg/L		1.5	0.12	<0.12[<B]	<0.12[<B]
Sulphate	mg/L		500 AO	2	<2	<2
Alkalinity	mg/L			5	6	<5
True Color	TCU		15 AO	5	<5	17
Turbidity	NTU		0.1-1	0.1	7.2	11.7
Electrical Conductivity	umho/cm			1	34	25
Nitrate + Nitrite as N	mg/L			0.05	0.09	0.05
Nitrate as N	mg/L		10	0.05	0.09[<B]	0.05[<B]
Nitrite as N	mg/L		1.0	0.05	<0.05[<B]	<0.05[<B]
Ammonia as N	mg/L			0.03	0.03	<0.03
Ortho-Phosphate as P	mg/L			0.01	<0.01	<0.01
Dissolved Sodium	mg/L		200 AO	0.1	2.3	1.9
Dissolved Potassium	mg/L			0.1	0.3	0.3
Dissolved Calcium	mg/L			0.1	2.9	1.0
Dissolved Magnesium	mg/L			0.1	0.4	0.4
Bicarb. Alkalinity (as CaCO3)	mg/L			5	6	<5
Carb. Alkalinity (as CaCO3)	mg/L			10	<10	<10
Hydroxide	mg/L			5	<5	<5
Calculated TDS	mg/L		500 AO	1	13	6
Hardness	mg/L				8.9	4.1
Langelier Index (@20C)	NA				-3.71	-4.71
Langelier Index (@ 4C)	NA				-4.03	-5.03
Saturation pH (@ 20C)	NA				10.3	10.8
Saturation pH (@ 4C)	NA				10.6	11.1
Anion Sum	me/L				0.21	0.06
Cation sum	me/L				0.30	0.19
% Difference/ Ion Balance	%				16.8	51.6

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Parameter	Unit	SAMPLE DESCRIPTION:			DUP-B	DUP-C
		SAMPLE TYPE:			Water	Water
		DATE SAMPLED:			2019-06-05	2019-06-05
		G / S: A	G / S: B	RDL	255899	255900
Dissolved Aluminum	ug/L	5	100 OG AO	5	70[>A]	114[>A]
Dissolved Antimony	ug/L	20	6	2	<2[<B]	<2[<B]
Dissolved Arsenic	ug/L	5.0	10	2	<2[<A]	<2[<A]
Dissolved Barium	ug/L	1000	1000	5	<5[<A]	6[<A]
Dissolved Beryllium	ug/L	5.3		2	<2[<A]	<2[<A]
Dissolved Bismuth	ug/L			2	<2	<2
Dissolved Boron	ug/L	1200	5000	5	<5[<A]	<5[<A]
Dissolved Cadmium	ug/L	0.01	5	0.017	<0.017[<B]	<0.017[<B]
Dissolved Chromium	ug/L	-	50	1	<1[<B]	<1[<B]
Dissolved Cobalt	ug/L	10		1	<1[<A]	<1[<A]
Dissolved Copper	ug/L	2	1000 AO	1	<2[<A]	<2[<A]
Dissolved Iron	ug/L	300	300 AO	50	<50[<A]	<50[<A]
Dissolved Lead	ug/L	1	5	0.5	<0.5[<A]	<0.5[<A]
Dissolved Manganese	ug/L	820	20 AO	2	10[<A]	38[<A]
Dissolved Molybdenum	ug/L	73		2	<2[<A]	<2[<A]
Dissolved Nickel	ug/L	25		2	<2[<A]	<2[<A]
Dissolved Phosphorus	mg/L			0.02	<0.02	<0.02
Dissolved Selenium	ug/L	1.0	50	1	<1[<A]	<1[<A]
Dissolved Silver	ug/L	0.1		0.1	<0.1[<A]	0.4[>A]
Dissolved Strontium	ug/L	21000	7000	5	10[<B]	10[<B]
Dissolved Thallium	ug/L	0.8		0.1	<0.1[<A]	<0.1[<A]
Dissolved Tin	ug/L	-		2	<2	<2
Dissolved Titanium	ug/L			2	<2	<2
Dissolved Uranium	ug/L	300	20	0.1	<0.1[<B]	<0.1[<B]
Dissolved Vanadium	ug/L	6		2	<2[<A]	<2[<A]
Dissolved Zinc	ug/L	30	5000 AO	5	<5[<A]	<5[<A]

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Dissolved Metals

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to EQS Surface water - Fresh, TPH (Fuel, Lube) - 2016, B Refers to Canadian Drinking Water Quality - updated 2019-05
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

- 255833-255872 Metals analysis completed on a filtered sample.
- 255873 Metals analysis completed on a filtered sample.
Ion Balance is biased high, contributing parameters have been confirmed.
- 255874 Metals analysis completed on a filtered sample.
The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.
- 255875 Metals analysis completed on a filtered sample.
Ion Balance is biased high, contributing parameters have been confirmed.
- 255876-255880 Metals analysis completed on a filtered sample.
- 255881 Metals analysis completed on a filtered sample.
Ion Balance is biased high, contributing parameters have been confirmed.
- 255882 Metals analysis completed on a filtered sample.
- 255883 Metals analysis completed on a filtered sample.
The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.
- 255884 Metals analysis completed on a filtered sample.
- 255885 Metals analysis completed on a filtered sample.
The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.
- 255886-255888 Metals analysis completed on a filtered sample.
- 255889 Metals analysis completed on a filtered sample.
Ion Balance is biased high, contributing parameters have been confirmed.
- 255890 Metals analysis completed on a filtered sample.
- 255891 Metals analysis completed on a filtered sample.
The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.
- 255892-255896 Metals analysis completed on a filtered sample.
- 255897 Metals analysis completed on a filtered sample.
The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.
- 255898 Metals analysis completed on a filtered sample.
- 255899-255900 Metals analysis completed on a filtered sample.
The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

TSS											
DATE RECEIVED: 2019-06-07					DATE REPORTED: 2019-06-27						
		SAMPLE DESCRIPTION: FMS-HG18-02A FMS-HG18-02B FMS-HG18-03A FMS-HG18-03B FMS-HG18-04A FMS-HG18-04B FMS-HG18-05A FMS-HG18-05B									
		SAMPLE TYPE: Water Water Water Water Water Water Water Water Water Water									
		DATE SAMPLED: 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05									
Parameter	Unit	G / S	RDL	255833	255872	255873	255874	255875	255876	255877	255878
Total Suspended Solids	mg/L		5	<5	18	14	72	10	10	6	84
		SAMPLE DESCRIPTION: FMS-HG18-06A FMS-HG18-07A FMS-HG18-07B FMS-HG18-08A FMS-HG18-08B FMS-HG18-09A FMS-HG18-09B FMS-HG18-10A									
		SAMPLE TYPE: Water Water Water Water Water Water Water Water Water Water									
		DATE SAMPLED: 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05									
Parameter	Unit	G / S	RDL	255879	255880	255881	255882	255883	255884	255885	255886
Total Suspended Solids	mg/L		5	45	14	83	62	57	14	13	18
		SAMPLE DESCRIPTION: FMS-HG18-10B FMS-HG18-11A FMS-HG18-11B FMS-HG18-13A FMS-HG18-13B FMS-HG18-14A FMS-HG18-14B FMS-HG18-15A									
		SAMPLE TYPE: Water Water Water Water Water Water Water Water Water Water									
		DATE SAMPLED: 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05									
Parameter	Unit	G / S	RDL	255887	255888	255889	255890	255891	255892	255893	255894
Total Suspended Solids	mg/L		5	19	34	8	<5	34	32	<5	<5
		SAMPLE DESCRIPTION: FMS-HG18-15B FMS-HG18-16A FMS-HG18-16B DUP-A DUP-B DUP-C									
		SAMPLE TYPE: Water Water Water Water Water Water Water Water Water Water									
		DATE SAMPLED: 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05 2019-06-05									
Parameter	Unit	G / S	RDL	255895	255896	255897	255898	255899	255900		
Total Suspended Solids	mg/L		5	20	24	40	12	16	34		

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

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Total Phosphorus

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

		SAMPLE DESCRIPTION:		FMS-HG18-02A	FMS-HG18-02B	FMS-HG18-03A	FMS-HG18-03B	FMS-HG18-04A	FMS-HG18-04B	FMS-HG18-05A	FMS-HG18-05B
Parameter		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
Unit		DATE SAMPLED:		2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05
G / S		RDL		255833	255872	255873	255874	255875	255876	255877	255878
Total Phosphorous as P	mg/L	0.03	<0.03	<0.03	0.04	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
		SAMPLE DESCRIPTION:		FMS-HG18-06A	FMS-HG18-07A	FMS-HG18-07B	FMS-HG18-08A	FMS-HG18-08B	FMS-HG18-09A	FMS-HG18-09B	FMS-HG18-10A
Parameter		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
Unit		DATE SAMPLED:		2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05
G / S		RDL		255879	255880	255881	255882	255883	255884	255885	255886
Total Phosphorous as P	mg/L	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
		SAMPLE DESCRIPTION:		FMS-HG18-10B	FMS-HG18-11A	FMS-HG18-11B	FMS-HG18-13A	FMS-HG18-13B	FMS-HG18-14A	FMS-HG18-14B	FMS-HG18-15A
Parameter		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
Unit		DATE SAMPLED:		2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05
G / S		RDL		255887	255888	255889	255890	255891	255892	255893	255894
Total Phosphorous as P	mg/L	0.03	0.09	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
		SAMPLE DESCRIPTION:		FMS-HG18-15B	FMS-HG18-16A	FMS-HG18-16B	DUP-A	DUP-B	DUP-C		
Parameter		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water		
Unit		DATE SAMPLED:		2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05		
G / S		RDL		255895	255896	255897	255898	255899	255900		
Total Phosphorous as P	mg/L	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		

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

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

Various Inorganics (Water)

DATE RECEIVED: 2019-06-07

DATE REPORTED: 2019-06-27

		SAMPLE DESCRIPTION: FMS-HG18-02A		FMS-HG18-02B	FMS-HG18-03A	FMS-HG18-03B	FMS-HG18-04A	FMS-HG18-04B	FMS-HG18-05A	FMS-HG18-05B
Parameter		Unit	G / S	RDL						
SAMPLE TYPE:		Water			Water	Water	Water	Water	Water	Water
DATE SAMPLED:		2019-06-05			2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05
Chemical Oxygen Demand	mg/L	3	<3	4	7	<3	<3	4	5	4
Dissolved Organic Carbon	mg/L	0.5	1.2	1.2	1.8	0.9	0.6	0.9	1.1	1.3
		SAMPLE DESCRIPTION: FMS-HG18-06A		FMS-HG18-07A	FMS-HG18-07B	FMS-HG18-08A	FMS-HG18-08B	FMS-HG18-09A	FMS-HG18-09B	FMS-HG18-10A
Parameter		Unit	G / S	RDL						
SAMPLE TYPE:		Water			Water	Water	Water	Water	Water	Water
DATE SAMPLED:		2019-06-05			2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05
Chemical Oxygen Demand	mg/L	3	4	7	58	<3	<3	<3	<3	<3
Dissolved Organic Carbon	mg/L	0.5	1.0	2.1	18.9	1.0	1.5	0.7	0.9	0.9
		SAMPLE DESCRIPTION: FMS-HG18-10B		FMS-HG18-11A	FMS-HG18-11B	FMS-HG18-13A	FMS-HG18-13B	FMS-HG18-14A	FMS-HG18-14B	FMS-HG18-15A
Parameter		Unit	G / S	RDL						
SAMPLE TYPE:		Water			Water	Water	Water	Water	Water	Water
DATE SAMPLED:		2019-06-05			2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05
Chemical Oxygen Demand	mg/L	3	<3	3	11	6	7	5	<3	6
Dissolved Organic Carbon	mg/L	0.5	0.9	1.0	4.0	1.0	1.1	0.6	0.9	0.8
		SAMPLE DESCRIPTION: FMS-HG18-15B		FMS-HG18-16A	FMS-HG18-16B	DUP-A	DUP-B	DUP-C		
Parameter		Unit	G / S	RDL						
SAMPLE TYPE:		Water			Water	Water	Water	Water	Water	Water
DATE SAMPLED:		2019-06-05			2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05	2019-06-05
Chemical Oxygen Demand	mg/L	3	5	<3	7	5	4	4		
Dissolved Organic Carbon	mg/L	0.5	0.9	0.9	1.3	0.9	0.9	1.0		

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard
 Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Guideline Violation

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
255833	FMS-HG18-02A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	12
255833	FMS-HG18-02A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	47
255833	FMS-HG18-02A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	3.2
255833	FMS-HG18-02A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	12
255833	FMS-HG18-02A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	15
255872	FMS-HG18-02B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	32
255872	FMS-HG18-02B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	9.4
255872	FMS-HG18-02B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	5.19
255872	FMS-HG18-02B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	77
255872	FMS-HG18-02B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	8
255873	FMS-HG18-03A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	316
255873	FMS-HG18-03A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	9.0
255873	FMS-HG18-03A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	14
255873	FMS-HG18-03A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	8
255874	FMS-HG18-03B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	42
255874	FMS-HG18-03B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	9.6
255874	FMS-HG18-03B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.57
255874	FMS-HG18-03B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Silver	ug/L	0.1	0.4
255875	FMS-HG18-04A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	33
255875	FMS-HG18-04A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	242
255875	FMS-HG18-04A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	3.1
255875	FMS-HG18-04A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	6
255875	FMS-HG18-04A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	33
255876	FMS-HG18-04B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	463
255876	FMS-HG18-04B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	10.9
255876	FMS-HG18-04B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.70
255876	FMS-HG18-04B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.043
255876	FMS-HG18-04B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Zinc	ug/L	30	268
255877	FMS-HG18-05A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	12
255877	FMS-HG18-05A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	1.9
255877	FMS-HG18-05A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.72
255877	FMS-HG18-05A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	12
255878	FMS-HG18-05B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	47
255878	FMS-HG18-05B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	27.7
255878	FMS-HG18-05B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.63
255878	FMS-HG18-05B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	14
255878	FMS-HG18-05B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.034
255878	FMS-HG18-05B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	5
255879	FMS-HG18-06A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	288
255879	FMS-HG18-06A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	99.4
255879	FMS-HG18-06A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.64
255879	FMS-HG18-06A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	8
255879	FMS-HG18-06A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.064



Guideline Violation

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
255880	FMS-HG18-07A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	13
255880	FMS-HG18-07A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	568
255880	FMS-HG18-07A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	3.6
255880	FMS-HG18-07A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	13
255881	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	100 OG AO	608
255881	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	10	20
255881	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300 AO	7230
255881	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	331
255881	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	True Color	TCU	15 AO	249
255881	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	78.2
255881	FMS-HG18-07B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.60
255881	FMS-HG18-07B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	608
255881	FMS-HG18-07B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	20
255881	FMS-HG18-07B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300	7230
255882	FMS-HG18-08A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	22.2
255883	FMS-HG18-08B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	100 OG AO	117
255883	FMS-HG18-08B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	61
255883	FMS-HG18-08B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	13.3
255883	FMS-HG18-08B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.25
255883	FMS-HG18-08B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	117
255883	FMS-HG18-08B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.026
255883	FMS-HG18-08B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Silver	ug/L	0.1	0.2
255884	FMS-HG18-09A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	323
255884	FMS-HG18-09A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	8.8
255885	FMS-HG18-09B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300 AO	676
255885	FMS-HG18-09B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	350
255885	FMS-HG18-09B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	8.2
255885	FMS-HG18-09B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.68
255885	FMS-HG18-09B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	6
255885	FMS-HG18-09B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.042
255885	FMS-HG18-09B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	21
255885	FMS-HG18-09B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300	676
255886	FMS-HG18-10A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	111
255886	FMS-HG18-10A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	12.5
255886	FMS-HG18-10A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	9
255887	FMS-HG18-10B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	2.1
255887	FMS-HG18-10B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.68
255887	FMS-HG18-10B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	63
255888	FMS-HG18-11A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	2590
255888	FMS-HG18-11A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	12.6
255888	FMS-HG18-11A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.074
255888	FMS-HG18-11A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	820	2590
255889	FMS-HG18-11B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	100 OG AO	140



Guideline Violation

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
255889	FMS-HG18-11B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300 AO	2450
255889	FMS-HG18-11B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	18600
255889	FMS-HG18-11B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	28.2
255889	FMS-HG18-11B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.36
255889	FMS-HG18-11B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	140
255889	FMS-HG18-11B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.161
255889	FMS-HG18-11B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Cobalt	ug/L	10	28
255889	FMS-HG18-11B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300	2450
255889	FMS-HG18-11B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	820	18600
255889	FMS-HG18-11B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Selenium	ug/L	1.0	2
255890	FMS-HG18-13A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	2.0
255890	FMS-HG18-13A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.95
255891	FMS-HG18-13B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	100 OG AO	152
255891	FMS-HG18-13B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	36
255891	FMS-HG18-13B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	11.7
255891	FMS-HG18-13B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.26
255891	FMS-HG18-13B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	152
255891	FMS-HG18-13B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Silver	ug/L	0.1	0.5
255892	FMS-HG18-14A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	20.2
255892	FMS-HG18-14A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	6
255893	FMS-HG18-14B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	100 OG AO	110
255893	FMS-HG18-14B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	38
255893	FMS-HG18-14B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.30
255893	FMS-HG18-14B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	110
255893	FMS-HG18-14B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.050
255894	FMS-HG18-15A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	143
255894	FMS-HG18-15A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	3.1
255894	FMS-HG18-15A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Arsenic	ug/L	5.0	8
255895	FMS-HG18-15B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	328
255895	FMS-HG18-15B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	10.2
255896	FMS-HG18-16A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	127
255896	FMS-HG18-16A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	11.6
255897	FMS-HG18-16B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	100 OG AO	214
255897	FMS-HG18-16B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	74
255897	FMS-HG18-16B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	12.6
255897	FMS-HG18-16B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.45
255897	FMS-HG18-16B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	214
255897	FMS-HG18-16B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.021
255897	FMS-HG18-16B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	15
255897	FMS-HG18-16B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Silver	ug/L	0.1	0.4
255898	DUP-A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300 AO	741
255898	DUP-A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	287
255898	DUP-A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	8.4



Guideline Violation

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CLIENT NAME: GOLDER ASSOCIATES

ATTENTION TO: Sheri Burton

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
255898	DUP-A	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.75
255898	DUP-A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	7
255898	DUP-A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Cadmium	ug/L	0.01	0.038
255898	DUP-A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Copper	ug/L	2	14
255898	DUP-A	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Iron	ug/L	300	741
255899	DUP-B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	7.2
255899	DUP-B	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.55
255899	DUP-B	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	70
255900	DUP-C	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	100 OG AO	114
255900	DUP-C	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Dissolved Manganese	ug/L	20 AO	38
255900	DUP-C	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	True Color	TCU	15 AO	17
255900	DUP-C	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	Turbidity	NTU	0.1-1	11.7
255900	DUP-C	NS-CDWQ incl [AO]	Standard Water Analysis + Dissolved Metals	pH		7.0-10.5 OG	6.08
255900	DUP-C	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Aluminum	ug/L	5	114
255900	DUP-C	NS-ContSiteSW_FW_G	Standard Water Analysis + Dissolved Metals	Dissolved Silver	ug/L	0.1	0.4

Quality Assurance

 CLIENT NAME: GOLDER ASSOCIATES
 PROJECT: 1895674
 SAMPLING SITE:

 AGAT WORK ORDER: 19X477047
 ATTENTION TO: Sheri Burton
 SAMPLED BY:

Trace Organics Analysis														
RPT Date: Jun 27, 2019			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

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

Benzene	1	252089	< 0.001	< 0.001	NA	< 0.001	81%	70%	130%	78%	70%	130%			
Toluene	1	252089	< 0.001	< 0.001	NA	< 0.001	82%	70%	130%	83%	70%	130%			
Ethylbenzene	1	252089	< 0.001	< 0.001	NA	< 0.001	78%	70%	130%	81%	70%	130%			
Xylene (Total)	1	252089	< 0.002	< 0.002	NA	< 0.002	81%	70%	130%	83%	70%	130%			
C6-C10 (less BTEX)	1	252089	0.02	0.02	NA	< 0.01	73%	70%	130%	91%	70%	130%	103%	70%	130%
>C10-C16 Hydrocarbons	1	TW	1.82	1.98	8.0%	< 0.05	90%	70%	130%	94%	70%	130%	88%	70%	130%
>C16-C21 Hydrocarbons	1	TW	6.26	7.21	14.0%	< 0.10	93%	70%	130%	94%	70%	130%	88%	70%	130%
>C21-C32 Hydrocarbons	1	TW	3.38	3.82	12.0%	< 0.1	74%	70%	130%	94%	70%	130%	88%	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution. VPH matrix spike performed on a different sample than the duplicate.

If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

Benzene	1	255876	< 0.001	< 0.001	NA	< 0.001	72%	70%	130%	70%	70%	130%			
Toluene	1	255876	< 0.001	< 0.001	NA	< 0.001	73%	70%	130%	74%	70%	130%			
Ethylbenzene	1	255876	< 0.001	< 0.001	NA	< 0.001	72%	70%	130%	74%	70%	130%			
Xylene (Total)	1	255876	< 0.002	< 0.002	NA	< 0.002	76%	70%	130%	77%	70%	130%			
C6-C10 (less BTEX)	1	255876	< 0.01	< 0.01	NA	< 0.01	79%	70%	130%	89%	70%	130%	98%	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution. VPH matrix spike performed on a different sample than the duplicate.

If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

>C10-C16 Hydrocarbons	1	TW	1.50	1.74	14.8%	< 0.05	106%	70%	130%	80%	70%	130%	87%	70%	130%
>C16-C21 Hydrocarbons	1	TW	5.46	5.94	8.4%	< 0.10	108%	70%	130%	80%	70%	130%	87%	70%	130%
>C21-C32 Hydrocarbons	1	TW	2.79	3.25	15.2%	< 0.1	86%	70%	130%	80%	70%	130%	87%	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution. VPH matrix spike performed on a different sample than the duplicate.

If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Atlantic RBCA Tier 1 Hydrocarbons in Water (Version 3.0)

Benzene	1	255896	< 0.001	< 0.001	NA	< 0.001	99%	70%	130%	79%	70%	130%			
Toluene	1	255896	< 0.001	< 0.001	NA	< 0.001	103%	70%	130%	87%	70%	130%			
Ethylbenzene	1	255896	< 0.001	< 0.001	NA	< 0.001	97%	70%	130%	89%	70%	130%			
Xylene (Total)	1	255896	< 0.002	< 0.002	NA	< 0.002	100%	70%	130%	92%	70%	130%			
C6-C10 (less BTEX)	1	255896	< 0.01	< 0.01	NA	< 0.01	102%	70%	130%	115%	70%	130%	NA	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution. VPH matrix spike performed on a different sample than the duplicate.

If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Certified By: _____



Quality Assurance

 CLIENT NAME: GOLDER ASSOCIATES
 PROJECT: 1895674
 SAMPLING SITE:

 AGAT WORK ORDER: 19X477047
 ATTENTION TO: Sheri Burton
 SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Jun 27, 2019			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

Quality Assurance

 CLIENT NAME: GOLDER ASSOCIATES
 PROJECT: 1895674
 SAMPLING SITE:

 AGAT WORK ORDER: 19X477047
 ATTENTION TO: Sheri Burton
 SAMPLED BY:

Water Analysis															
RPT Date: Jun 27, 2019			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

Standard Water Analysis + Dissolved Metals

pH	267826		7.64	7.65	0.1%	<	101%	80%	120%	NA	80%	120%	NA	80%	120%
Reactive Silica as SiO2	254474		5.6	5.5	3.3%	< 0.5	107%	80%	120%	104%	80%	120%	106%	80%	120%
Chloride	254668		13	13	0.7%	< 1	97%	80%	120%	NA	80%	120%	NA	80%	120%
Fluoride	254668		<0.12	<0.12	NA	< 0.12	109%	80%	120%	NA	80%	120%	101%	80%	120%
Sulphate	254668		<2	<2	NA	< 2	109%	80%	120%	NA	80%	120%	96%	80%	120%
Alkalinity	267826		67	67	0.4%	< 5	94%	80%	120%	NA	80%	120%	NA	80%	120%
True Color	267826		6	<5	NA	< 5	90%	80%	120%	NA			NA		
Turbidity	255887	255887	2.1	2.5	19.0%	< 0.1	100%	80%	120%	NA			NA		
Electrical Conductivity	267826		168	170	1.1%	< 1	110%	80%	120%	NA	80%	120%	NA	80%	120%
Nitrate as N	254668		3.34	3.34	0.0%	< 0.05	96%	80%	120%	NA	80%	120%	NA	80%	120%
Nitrite as N	254668		0.12	0.14	NA	< 0.05	102%	80%	120%	NA	80%	120%	106%	80%	120%
Ammonia as N	254439		<0.03	<0.03	NA	< 0.03	103%	80%	120%	104%	80%	120%	97%	80%	120%
Ortho-Phosphate as P	254474		<0.01	<0.01	NA	< 0.01	97%	80%	120%	104%	80%	120%	103%	80%	120%
Dissolved Sodium	255900	255900	1.9	2.0	6.0%	< 0.1	85%	80%	120%	105%	80%	120%	NA	70%	130%
Dissolved Potassium	255900	255900	0.3	0.3	NA	< 0.1	84%	80%	120%	98%	80%	120%	90%	70%	130%
Dissolved Calcium	255900	255900	1.0	1.1	10.0%	< 0.1	90%	80%	120%	97%	80%	120%	101%	70%	130%
Dissolved Magnesium	255900	255900	0.4	0.4	NA	< 0.1	90%	80%	120%	105%	80%	120%	99%	70%	130%
Bicarb. Alkalinity (as CaCO3)	267826		67	67	0.4%	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Carb. Alkalinity (as CaCO3)	267826		<10	<10	NA	< 10	NA	80%	120%	NA	80%	120%	NA	80%	120%
Hydroxide	267826		<5	<5	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Dissolved Aluminum	255900	255900	114	121	5.3%	< 5	89%	80%	120%	105%	80%	120%	NA	70%	130%
Dissolved Antimony	255900	255900	<2	<2	NA	< 2	97%	80%	120%	NA	80%	120%	104%	70%	130%
Dissolved Arsenic	255900	255900	<2	<2	NA	< 2	81%	80%	120%	96%	80%	120%	92%	70%	130%
Dissolved Barium	255900	255900	6	7	NA	< 5	84%	80%	120%	97%	80%	120%	99%	70%	130%
Dissolved Beryllium	255900	255900	<2	<2	NA	< 2	81%	80%	120%	95%	80%	120%	96%	70%	130%
Dissolved Bismuth	255900	255900	<2	<2	NA	< 2	84%	80%	120%	104%	80%	120%	80%	70%	130%
Dissolved Boron	255900	255900	<5	<5	NA	< 5	86%	80%	120%	97%	80%	120%	92%	70%	130%
Dissolved Cadmium	255900	255900	<0.017	<0.017	NA	< 0.09	NA	80%	120%	96%	80%	120%	89%	70%	130%
Dissolved Chromium	255900	255900	<1	<1	NA	< 1	NA	80%	120%	98%	80%	120%	89%	70%	130%
Dissolved Cobalt	255900	255900	<1	<1	NA	< 1	NA	80%	120%	98%	80%	120%	90%	70%	130%
Dissolved Copper	255900	255900	<2	<2	NA	< 2	81%	80%	120%	102%	80%	120%	92%	70%	130%
Dissolved Iron	255900	255900	<50	<50	NA	< 50	NA	80%	120%	98%	80%	120%	79%	70%	130%
Dissolved Lead	255900	255900	<0.5	<0.5	NA	< 0.5	82%	80%	120%	100%	80%	120%	95%	70%	130%
Dissolved Manganese	255900	255900	38	30	22.4%	< 2	NA	80%	120%	99%	80%	120%	NA	70%	130%
Dissolved Molybdenum	255900	255900	<2	<2	NA	< 2	NA	80%	120%	96%	80%	120%	80%	70%	130%
Dissolved Nickel	255900	255900	<2	<2	NA	< 2	80%	80%	120%	100%	80%	120%	101%	70%	130%
Dissolved Phosphorus	255900	255900	<0.02	<0.02	NA	< 0.02	82%	80%	120%	93%	80%	120%	76%	70%	130%
Dissolved Selenium	255900	255900	<1	<1	NA	< 1	NA	80%	120%	98%	80%	120%	96%	70%	130%
Dissolved Silver	255900	255900	0.4	0.4	NA	< 0.1	NA	80%	120%	97%	80%	120%	85%	70%	130%

Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

ATTENTION TO: Sheri Burton

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Water Analysis (Continued)

RPT Date: Jun 27, 2019			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	

Dissolved Strontium	255900	255900	10	11	NA	< 5	NA	80%	120%	95%	80%	120%	93%	70%	130%
Dissolved Thallium	255900	255900	<0.1	<0.1	NA	< 0.1	82%	80%	120%	99%	80%	120%	93%	70%	130%
Dissolved Tin	255900	255900	<2	<2	NA	< 2	NA	80%	120%	99%	80%	120%	83%	70%	130%
Dissolved Titanium	255900	255900	<2	<2	NA	< 2	86%	80%	120%	99%	80%	120%	86%	70%	130%
Dissolved Uranium	255900	255900	<0.1	<0.1	NA	< 0.1	80%	80%	120%	95%	80%	120%	89%	70%	130%
Dissolved Vanadium	255900	255900	<2	<2	NA	< 2	NA	80%	120%	91%	80%	120%	87%	70%	130%
Dissolved Zinc	255900	255900	<5	<5	NA	< 5	81%	80%	120%	98%	80%	120%	92%	70%	130%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Mercury Analysis in Water (Dissolved)

Dissolved Mercury	255882	255882	<0.026	<0.026	NA	< 0.026	108%	80%	120%	NA	80%	120%	99%	80%	120%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Mercury Analysis in Water (Total)

Total Mercury	255892		NA	NA	NA	< 0.026	108%	80%	120%	NA	80%	120%	95%	80%	120%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

TSS

Total Suspended Solids	255698		<5	<5	NA	< 5	101%	80%	120%	NA			112%	80%	120%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Standard Water Analysis + Dissolved Metals

pH	255876	255876	6.70	6.63	1.1%	<	101%	80%	120%	NA	80%	120%	NA	80%	120%
Reactive Silica as SiO2	255878	255878	6.2	6.9	9.7%	< 0.5	107%	80%	120%	106%	80%	120%	112%	80%	120%
Alkalinity	255876	255876	11	10	NA	< 5	94%	80%	120%	NA	80%	120%	NA	80%	120%
Electrical Conductivity	255876	255876	46	45	1.8%	< 1	103%	80%	120%	NA	80%	120%	NA	80%	120%
Ammonia as N	255872	255872	0.04	<0.03	NA	< 0.03	102%	80%	120%	103%	80%	120%	98%	80%	120%
Ortho-Phosphate as P	255878	255878	<0.01	<0.01	NA	< 0.01	101%	80%	120%	109%	80%	120%	106%	80%	120%
Dissolved Sodium	255899	255899	2.3	2.8	18.0%	< 0.1	107%	80%	120%	106%	80%	120%	NA	70%	130%
Dissolved Potassium	255899	255899	0.3	0.3	NA	< 0.1	104%	80%	120%	108%	80%	120%	104%	70%	130%
Dissolved Calcium	255899	255899	2.9	3.5	16.2%	< 0.1	101%	80%	120%	98%	80%	120%	NA	70%	130%
Dissolved Magnesium	255899	255899	0.4	0.5	NA	< 0.1	101%	80%	120%	107%	80%	120%	112%	70%	130%
Bicarb. Alkalinity (as CaCO3)	255876	255876	11	10	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Carb. Alkalinity (as CaCO3)	255876	255876	<10	<10	NA	< 10	NA	80%	120%	NA	80%	120%	NA	80%	120%
Hydroxide	255876	255876	<5	<5	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Dissolved Aluminum	255899	255899	70	85	18.3%	< 5	106%	80%	120%	110%	80%	120%	114%	70%	130%
Dissolved Antimony	255899	255899	<2	<2	NA	< 2	82%	80%	120%	NA	80%	120%	118%	70%	130%
Dissolved Arsenic	255899	255899	<2	<2	NA	< 2	98%	80%	120%	95%	80%	120%	105%	70%	130%
Dissolved Barium	255899	255899	<5	<5	NA	< 5	101%	80%	120%	95%	80%	120%	99%	70%	130%
Dissolved Beryllium	255899	255899	<2	<2	NA	< 2	98%	80%	120%	97%	80%	120%	110%	70%	130%

Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

ATTENTION TO: Sheri Burton

SAMPLING SITE:

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Water Analysis (Continued)

RPT Date: Jun 27, 2019			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	
Dissolved Bismuth	255899	255899	<2	<2	NA	< 2	97%	80%	120%	98%	80%	120%	NA	70%	130%	
Dissolved Boron	255899	255899	<5	<5	NA	< 5	101%	80%	120%	96%	80%	120%	110%	70%	130%	
Dissolved Cadmium	255899	255899	<0.09	<0.09	NA	< 0.09	99%	80%	120%	102%	80%	120%	106%	70%	130%	
Dissolved Chromium	255899	255899	<1	<1	NA	< 1	97%	80%	120%	101%	80%	120%	102%	70%	130%	
Dissolved Cobalt	255899	255899	<1	<1	NA	< 1	99%	80%	120%	98%	80%	120%	106%	70%	130%	
Dissolved Copper	255899	255899	<2	<2	NA	< 2	100%	80%	120%	104%	80%	120%	106%	70%	130%	
Dissolved Iron	255899	255899	<50	<50	NA	< 50	98%	80%	120%	97%	80%	120%	96%	70%	130%	
Dissolved Lead	255899	255899	<0.5	<0.5	NA	< 0.5	101%	80%	120%	97%	80%	120%	99%	70%	130%	
Dissolved Manganese	255899	255899	10	11	10.0%	< 2	99%	80%	120%	99%	80%	120%	108%	70%	130%	
Dissolved Molybdenum	255899	255899	<2	<2	NA	< 2	97%	80%	120%	97%	80%	120%	97%	70%	130%	
Dissolved Nickel	255899	255899	<2	<2	NA	< 2	101%	80%	120%	102%	80%	120%	NA	70%	130%	
Dissolved Phosphorus	255899	255899	<0.02	<0.02	NA	< 0.02	101%	80%	120%	102%	80%	120%	97%	70%	130%	
Dissolved Selenium	255899	255899	<1	<1	NA	< 1	102%	80%	120%	100%	80%	120%	118%	70%	130%	
Dissolved Silver	255899	255899	<0.1	<0.1	NA	< 0.1	97%	80%	120%	98%	80%	120%	99%	70%	130%	
Dissolved Strontium	255899	255899	10	11	NA	< 5	98%	80%	120%	102%	80%	120%	105%	70%	130%	
Dissolved Thallium	255899	255899	<0.1	<0.1	NA	< 0.1	101%	80%	120%	101%	80%	120%	100%	70%	130%	
Dissolved Tin	255899	255899	<2	<2	NA	< 2	95%	80%	120%	100%	80%	120%	95%	70%	130%	
Dissolved Titanium	255899	255899	<2	<2	NA	< 2	100%	80%	120%	107%	80%	120%	107%	70%	130%	
Dissolved Uranium	255899	255899	<0.1	<0.1	NA	< 0.1	98%	80%	120%	94%	80%	120%	93%	70%	130%	
Dissolved Vanadium	255899	255899	<2	<2	NA	< 2	96%	80%	120%	94%	80%	120%	102%	70%	130%	
Dissolved Zinc	255899	255899	<5	<5	NA	< 5	97%	80%	120%	102%	80%	120%	105%	70%	130%	

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Standard Water Analysis + Dissolved Metals

pH	255896	255896	7.93	7.93	0%	<	101%	80%	120%	NA	80%	120%	NA	80%	120%
Reactive Silica as SiO2	255898	255898	11.0	10.9	0.5%	< 0.5	112%	80%	120%	99%	80%	120%	109%	80%	120%
Alkalinity	255896	255896	57	56	0.7%	< 5	95%	80%	120%	NA	80%	120%	NA	80%	120%
Electrical Conductivity	255896	255896	147	146	0.4%	< 1	106%	80%	120%	NA	80%	120%	NA	80%	120%
Ammonia as N	255892	255892	<0.03	<0.03	NA	< 0.03	101%	80%	120%	101%	80%	120%	95%	80%	120%
Ortho-Phosphate as P	255898	255898	<0.01	<0.01	NA	< 0.01	100%	80%	120%	108%	80%	120%	105%	80%	120%
Bicarb. Alkalinity (as CaCO3)	255896	255896	57	56	0.7%	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Carb. Alkalinity (as CaCO3)	255896	255896	<10	<10	NA	< 10	NA	80%	120%	NA	80%	120%	NA	80%	120%
Hydroxide	255896	255896	<5	<5	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Standard Water Analysis + Dissolved Metals

Dissolved Sodium	255899	255899	2.3	2.8	18.0%	< 0.1	97%	80%	120%	105%	80%	120%	NA	70%	130%
Dissolved Potassium	255899	255899	0.3	0.3	NA	< 0.1	107%	80%	120%	115%	80%	120%	104%	70%	130%
Dissolved Calcium	255899	255899	2.9	3.5	16.2%	< 0.1	102%	80%	120%	111%	80%	120%	NA	70%	130%
Dissolved Magnesium	255899	255899	0.4	0.5	NA	< 0.1	101%	80%	120%	107%	80%	120%	112%	70%	130%

Quality Assurance

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 SAMPLING SITE:

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 ATTENTION TO: Sheri Burton
 SAMPLED BY:

Water Analysis (Continued)																
RPT Date: Jun 27, 2019			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	
Dissolved Aluminum	255899	255899	70	85	18.3%	< 5	110%	80%	120%	120%	80%	120%	114%	70%	130%	
Dissolved Antimony	255899	255899	<2	<2	NA	< 2	80%	80%	120%	120%	80%	120%	118%	70%	130%	
Dissolved Arsenic	255899	255899	<2	<2	NA	< 2	100%	80%	120%	105%	80%	120%	105%	70%	130%	
Dissolved Barium	255899	255899	<5	<5	NA	< 5	93%	80%	120%	95%	80%	120%	99%	70%	130%	
Dissolved Beryllium	255899	255899	<2	<2	NA	< 2	104%	80%	120%	104%	80%	120%	110%	70%	130%	
Dissolved Bismuth	255899	255899	<2	<2	NA	< 2	90%	80%	120%	100%	80%	120%	NA	70%	130%	
Dissolved Boron	255899	255899	<5	<5	NA	< 5	99%	80%	120%	114%	80%	120%	110%	70%	130%	
Dissolved Cadmium	255899	255899	<0.09	<0.09	NA	< 0.09	95%	80%	120%	105%	80%	120%	106%	70%	130%	
Dissolved Chromium	255899	255899	<1	<1	NA	< 1	96%	80%	120%	101%	80%	120%	102%	70%	130%	
Dissolved Cobalt	255899	255899	<1	<1	NA	< 1	98%	80%	120%	103%	80%	120%	106%	70%	130%	
Dissolved Copper	255899	255899	<2	<2	NA	< 2	99%	80%	120%	105%	80%	120%	106%	70%	130%	
Dissolved Iron	255899	255899	<50	<50	NA	< 50	98%	80%	120%	104%	80%	120%	96%	70%	130%	
Dissolved Lead	255899	255899	<0.5	<0.5	NA	< 0.5	95%	80%	120%	102%	80%	120%	99%	70%	130%	
Dissolved Manganese	255899	255899	10	11	10.0%	< 2	98%	80%	120%	102%	80%	120%	108%	70%	130%	
Dissolved Molybdenum	255899	255899	<2	<2	NA	< 2	97%	80%	120%	104%	80%	120%	97%	70%	130%	
Dissolved Nickel	255899	255899	<2	<2	NA	< 2	98%	80%	120%	105%	80%	120%	NA	70%	130%	
Dissolved Phosphorus	255899	255899	<0.02	<0.02	NA	< 0.02	101%	80%	120%	111%	80%	120%	97%	70%	130%	
Dissolved Selenium	255899	255899	<1	<1	NA	< 1	102%	80%	120%	120%	80%	120%	118%	70%	130%	
Dissolved Silver	255899	255899	<0.1	<0.1	NA	< 0.1	97%	80%	120%	98%	80%	120%	99%	70%	130%	
Dissolved Strontium	255899	255899	10	11	NA	< 5	98%	80%	120%	102%	80%	120%	105%	70%	130%	
Dissolved Thallium	255899	255899	<0.1	<0.1	NA	< 0.1	93%	80%	120%	101%	80%	120%	100%	70%	130%	
Dissolved Tin	255899	255899	<2	<2	NA	< 2	91%	80%	120%	100%	80%	120%	95%	70%	130%	
Dissolved Titanium	255899	255899	<2	<2	NA	< 2	100%	80%	120%	108%	80%	120%	107%	70%	130%	
Dissolved Uranium	255899	255899	<0.1	<0.1	NA	< 0.1	90%	80%	120%	97%	80%	120%	93%	70%	130%	
Dissolved Vanadium	255899	255899	<2	<2	NA	< 2	95%	80%	120%	99%	80%	120%	102%	70%	130%	
Dissolved Zinc	255899	255899	<5	<5	NA	< 5	97%	80%	120%	102%	80%	120%	105%	70%	130%	

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Total Phosphorus

Total Phosphorous as P	255882	255882	<0.03	<0.03	NA	< 0.03	88%	80%	120%	103%	80%	120%	103%	80%	120%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Total Phosphorus

Total Phosphorous as P	255698		<0.03	<0.03	NA	< 0.03	85%	80%	120%	100%	80%	120%	102%	80%	120%
------------------------	--------	--	-------	-------	----	--------	-----	-----	------	------	-----	------	------	-----	------

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Various Inorganics (Water)

Chemical Oxygen Demand	266708		19	18	3.6%	< 3	99%	80%	120%	NA			98%	80%	120%
------------------------	--------	--	----	----	------	-----	-----	-----	------	----	--	--	-----	-----	------

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.



Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES
 PROJECT: 1895674
 SAMPLING SITE:

AGAT WORK ORDER: 19X477047
 ATTENTION TO: Sheri Burton
 SAMPLED BY:

Water Analysis (Continued)

RPT Date: Jun 27, 2019			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

Cyanide (Water)															
Free Cyanide	265085		<2	<2	NA	< 2	95%	70%	130%	104%	80%	120%	102%	70%	130%
Total Cyanide	255488		<0.002	<0.002	NA	< 0.002	96%	80%	120%	105%	90%	110%	109%	70%	130%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Dissolved Total Phosphorus (Water)															
Total Phosphorus, Dissolved	255833	255833	<0.02	<0.02	NA	< 0.02	94%	90%	110%	98%	90%	110%	97%	80%	120%
Dissolved Total Phosphorus (Water)															
Total Phosphorus, Dissolved	255891	255891	<0.02	<0.02	NA	< 0.02	99%	90%	110%	100%	90%	110%	97%	80%	120%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Certified By: _____

Cobrien

Method Summary

CLIENT NAME: GOLDER ASSOCIATES

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Miscellaneous Analysis			
Subcontracted Data			
Trace Organics Analysis			
Benzene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Toluene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Ethylbenzene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Xylene (Total)	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
C6-C10 (less BTEX)	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
>C10-C16 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
>C16-C21 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
>C21-C32 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Modified TPH (Tier 1)	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	CALCULATION
Resemblance Comment	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS/FID
Return to Baseline at C32	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Isobutylbenzene - EPH	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Isobutylbenzene - VPH	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
n-Dotriacontane - EPH	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID

Method Summary

CLIENT NAME: GOLDER ASSOCIATES

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Free Cyanide	INOR-93-6052	MOE METHOD CN- 3015 & SM 4500 CN- I	TECHNICON AUTO ANALYZER
Total Cyanide	INOR-93-6051	MOE 3015 & SM 4500 CN- A,B,C	TECHNICON AUTO ANALYZER
Total Phosphorus, Dissolved	INOR-93-6022	SM 4500-P B&E	SPECTROPHOTOMETER
Dissolved Mercury	MET-121-6100 & MET-121-6107	SM 3112 B	CV/AA
Total Mercury	MET-121-6100 & MET-121-6107	SM 3112 B	CV/AA
pH	INOR-121-6001	SM 4500 H+B	PC TITRATE
Reactive Silica as SiO2	INOR-121-6027	SM 4500-SiO2 F	COLORIMETER
Chloride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Fluoride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Alkalinity	INOR-121-6001	SM 2320 B	
True Color	INOR-121-6014	SM 2120 C	NEPHELOMETER
Turbidity	INOR-121-6022	SM 2130 B	NEPHELOMETER
Electrical Conductivity	INOR-121-6001	SM 2510 B	PC TITRATE
Nitrate + Nitrite as N	INORG-121-6005	SM 4110 B	CALCULATION
Nitrate as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-121-6047	SM 4500-NH3 H	COLORIMETER
Ortho-Phosphate as P	INOR-121-6012	SM 4500-P G	COLORIMETER
Dissolved Sodium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Potassium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Calcium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Magnesium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Bicarb. Alkalinity (as CaCO3)	INORG-121-6001	SM 2320 B	PC TITRATE
Carb. Alkalinity (as CaCO3)	INORG-121-6001	SM 2320 B	PC TITRATE
Hydroxide	INORG-121-6001	SM 2320 B	PC-TITRATE
Calculated TDS	CALCULATION	SM 1030E	CALCULATION
Hardness	CALCULATION	SM 2340B	CALCULATION
Langelier Index (@20C)	CALCULATION	CALCULATION	CALCULATION
Langelier Index (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 20C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Anion Sum	CALCULATION	SM 1030E	CALCULATION
Cation sum	CALCULATION	SM 1030E	CALCULATION
% Difference/ Ion Balance	CALCULATION	SM 1030E	CALCULATION
Dissolved Aluminum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Antimony	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Arsenic	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Barium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Beryllium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS

Method Summary

CLIENT NAME: GOLDER ASSOCIATES

AGAT WORK ORDER: 19X477047

PROJECT: 1895674

ATTENTION TO: Sheri Burton

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Dissolved Bismuth	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Boron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Cadmium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Chromium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Cobalt	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Copper	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Iron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Lead	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Manganese	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Molybdenum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Nickel	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Phosphorus	MET-121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Selenium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Silver	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Strontium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Thallium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Tin	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Titanium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Uranium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Vanadium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Dissolved Zinc	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Suspended Solids	INOR-121-6024, 6025	SM 2540C, D	GRAVIMETRIC
Total Phosphorous as P	INOR-121-6046	SM 4500-P H, EPA 365.4	COLORIMETER
Chemical Oxygen Demand	INORG-121-6013	SM 5220 B	SPECTROPHOTOMETER
Dissolved Organic Carbon	INOR-121-6026	SM 5310 B	TOC ANALYZER



AGAT Laboratories

Unit 122 • 11 Morris Drive
Dartmouth, NS
B3B 1M2

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Laboratory Use Only

Arrival Condition: Good Poor (see notes)
Arrival Temperature: 6, 7, 40
Hold Time: _____
AGAT Job Number: 19X473047

Chain of Custody Record

P: 902.468.8718 • F: 902.468.8924

Report Information

Company: Golder Associates
Contact: Glen Merkley
Address: 201 Brownlow Avenue, Suite 26
Dartmouth, NS, B3B 1W2
Phone: 9024661668 Fax: 9024661669
Client Project #: 1895674
AGAT Quotation: 204505
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):

1. Name: Glen Merkley
Email: glen_merkley@golder.com
2. Name: Sheri Burton
Email: sheri_burton@golder.com

Report Format

Single Sample per page
 Multiple Sample per page
 Excel Format Included
 Export:

Notes:

Turnaround Time Required (TAT)

Regular TAT 5 to 7 working days
Rush TAT Same day 1 day
 2 days 3 days
Date Required: _____

Invoice To

Same Yes / No

Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
PO/Credit Card#: _____

Regulatory Requirements (Check):

List Guidelines on Report Do not list Guidelines on Report
 PIRI
 Tier 1 Res Pot Coarse
 Tier 2 Com N/Pot Fine
 Gas Fuel Lube
 CCME CDWQ
 Industrial NSEQS-Cont Sites
 Commercial HRM 101
 Res/Park Storm Water
 Agricultural Waste Water
 FWAL Other
 Sediment
NSE PSS - GW to SW <10m

Drinking Water Sample: Yes No Salt Water Sample: Yes No
Reg. No.: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments - Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals: <input type="checkbox"/> Total <input type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury <input type="checkbox"/> Total + Dissolved	<input type="checkbox"/> TOBOD <input type="checkbox"/> COP + DOC	pH	<input type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus + Dissolved Phosph.	Phenols	Tier 1: TPH/BTEX (PIR) <input type="checkbox"/> low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC+EC <input type="checkbox"/> P/A <input type="checkbox"/> MPN <input type="checkbox"/> MF	<input type="checkbox"/> HPC <input type="checkbox"/> Pseudomonas	Fecal Coliform <input type="checkbox"/> MPN <input type="checkbox"/> MF	Other: Total and Free Cyanide	Other: Radium-226 - <u>SR</u>	Hazardous (Y/N)
FMS-HG18-02A	Jun 5/19 - 16:00	GW	13	Field filtered for all preserved samples		✓	✓	✓			✓		✓		✓											✓		
FMS-HG18-02B	Jun 5/19 - 16:30	GW	13	Field filtered for all preserved samples		✓	✓	✓			✓		✓		✓											✓		
FMS-HG18-03A	Jun 5/19 - 17:15	GW	13	Field filtered for all preserved samples		✓	✓	✓			✓		✓		✓											✓		
FMS-HG18-03B	Jun 5/19 - 17:45	GW	13	Field filtered for all preserved samples		✓	✓	✓			✓		✓		✓											✓		
FMS-HG18-04A	Jun 6/19 - 14:45	GW	13	Field filtered for all preserved samples		✓	✓	✓			✓		✓		✓											✓		
FMS-HG18-04B	Jun 6/19 - 15:00	GW	13	Field filtered for all preserved samples		✓	✓	✓			✓		✓		✓											✓		
FMS-HG18-05A	Jun 6/19 - 15:30	GW	13	Field filtered for all preserved samples		✓	✓	✓			✓		✓		✓											✓		
FMS-HG18-05B	Jun 6/19 - 15:45	GW	13	Field filtered for all preserved samples		✓	✓	✓			✓		✓		✓											✓		
FMS-HG18-06A	Jun 6/19 - 12:45	GW	13	Field filtered for all preserved samples		✓	✓	✓			✓		✓		✓											✓		
FMS-HG18-07A	Jun 6/19 - 11:45	GW	13	Field filtered for all preserved samples		✓	✓	✓			✓		✓		✓											✓		
FMS-HG18-07B	Jun 6/19 - 12:20	GW	17	Field filtered for all preserved samples		✓	✓	✓			✓		✓		✓										✓	✓		
FMS-HG18-08A	Jun 5/19 - 11:30	GW	13	Field filtered for all preserved samples		✓	✓	✓			✓		✓		✓											✓	✓	

Samples Relinquished By (Print Name): <u>Glen Merkley</u>	Date/Time: <u>7/26/19</u>	Samples Received By (Print Name): <u>Jorge...</u>	Date/Time: <u>7/26/19</u>	Pink Copy - Client	Page <u>1</u> of <u>3</u>
Samples Relinquished By (Sign): <u>[Signature]</u>	Date/Time: <u>13:24</u>	Samples Received By (Sign): <u>[Signature]</u>	Date/Time: <u>13:24</u>	Yellow Copy - AGAT	
				White Copy - AGAT	

Document ID: DIV-133-1501-002

Copper RDL - 1.0mg/L, Mercury RDL - 0.016mg/L

Date revised: January 2010



AGAT Laboratories

Unit 122 • 11 Morris Drive
Dartmouth, NS
B3B 1M2
webearth.agatlabs.com • www.agatlabs.com

Laboratory Use Only

Arrival Condition: Good Poor (see notes)
Arrival Temperature: _____
Hold Time: _____
AGAT Job Number: 19X477047

Chain of Custody Record

P: 902.468.8718 • F: 902.468.8924

Report Information

Company: Golder Associates
Contact: Glen Merkley
Address: 201 Brownlow Avenue, Suite 26
Dartmouth, NS, B3B 1W2
Phone: 9024661668 Fax: 9024661669
Client Project #: 1895674
AGAT Quotation: 204505
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):

1. Name: Glen Merkley
Email: glen_merkley@golder.com
2. Name: Sheri Burton
Email: sheri_burton@golder.com

Report Format

Single Sample per page
 Multiple Sample per page
 Excel Format Included
 Export:

Notes:

Turnaround Time Required (TAT)

Regular TAT 5 to 7 working days
Rush TAT Same day 1 day
 2 days 3 days

Date Required: _____

Invoice To

Same Yes / No

Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
PO/Credit Card#: _____

Regulatory Requirements (Check):

List Guidelines on Report Do not list Guidelines on Report
 PIRI
 Tier 1 Res Pot Coarse
 Tier 2 Com N/Pot Fine
 Gas Fuel Lube
 CCME CDWQ
 Industrial NSEQS-Cont Sites
 Commercial HRM 101
 Res/Park Storm Water
 Agricultural Waste Water
 FWAL Other
 Sediment
NSE PSS - GW to SW <10m

Drinking Water Sample: Yes No Salt Water Sample: Yes No
Reg. No.: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments - Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals: <input type="checkbox"/> Total <input checked="" type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury (Total + Diss.)	As Pb Cd Co Cr Fe Mn Ni Sb Se V Zn	pH	<input checked="" type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus + Dissolved (MSS)	Phenols	Tier 1: TPH/BTEX (PIR) <input type="checkbox"/> low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC <input type="checkbox"/> P/A <input type="checkbox"/> MPN <input type="checkbox"/> MF	HPC <input type="checkbox"/> Pseudomonas	Fecal Coliform <input type="checkbox"/> MPN <input type="checkbox"/> MF	Other: Total and Free Cyanide	Other: Radium-226	Hazardous (Y/N)
FMS-HG18-08B	Jun 5/19 - 11:45	GW	13	Field filtered for all preserved samples		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-09A	Jun 6/19 - 10:50	GW	13	Field filtered for all preserved samples		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-09B	Jun 6/19 - 11:10	GW	13	Field filtered for all preserved samples		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-10A	Jun 6/19 - 10:00	GW	13	Field filtered for all preserved samples		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-10B	Jun 6/19 - 10:20	GW	13	Field filtered for all preserved samples		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-11A	Jun 5/19 - 9:15	GW	13	Field filtered for all preserved samples		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-11B	Jun 5/19 - 9:30	GW	13	Field filtered for all preserved samples		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-13A	Jun 6/19 - 9:20	GW	13	Field filtered for all preserved samples		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-13B	Jun 6/19 - 9:00	GW	13	Field filtered for all preserved samples		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-14A	Jun 6/19 - 14:15	GW	13	Field filtered for all preserved samples		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-14B	Jun 6/19 - 14:30	GW	13	Field filtered for all preserved samples		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	
FMS-HG18-15A	Jun 6/19 - 16:30	GW	13	Field filtered for all preserved samples		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	

Samples Relinquished By (Print Name):	Date/Time	Samples Received By (Print Name):	Date/Time	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT	Page <u>2</u> of <u>3</u> N°:
Samples Relinquished By (Sign):	Date/Time	Samples Received By (Sign):	Date/Time		

Document ID: DIV-133-1501.002

Copper RDL - 1.0mg/L, Mercury RDL - 0.016mg/L

Date revised: January 2016



AGAT Laboratories

Unit 122 • 11 Morris Drive
Dartmouth, NS
B3B 1M2

webearth.agatlabs.com • www.agatlabs.com

Laboratory Use Only

Arrival Condition: Good Poor (see notes)

Arrival Temperature: _____

Hold Time: _____

AGAT Job Number: 19XLL77047

Notes: _____

Chain of Custody Record

P: 902.468.8718 • F: 902.468.8924

Report Information

Company: Golder Associates

Contact: Glen Merkley

Address: 201 Brownlow Avenue, Suite 26
Dartmouth, NS, B3B 1W2

Phone: 9024661668 Fax: 9024661669

Client Project #: 1895674

AGAT Quotation: 204505

Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):

1. Name: Glen Merkley

Email: glen_merkley@golder.com

2. Name: Sheri Burton

Email: sheri_burton@golder.com

Report Format

Single Sample per page

Multiple Sample per page

Excel Format Included

Export:

Turnaround Time Required (TAT)

Regular TAT 5 to 7 working days

Rush TAT Same day 1 day

2 days 3 days

Date Required: _____

Invoice To

Same Yes / No

Company: _____

Contact: _____

Address: _____

Phone: _____ Fax: _____

PO/Credit Card#: _____

Regulatory Requirements (Check):

List Guidelines on Report Do not list Guidelines on Report

PIRI

Tier 1 Res Pot Coarse

Tier 2 Com N/Pot Fine

Gas Fuel Lube

CCME

CDWQ

Industrial NSEQS-Cont Sites

Commercial

Res/Park HRM 101

Agricultural Storm Water

FWAL Waste Water

Sediment

Other _____

NSE PSS - GW to SW <10m

Drinking Water Sample: Yes No Salt Water Sample: Yes No

Reg. No.: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments - Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals: <input type="checkbox"/> Total <input checked="" type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury <u>Total + Diss</u>	<u>0.000 - 0.000 - COP + DOL</u>	pH	<input checked="" type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus + Diss. <u>MISS.</u>	Phenols	Tier 1: TPH/BTEX (PIRI) <input type="checkbox"/> low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC <input type="checkbox"/> P/A <input type="checkbox"/> MPN <input type="checkbox"/> MF	<input type="checkbox"/> HPC <input type="checkbox"/> Pseudomonas	Fecal Coliform <input type="checkbox"/> MPN <input type="checkbox"/> MF	Other: Total and Free Cyanide	Other: Radium-226	Hazardous (Y/N)
FMS-HG18-15B	Jun 6/19 - 16:50	GW	17	Field filtered for all preserved samples		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>											<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
FMS-HG18-16A	Jun 5/19 - 11:40	GW	13	Field filtered for all preserved samples		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>											<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
FMS-HG18-16B	Jun 5/19 - 11:20	GW	15	Field filtered for all preserved samples		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>											<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
DUP-A	Jun 6/19 - 11:10	GW	13	Field filtered for all preserved samples		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>											<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
DUP-B	Jun 6/19 - 10:20	GW	13	Field filtered for all preserved samples		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>											<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
DUP-C	Jun 6/19 - 9:00	GW	13	Field filtered for all preserved samples		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>											<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Samples Relinquished By (Print Name):	Date/Time	Samples Received By (Print Name):	Date/Time	Pink Copy - Client	Page <u>3</u> of <u>3</u>
Samples Relinquished By (Sign):	Date/Time	Samples Received By (Sign):	Date/Time	Yellow Copy - AGAT	
				White Copy - AGAT	

Copper RDL - 1.0 ug/L, mercury RDL - 0.016 ug/L

SRC Group # 2019-7714

Jun 24, 2019

AGAT Laboratories
122-11 Morris Drive
Dartmouth, NS B3B 1M2
Attn: Janetta Fraser

Date Samples Received: Jun-11-2019

Client P.O.: 136118

All results have been reviewed and approved by a Qualified Person in accordance with the Saskatchewan Environmental Code, Corrective Action Plan Chapter, for the purposes of certifying a laboratory analysis

Results from Lab Sections 1 and 2 have been authorized by Keith Gipman, Supervisor
Results from Lab Section 3 and 7 have been authorized by Pat Moser, Supervisor
Results from Lab Sections 4 and 5 have been authorized by Vicky Snook, Supervisor
Results from Lab Section 6 have been authorized by Marion McConnell, Supervisor

-
- * Test methods and data are validated by the laboratory's Quality Assurance Program.
 - * Routine methods follow recognized procedures from sources such as
 - * Standard Methods for the Examination of Water and Wastewater APHA AWWA WEF
 - * Environment Canada
 - * US EPA
 - * CANMET
 - * The results reported relate only to the test samples as provided by the client.
 - * Samples will be kept for 30 days after the final report is sent. Please contact the lab if you have any special requirements.
 - * Additional information is available upon request.

This is a final report.

SRC Group # 2019-7714

Jun 24, 2019

AGAT Laboratories
 122-11 Morris Drive
 Dartmouth, NS B3B 1M2
 Attn: Janetta Fraser

Date Samples Received: Jun-11-2019

Client P.O.: 136118

30886	06/05/2019	19X477047-255833M-FMS-HG18-02A	*WATER*
30887	06/05/2019	19X477047-255872M-FMS-HG18-02B	*WATER*
30888	06/05/2019	19X477047-255873M-FMS-HG18-03A	*WATER*

Analyte	Units	30886	30887	30888
Lab Section 4 (Radiochemistry)				
Radium-226	Bq/L	<0.005	<0.005	<0.005

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 11.1 °C upon receipt.

SRC Group # 2019-7714

Jun 24, 2019

AGAT Laboratories

30889	06/05/2019	19X477047-255874M-FMS-HG18-03B	*WATER*		
30890	06/05/2019	19X477047-255875M-FMS-HG18-04A	*WATER*		
30891	06/05/2019	19X477047-255876M-FMS-HG18-04B	*WATER*		
Analyte	Units	30889	30890	30891	

Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	<0.005	0.02	<0.005
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Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 11.1 °C upon receipt.

SRC Group # 2019-7714

Jun 24, 2019

AGAT Laboratories

30892	06/05/2019 19X477047-255877M-FMS-HG18-05A	*WATER*			
30893	06/05/2019 19X477047-255878M-FMS-HG18-05B	*WATER*			
30894	06/05/2019 19X477047-255879M-FMS-HG18-06A	*WATER*			
Analyte	Units		30892	30893	30894
Lab Section 4 (Radiochemistry)					
Radium-226	Bq/L		<0.005	<0.005	<0.005

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 11.1 °C upon receipt.

SRC Group # 2019-7714

Jun 24, 2019

AGAT Laboratories

30895	06/05/2019	19X477047-255880M-FMS-HG18-07A	*WATER*
30896	06/05/2019	19X477047-255881M-FMS-HG18-07B	*WATER*
30897	06/05/2019	19X477047-255882M-FMS-HG18-08A	*WATER*

Analyte	Units	30895	30896	30897
Lab Section 4 (Radiochemistry)				
Radium-226	Bq/L	0.02	0.005	<0.005

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 11.1 °C upon receipt.

SRC Group # 2019-7714

Jun 24, 2019

AGAT Laboratories

30898	06/05/2019 19X477047-255883M-FMS-HG18-08B	*WATER*			
30899	06/05/2019 19X477047-255884M-FMS-HG18-09A	*WATER*			
30900	06/05/2019 19X477047-255885M-FMS-HG18-09B	*WATER*			
Analyte	Units		30898	30899	30900
Lab Section 4 (Radiochemistry)					
Radium-226	Bq/L		0.006	0.02	<0.005

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 11.1 °C upon receipt.

SRC Group # 2019-7714

Jun 24, 2019

AGAT Laboratories

30901 06/05/2019 19X477047-255886M-FMS-HG18-10A *WATER*
 30902 06/05/2019 19X477047-255887M-FMS-HG18-10B *WATER*
 30903 06/05/2019 19X477047-255888M-FMS-HG18-11A *WATER*

Analyte	Units	30901	30902	30903
Lab Section 4 (Radiochemistry)				
Radium-226	Bq/L	<0.005	<0.005	0.009

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 11.1 °C upon receipt.

SRC Group # 2019-7714

Jun 24, 2019

AGAT Laboratories

30904	06/05/2019 19X477047-255889M-FMS-HG18-11B	*WATER*
30905	06/05/2019 19X477047-255890M-FMS-HG18-13A	*WATER*
30906	06/05/2019 19X477047-255891M-FMS-HG18-13B	*WATER*

Analyte	Units	30904	30905	30906
Lab Section 4 (Radiochemistry)				
Radium-226	Bq/L	<0.005	<0.005	<0.005

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 11.1 °C upon receipt.

SRC Group # 2019-7714

Jun 24, 2019

AGAT Laboratories

30907	06/05/2019	19X477047-255829M-FMS-HG18-14A	*WATER*
30908	06/05/2019	19X477047-255893M-FMS-HG18-14B	*WATER*
30909	06/05/2019	19X477047-255894M-FMS-HG18-15A	*WATER*

Analyte	Units	30907	30908	30909
Lab Section 4 (Radiochemistry)				
Radium-226	Bq/L	<0.005	0.006	0.01

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 11.1 °C upon receipt.

SRC Group # 2019-7714

Jun 24, 2019

AGAT Laboratories

30910	06/05/2019	19X477047-255895M-FMS-HG18-15B	*WATER*
30911	06/05/2019	19X477047-255896M-FMS-HG18-16A	*WATER*
30912	06/05/2019	19X477047-255897M-FMS-HG18-16B	*WATER*

Analyte	Units	30910	30911	30912
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Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	<0.005	0.01	0.008
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Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 11.1 °C upon receipt.

SRC Group # 2019-7714

Jun 24, 2019

AGAT Laboratories

30913	06/05/2019	19X477047-255898M-DUP-A	*WATER*
30914	06/05/2019	19X477047-255899M-DUP-B	*WATER*
30915	06/05/2019	19X477047-255900M-DUP-C	*WATER*

Analyte	Units	30913	30914	30915
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Lab Section 4 (Radiochemistry)

Radium-226	Bq/L	<0.005	<0.005	0.005
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Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 11.1 °C upon receipt.



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