

**APPENDIX B**

**CERTIFICATES OF ANALYSIS – WATER QUALITY**

**CLIENT NAME: AMEC FOSTER WHEELER E&I  
133 CROSBIE ROAD  
ST. JOHNS, NL A1B4A5  
(709) 722-7023**

**ATTENTION TO: MATT GOSSE**

**PROJECT: TF13104119.1000**

**AGAT WORK ORDER: 16X135885**

**WATER ANALYSIS REVIEWED BY: Laura Baker, Inorganics Data Reporter**

**DATE REPORTED: Sep 21, 2016**

**PAGES (INCLUDING COVER): 10**

**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: 16X135885

PROJECT: TF13104119.1000

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

## Mercury Analysis in Water (Total)

DATE RECEIVED: 2016-09-09

DATE REPORTED: 2016-09-21

Parameter	Unit	SAMPLE DESCRIPTION:		
		G / S	RDL	
		Grizzle	Causeway	English Pt
		Water	Water	Water
		9/6/2016	9/6/2016	9/6/2016
		7834164	7834169	7834175
Mercury	ug/L	0.026	<0.026	<0.026

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

Certified By:

# Certificate of Analysis

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SAMPLING SITE:

SAMPLED BY:

## Standard Water Analysis + Total Metals

DATE RECEIVED: 2016-09-09

DATE REPORTED: 2016-09-21

Parameter	Unit	SAMPLE DESCRIPTION:		Grizzle	Causeway	English Pt
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		9/6/2016	9/6/2016	9/6/2016
		G / S	RDL	7834164	7834169	7834175
pH				7.01	6.92	7.10
Reactive Silica as SiO2	mg/L		0.5		2.7	2.5
Chloride	mg/L		1	<1	<1	<1
Fluoride	mg/L		0.12	<0.12	<0.12	<0.12
Sulphate	mg/L		2	<2	<2	<2
Alkalinity	mg/L		5	8	7	7
True Color	TCU		5	37	33	39
Turbidity	NTU		0.1	1.2	5.4	7.7
Electrical Conductivity	umho/cm		1	19	20	20
Nitrate + Nitrite as N	mg/L		0.05	0.06	0.06	<0.05
Nitrate as N	mg/L		0.05	0.06	0.06	<0.05
Nitrite as N	mg/L		0.05	<0.05	<0.05	<0.05
Ammonia as N	mg/L		0.03	<0.03	<0.03	<0.03
Total Organic Carbon	mg/L		0.5	4.5	4.6	5.1
Ortho-Phosphate as P	mg/L		0.01	<0.01	<0.01	<0.01
Total Sodium	mg/L		0.1	0.9	0.8	0.6
Total Potassium	mg/L		0.1	0.4	0.6	0.3
Total Calcium	mg/L		0.1	2.3	2.4	2.4
Total Magnesium	mg/L		0.1	0.9	1.1	0.8
Total Phosphorous	mg/L		0.02	0.05	0.08	0.04
Bicarb. Alkalinity (as CaCO3)	mg/L		5	8	7	7
Carb. Alkalinity (as CaCO3)	mg/L		10	<10	<10	<10
Hydroxide	mg/L		5	<5	<5	<5
Calculated TDS	mg/L		1	10	11	8
Hardness	mg/L			9.4	10.5	9.3
Langelier Index (@20C)	NA			-3.21	-3.35	-3.15
Langelier Index (@ 4C)	NA			-3.53	-3.67	-3.47
Saturation pH (@ 20C)	NA			10.2	10.3	10.3
Saturation pH (@ 4C)	NA			10.5	10.6	10.6
Anion Sum	me/L			0.16	0.14	0.14

Certified By:



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ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

## Standard Water Analysis + Total Metals

DATE RECEIVED: 2016-09-09

DATE REPORTED: 2016-09-21

Parameter	Unit	SAMPLE DESCRIPTION:		Grizzle	Causeway	English Pt
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		9/6/2016	9/6/2016	9/6/2016
		G / S	RDL	7834164	7834169	7834175
Cation sum	me/L			0.28	0.36	0.23
% Difference/ Ion Balance (NS)	%			25.8	43.0	23.9
Total Aluminium	ug/L	5		238	634	38
Total Antimony	ug/L	2		<2	<2	<2
Total Arsenic	ug/L	2		<2	<2	<2
Total Barium	ug/L	5		9	17	8
Total Beryllium	ug/L	2		<2	<2	<2
Total Bismuth	ug/L	2		<2	<2	<2
Total Boron	ug/L	5		<5	<5	<5
Total Cadmium	ug/L		0.017	<0.017	<0.017	<0.017
Total Chromium	ug/L	1		1	2	<1
Total Cobalt	ug/L	1		<1	<1	<1
Total Copper	ug/L	1		5	2	<1
Total Iron	ug/L	50		367	832	115
Total Lead	ug/L	0.5		<0.5	<0.5	<0.5
Total Manganese	ug/L	2		15	33	9
Total Molybdenum	ug/L	2		<2	<2	<2
Total Nickel	ug/L	2		<2	<2	<2
Total Selenium	ug/L	1		<1	<1	<1
Total Silver	ug/L	0.1		<0.1	<0.1	<0.1
Total Strontium	ug/L	5		13	13	12
Total Thallium	ug/L	0.1		<0.1	<0.1	<0.1
Total Tin	ug/L	2		<2	<2	<2
Total Titanium	ug/L	2		16	79	<2
Total Uranium	ug/L	0.1		<0.1	<0.1	<0.1
Total Vanadium	ug/L	2		<2	<2	<2
Total Zinc	ug/L	5		<5	6	<5

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

Certified By:



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SAMPLING SITE:

SAMPLED BY:

## TSS, TKN, TP, DOC

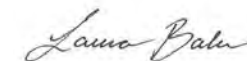
DATE RECEIVED: 2016-09-09

DATE REPORTED: 2016-09-21

Parameter	Unit	SAMPLE DESCRIPTION:		Grizzle	Causeway	English Pt
		G / S	RDL	7834164	7834169	7834175
Dissolved Organic Carbon	mg/L		0.5	4.3	4.3	4.3
Total Phosphorous as P	mg/L		0.03	<0.03	<0.03	0.03
Total Suspended Solids	mg/L		5	<5	14	25
Total Kjeldahl Nitrogen as N	mg/L		0.4	2.2	<0.4	<0.4

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

Certified By:



## Quality Assurance

CLIENT NAME: AMEC FOSTER WHEELER E&I

AGAT WORK ORDER: 16X135885

PROJECT: TF13104119.1000

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

Water Analysis															
RPT Date: Sep 21, 2016			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE	
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

**Standard Water Analysis + Total Metals**

pH	7834164		7.01	6.94	1.0%	<	100%	80%	120%	NA	80%	120%	NA	80%	120%
Reactive Silica as SiO2	1	7834164	2.7	2.7	0.0%	< 0.5	112%	80%	120%		80%	120%	98%	80%	120%
Chloride	7829501		144	147	2.1%	< 1	86%	80%	120%	NA	80%	120%	NA	80%	120%
Fluoride	7829501		<0.12	<0.12	NA	< 0.12	104%	80%	120%	NA	80%	120%	102%	80%	120%
Sulphate	7829501		16	17	2.7%	< 2	106%	80%	120%	NA	80%	120%	NA	80%	120%
Alkalinity	7834164	7834164	8	7	NA	< 5	87%	80%	120%	NA	80%	120%	NA	80%	120%
True Color	1	7833634	37	41	10.3%	< 5	105%	80%	120%		80%	120%		80%	120%
Turbidity	1	7834175	6.8	7.7	12.4%	< 0.1	102%	80%	120%		80%	120%		80%	120%
Electrical Conductivity	7834164	7834164	19	19	0.7%	< 1	97%	80%	120%	NA	80%	120%	NA	80%	120%
Nitrate as N	7829501		5.58	5.78	3.6%	< 0.05	91%	80%	120%	NA	80%	120%	NA	80%	120%
Nitrite as N	7829501		0.13	0.14	NA	< 0.05	93%	80%	120%	NA	80%	120%	98%	80%	120%
Ammonia as N	1	7837887	<0.03	<0.03	NA	< 0.03	92%	80%	120%		80%	120%	105%	80%	120%
Total Organic Carbon	1	7834164	4.5	4.5	0.0%	< 0.5	90%	80%	120%		80%	120%	96%	80%	120%
Ortho-Phosphate as P	1	7837887	0.01	0.07	NA	< 0.01	99%	80%	120%		80%	120%	101%	80%	120%
Total Sodium	9122016		0.6	0.6	0.0%	< 0.1	109%	80%	120%	100%	80%	120%	112%	70%	130%
Total Potassium	9122016		0.3	0.3	0.0%	< 0.1	105%	80%	120%	108%	80%	120%	105%	70%	130%
Total Calcium	9122016		2.36	2.18	7.9%	< 0.1	99%	80%	120%	107%	80%	120%	98%	70%	130%
Total Magnesium	9122016		0.79	0.74	6.5%	< 0.1	97%	80%	120%	100%	80%	120%	96%	80%	120%
Total Phosphorous	9122016		0.04	0.04	0.0%	< 0.02	90%	80%	120%	92%	80%	120%	106%	70%	130%
Bicarb. Alkalinity (as CaCO3)	7834164	7834164	8	7	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Carb. Alkalinity (as CaCO3)	7834164	7834164	<10	<10	NA	< 10	NA	80%	120%	NA	80%	120%	NA	80%	120%
Hydroxide	7834164	7834164	<5	<5	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Total Aluminum	9122016		38	39	2.6%	< 5	105%	80%	120%	99%	80%	120%	113%	70%	130%
Total Antimony	9122016		< 2	< 2	0.0%	< 2	92%	80%	120%	105%	80%	120%	99%	70%	130%
Total Arsenic	9122016		< 2	< 2	0.0%	< 2	98%	80%	120%	99%	80%	120%	105%	70%	130%
Total Barium	9122016		8	7	13.3%	< 5	100%	80%	120%	99%	80%	120%	99%	70%	130%
Total Beryllium	9122016		< 2	< 2	0.0%	< 2	109%	80%	120%	111%	80%	120%	119%	70%	130%
Total Bismuth	9122016		< 2	< 2	0.0%	< 2	108%	80%	120%	105%	80%	120%	109%	70%	130%
Total Boron	9122016		< 5	< 5	0.0%	< 5	108%	80%	120%	101%	80%	120%	112%	70%	130%
Total Cadmium	9122016		< 0.017	< 0.017	0.0%	< 0.017	99%	80%	120%	99%	80%	120%	107%	70%	130%
Total Chromium	9122016		< 1	< 1	0.0%	< 1	120%	80%	120%	83%	80%	120%	106%	70%	130%
Total Cobalt	9122016		< 1	< 1	0.0%	< 1	109%	80%	120%	110%	80%	120%	108%	70%	130%
Total Copper	9122016		< 1	< 1	0.0%	< 1	109%	80%	120%	111%	80%	120%	108%	70%	130%
Total Iron	9122016		115	124	7.5%	< 50	116%	80%	120%	120%	80%	120%	120%	70%	130%
Total Lead	9122016		< 0.5	< 0.5	0.0%	< 0.5	110%	80%	120%	109%	80%	120%	110%	70%	130%
Total Manganese	9122016		9	9	0.0%	< 2	112%	80%	120%	114%	80%	120%	112%	70%	130%
Total Molybdenum	9122016		< 2	< 2	0.0%	< 2	97%	80%	120%	102%	80%	120%	104%	70%	130%
Total Nickel	9122016		< 2	< 2	0.0%	< 2	110%	80%	120%	109%	80%	120%	114%	70%	130%
Total Selenium	9122016		< 1	< 1	0.0%	< 1	99%	80%	120%	92%	80%	120%	97%	70%	130%

## Quality Assurance

**CLIENT NAME:** AMEC FOSTER WHEELER E&I  
**PROJECT:** TF13104119.1000  
**SAMPLING SITE:**

**AGAT WORK ORDER:** 16X135885  
**ATTENTION TO:** MATT GOSSE  
**SAMPLED BY:**

### Water Analysis (Continued)

RPT Date: Sep 21, 2016			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Silver	9122016		< 0.1	< 0.1	0.0%	< 0.1	98%	80%	120%	99%	80%	120%	102%	70%	130%	
Total Strontium	9122016		12	12	0.0%	< 5	102%	80%	120%	104%	80%	120%	107%	70%	130%	
Total Thallium	9122016		< 0.1	< 0.1	0.0%	< 0.1	107%	80%	120%	115%	80%	120%	109%	70%	130%	
Total Tin	9122016		< 2	< 2	0.0%	< 2	101%	80%	120%	102%	80%	120%	101%	70%	130%	
Total Titanium	9122016		< 2	< 2	0.0%	< 2	112%	80%	120%	102%	80%	120%	104%	70%	130%	
Total Uranium	9122016		< 0.1	< 0.1	0.0%	< 0.1	109%	80%	120%	116%	80%	120%	114%	70%	130%	
Total Vanadium	9122016		< 2	< 2	0.0%	< 2	116%	80%	120%	113%	80%	120%	113%	70%	130%	
Total Zinc	9122016		< 5	< 5	0.0%	< 5	113%	80%	120%	110%	80%	120%	102%	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 (Total)

Mercury	1		< 0.026	< 0.026	0.0%	< 0.026	95%	80%	120%		80%	120%	81%	70%	130%
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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, TKN, TP, DOC

Dissolved Organic Carbon	1	7834164	4.5	4.5	0.0%	< 0.5	90%	80%	120%		80%	120%	96%	80%	120%
Total Phosphorous as P	1	7827106	<0.03	<0.03	NA	< 0.03	111%	80%	120%		120%	120%	112%	80%	120%
Total Suspended Solids	1		14	13	NA	< 5	99%	80%	120%		120%	120%	95%	80%	120%
Total Kjeldahl Nitrogen as N	1	7827106	0.56	0.46	NA	< 0.4	108%	80%	120%		80%	120%	86%	80%	120%

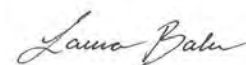
Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

#### Standard Water Analysis + Total Metals

pH	7834175	7834175	7.10	6.96	2%	<	100%	80%	120%	NA	80%	120%	NA	80%	120%
Alkalinity	7834175	7834175	7	6	NA	< 5	88%	80%	120%	NA	80%	120%	NA	80%	120%
Electrical Conductivity	7834175	7834175	20	20	1.5%	< 1	96%	80%	120%	NA	80%	120%	NA	80%	120%
Bicarb. Alkalinity (as CaCO3)	7834175	7834175	7	6	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Carb. Alkalinity (as CaCO3)	7834175	7834175	<10	<10	NA	< 10	NA	80%	120%	NA	80%	120%	NA	80%	120%
Hydroxide	7834175	7834175	<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.

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





## Method Summary

**CLIENT NAME:** AMEC FOSTER WHEELER E&I  
**PROJECT:** TF13104119.1000  
**SAMPLING SITE:**

**AGAT WORK ORDER:** 16X135885  
**ATTENTION TO:** MATT GOSSE  
**SAMPLED BY:**

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
<b>Water Analysis</b>			
Mercury	INOR-121-6100 & INOR-121-6107	SM 3112 B	CV/AA
pH	INOR-121-6001	SM 4500 H+B	PC-TITRATE
Reactive Silica as SiO <sub>2</sub>	INORG-121-6028	SM 4110 B	COLORIMETER
Chloride	INORG-121-6005	SM 4110 B	IC
Fluoride	INORG-121-6005	SM 4110 B	IC
Sulphate	INORG-121-6005	SM 4110 B	IC
Alkalinity	INORG-121-6001	SM 2320 B	PC-TITRATE
True Color	INORG-121-6014	EPA 110.2	NEPHELOMETER
Turbidity	INORG-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	IC
Nitrite as N	INORG-121-6005	SM 4110 B	IC
Ammonia as N	INORG-121-6003	SM 4500-NH <sub>3</sub> G	COLORIMETER
Total Organic Carbon	INORG-121-6026	SM 5310 B	TOC ANALYZER
Ortho-Phosphate as P	INORG-121-6005	SM 4110 B	COLORIMETER
Total Sodium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Potassium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Calcium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Magnesium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Phosphorous	MET-121-6104 & MET-121-6105	SM 3125	ICP/MS
Bicarb. Alkalinity (as CaCO <sub>3</sub> )	INORG-121-6001	SM 2320 B	PC-TITRATE
Carb. Alkalinity (as CaCO <sub>3</sub> )	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
Total Aluminum	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Antimony	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Arsenic	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Barium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Beryllium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Bismuth	MET121-6104 & MET-121-6105	SM 3125	ICP/MS

## Method Summary

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**AGAT WORK ORDER: 16X135885**
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**ATTENTION TO: MATT GOSSE**
**SAMPLING SITE:**
**SAMPLED BY:**

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Boron	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Cadmium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Chromium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Cobalt	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Copper	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Iron	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Lead	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Manganese	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Molybdenum	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Nickel	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Selenium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Silver	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Strontium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Thallium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Tin	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Titanium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Uranium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Vanadium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Zinc	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Dissolved Organic Carbon	INORG-121-6026	SM 5310 B	TOC ANALYZER
Total Phosphorous as P	INORG-121-6009	SM 365.2	COLORIMETER
Total Suspended Solids	INOR-121-6024, 6025	SM 2540C, D	GRAVIMETRIC
Total Kjeldahl Nitrogen as N	INOR-121-6020	SM 4500 NORG D	COLORIMETER

### Laboratory Use Only

Arrival Condition:  Good  Poor (see notes)

Arrival Temperature: 10

AGAT Job Number: 16x135885

Notes:

## Chain of Custody Record

P: 902.468.8718 • F: 902.468.8924

### Report Information

Company: Amerc Foster Wheeler  
 Contact: Matthew Gosse  
 Address: 133 Crosbie Road  
St. John's, NL  
 Phone: 709-727-3228 Fax: \_\_\_\_\_  
 LSD: \_\_\_\_\_  
 Client Project #: TF13104119.1000

### Report Information

1. Name: Matthew Gosse  
 Email: matthew.gosse@amerfw.com  
 2. Name: \_\_\_\_\_  
 Email: \_\_\_\_\_

### Report Format

Single Sample per page  
 Multiple Samples per page  
 Excel Format Included

### 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  NSDFOSP  
 Commercial  HRM 101  
 Res/Park  Storm Water  
 Agricultural  Waste Water  
 FWAL  
 Sediment  Other \_\_\_\_\_

Drinking 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 checked="" type="checkbox"/> Total <input type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury	<input type="checkbox"/> BOD <input type="checkbox"/> CBOD	pH	<input checked="" type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI)	Tier 2: TPH/BTEX Fractionation	CCME/CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	Tot. Coliforms + E.Coli (Presence/Absence)	Total Coliforms + E.Coli (MPN)	Fecal Coliform (MF)	Other: <u>DOC</u>	Other: <u>Radical like Organic Carbon</u>	Hazardous (Y/N)
<u>GRIZZLE</u>	<u>Sept 6, 2016</u>	<u>H2O</u>	<u>5</u>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<u>CAUSEWAY</u>	<u>Sept 6, 2016</u>	<u>H2O</u>	<u>5</u>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<u>ENGLISH PT.</u>	<u>Sept 6, 2016</u>	<u>H2O</u>	<u>5</u>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<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>Matthew Gosse</u>	Date/Time: <u>Sept 6, 2016</u>	Samples Received By (Print Name): <u>Samantha Baker</u>	Date/Time: <u>Sept 9/16</u>	Pink Copy - Client	Page <u>1</u> of <u>1</u>
Samples Relinquished By (Sign): <u>[Signature]</u>	Date/Time: <u>Sept 6, 2016</u>	Samples Received By (Sign): <u>[Signature]</u>	Date/Time: <u>14:45</u>	Yellow Copy - AGAT	No: <b>39926</b>
				White Copy - AGAT	

CLIENT NAME: AMEC FOSTER WHEELER E&I  
133 CROSBIE ROAD  
ST. JOHNS, NL A1B4A5  
(709) 722-7023

ATTENTION TO: MATT GOSSE

PROJECT: TF13104119

AGAT WORK ORDER: 16X106561

WATER ANALYSIS REVIEWED BY: Laura Baker, Inorganics Data Reporter

DATE REPORTED: Jun 27, 2016

PAGES (INCLUDING COVER): 10

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: 16X106561

PROJECT: TF13104119

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

## MTL - Standard Water Analysis + Total Metals

DATE RECEIVED: 2016-06-17

DATE REPORTED: 2016-06-27

Parameter	Unit	SAMPLE DESCRIPTION:		Grizzle	Causeway	English PT
		G / S	RDL	7642020	7642034	7642045
pH				7.00	6.95	6.97
Reactive Silica as SiO2	mg/L		0.5	2.8	2.4	3.0
Chloride	mg/L		1	<1	<1	<1
Fluoride	mg/L		0.12	<0.12	<0.12	<0.12
Sulphate	mg/L		2	<2	<2	<2
Alkalinity	mg/L		5	6	6	6
True Color	TCU		5	42	39	38
Turbidity	NTU		0.1	1.7	26.8	26.9
Electrical Conductivity	umho/cm		1	15	17	20
Nitrate + Nitrite as N	mg/L		0.05	0.06	<0.05	<0.05
Nitrate as N	mg/L		0.05	0.06	<0.05	<0.05
Nitrite as N	mg/L		0.05	<0.05	<0.05	<0.05
Ammonia as N	mg/L		0.03	0.06	0.05	0.06
Total Organic Carbon	mg/L		0.5	5.9	5.7	5.3
Ortho-Phosphate as P	mg/L		0.01	<0.01	<0.01	<0.01
Total Sodium	mg/L		0.1	0.5	0.8	0.9
Total Potassium	mg/L		0.1	0.3	0.7	0.8
Total Calcium	mg/L		0.1	1.8	2.1	2.3
Total Magnesium	mg/L		0.1	0.6	1.0	1.2
Total Phosphorous	mg/L		0.02	0.03	0.04	0.05
Bicarb. Alkalinity (as CaCO3)	mg/L		5	6	6	6
Carb. Alkalinity (as CaCO3)	mg/L		10	<10	<10	<10
Hydroxide	mg/L		5	<5	<5	<5
Calculated TDS	mg/L		1	8	11	12
Hardness	mg/L			7.0	9.4	10.7
Langelier Index (@20C)	NA			-3.44	-3.44	-3.38
Langelier Index (@ 4C)	NA			-3.76	-3.76	-3.70
Saturation pH (@ 20C)	NA			10.4	10.4	10.4
Saturation pH (@ 4C)	NA			10.8	10.7	10.7
Anion Sum	me/L			0.12	0.12	0.12

Certified By:





## Certificate of Analysis

AGAT WORK ORDER: 16X106561

PROJECT: TF13104119

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

### MTL - Standard Water Analysis + Total Metals

DATE RECEIVED: 2016-06-17

DATE REPORTED: 2016-06-27

Parameter	Unit	SAMPLE DESCRIPTION:				
		G / S	RDL	Grizzle	Causeway	English PT
				Water	Water	Water
				6/16/2016	6/16/2016	6/16/2016
				7642020	7642034	7642045
Cation sum	me/L			0.21	0.42	0.48
% Difference/ Ion Balance (NS)	%			24.6	55.5	59.7
Total Aluminium	ug/L	5	188	1230	1380	
Total Antimony	ug/L	2	<2	<2	<2	
Total Arsenic	ug/L	2	<2	<2	<2	
Total Barium	ug/L	5	9	19	22	
Total Beryllium	ug/L	2	<2	<2	<2	
Total Bismuth	ug/L	2	<2	<2	<2	
Total Boron	ug/L	5	<5	<5	<5	
Total Cadmium	ug/L	0.017	<0.017	<0.017	<0.017	
Total Chromium	ug/L	1	<1	2	3	
Total Cobalt	ug/L	1	<1	<1	<1	
Total Copper	ug/L	1	<1	2	2	
Total Iron	ug/L	50	309	1050	1220	
Total Lead	ug/L	0.5	<0.5	<0.5	<0.5	
Total Manganese	ug/L	2	16	29	33	
Total Molybdenum	ug/L	2	<2	<2	<2	
Total Nickel	ug/L	2	5	5	5	
Total Selenium	ug/L	1	<1	<1	<1	
Total Silver	ug/L	0.1	<0.1	<0.1	<0.1	
Total Strontium	ug/L	5	10	13	16	
Total Thallium	ug/L	0.1	<0.1	<0.1	<0.1	
Total Tin	ug/L	2	<2	<2	<2	
Total Titanium	ug/L	2	9	62	73	
Total Uranium	ug/L	0.1	<0.1	<0.1	<0.1	
Total Vanadium	ug/L	2	<2	<2	2	
Total Zinc	ug/L	5	<5	5	6	

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 16X106561

PROJECT: TF13104119

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

## MTL - Standard Water Analysis + Total Metals

DATE RECEIVED: 2016-06-17

DATE REPORTED: 2016-06-27

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

7642020-7642034 TOC was analysed at AGAT Montreal.  
When the cation and anion sums are below 1 me/L, the acceptable criteria is less than 0.3me/L.

7642045 TOC was analysed at AGAT Montreal.  
Ion Balance is biased high, contributing parameters have been confirmed.

Certified By:



## Certificate of Analysis

AGAT WORK ORDER: 16X106561

PROJECT: TF13104119

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

### Various Inorganics (Water)

DATE RECEIVED: 2016-06-17

DATE REPORTED: 2016-06-27

Parameter	Unit	SAMPLE DESCRIPTION:				
		G / S	RDL	Grizzle	Causeway	English PT
				Water	Water	Water
				6/16/2016	6/16/2016	6/16/2016
				7642020	7642034	7642045
Mercury	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Total Phosphorous as P	mg/L	0.03	<0.03	0.07	0.23	
Total Suspended Solids	mg/L	5	<5	27	27	
Total Kjeldahl Nitrogen as N	mg/L	0.4	<0.4	<0.4	0.9	

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

Certified By:



## Quality Assurance

CLIENT NAME: AMEC FOSTER WHEELER E&I  
 PROJECT: TF13104119  
 SAMPLING SITE:

AGAT WORK ORDER: 16X106561  
 ATTENTION TO: MATT GOSSE  
 SAMPLED BY:

Water Analysis															
RPT Date: Jun 27, 2016			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

**MTL - Standard Water Analysis + Total Metals**

pH	7634871		7.38	7.32	0.8%	<	102%	80%	120%	NA	80%	120%	NA	80%	120%
Reactive Silica as SiO2	1	7642020	2.8	2.8	0.0%	< 0.5	110%	80%	120%		80%	120%	100%	80%	120%
Chloride	7634977		7	7	2.2%	< 1	93%	80%	120%	NA	80%	120%	95%	80%	120%
Fluoride	7634977		<0.12	<0.12	NA	< 0.12	115%	80%	120%	NA	80%	120%	106%	80%	120%
Sulphate	7634977		3	3	NA	< 2	100%	80%	120%	NA	80%	120%	103%	80%	120%
Alkalinity	7634871		37	36	2.2%	< 5	99%	80%	120%	NA	80%	120%	NA	80%	120%
True Color	1	7640706	<5	<5	NA	< 5	105%	80%	120%		80%	120%		80%	120%
Turbidity	1	7640704	0.9	0.8	11.8%	< 0.1	103%	80%	120%		80%	120%		80%	120%
Electrical Conductivity	7634871		80	79	1.1%	< 1	98%	80%	120%	NA	80%	120%	NA	80%	120%
Nitrate as N	7634977		1.01	1.04	2.2%	< 0.05	102%	80%	120%	NA	80%	120%	NA	80%	120%
Nitrite as N	7634977		<0.05	<0.05	NA	< 0.05	98%	80%	120%	NA	80%	120%	109%	80%	120%
Ammonia as N	1	7640028	0.05	0.06	NA	< 0.03	102%	80%	120%		80%	120%	106%	80%	120%
Total Organic Carbon	7638590		2.2	2.2	0.0%	< 0.5	94%	80%	120%	94%	80%	120%	94%	80%	120%
Ortho-Phosphate as P	1	7645542	0.04	0.04	NA	< 0.01	99%	80%	120%		80%	120%	104%	80%	120%
Total Sodium	6202016		0.9	0.9	0.0%	< 0.1	96%	80%	120%	97%	80%	120%	120%	70%	130%
Total Potassium	6202016		0.78	0.74	5.3%	< 0.1	107%	80%	120%	108%	80%	120%	112%	70%	130%
Total Calcium	6202016		2.3	2.3	0.0%	< 0.1	105%	80%	120%	108%	80%	120%	100%	70%	130%
Total Magnesium	6202016		1.2	1.2	0.0%	< 0.1	104%	80%	120%	107%	80%	120%	113%	80%	120%
Total Phosphorous	6202016		0.05	0.05	0.0%	< 0.02	105%	80%	120%	109%	80%	120%	95%	70%	130%
Bicarb. Alkalinity (as CaCO3)	7634871		37	36	2.2%	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Carb. Alkalinity (as CaCO3)	7634871		<10	<10	NA	< 10	NA	80%	120%	NA	80%	120%	NA	80%	120%
Hydroxide	7634871		<5	<5	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Total Aluminum	6202016		1480	1380	7.0%	< 5	104%	80%	120%	110%	80%	120%	130%	70%	130%
Total Antimony	6202016		< 2	< 2	0.0%	< 2	83%	80%	120%	105%	80%	120%	98%	70%	130%
Total Arsenic	6202016		< 2	< 2	0.0%	< 2	98%	80%	120%	97%	80%	120%	98%	70%	130%
Total Barium	6202016		22	21	NA	< 5	102%	80%	120%	103%	80%	120%	118%	70%	130%
Total Beryllium	6202016		< 2	< 2	0.0%	< 2	101%	80%	120%	105%	80%	120%	109%	70%	130%
Total Bismuth	6202016		< 2	< 2	0.0%	< 2	97%	80%	120%	101%	80%	120%	105%	70%	130%
Total Boron	6202016		< 5	< 5	0.0%	< 5	100%	80%	120%	107%	80%	120%	106%	70%	130%
Total Cadmium	6202016		< 0.017	< 0.017	0.0%	< 0.017	99%	80%	120%	99%	80%	120%	100%	70%	130%
Total Chromium	6202016		3	3	NA	< 1	96%	80%	120%	96%	80%	120%	99%	70%	130%
Total Cobalt	6202016		< 1	< 1	0.0%	< 1	97%	80%	120%	97%	80%	120%	99%	70%	130%
Total Copper	6202016		2	2	NA	< 1	101%	80%	120%	103%	80%	120%	101%	70%	130%
Total Iron	6202016		1220	1150	5.9%	< 50	97%	80%	120%	104%	80%	120%	113%	70%	130%
Total Lead	6202016		< 0.5	< 0.5	0.0%	< 0.5	106%	80%	120%	107%	80%	120%	110%	70%	130%
Total Manganese	6202016		33	32	3.1%	< 2	100%	80%	120%	104%	80%	120%	119%	70%	130%
Total Molybdenum	6202016		< 2	< 2	0.0%	< 2	97%	80%	120%	99%	80%	120%	106%	70%	130%
Total Nickel	6202016		5	7	0.0%	< 2	98%	80%	120%	97%	80%	120%	113%	70%	130%
Total Selenium	6202016		< 1	< 1	0.0%	< 1	100%	80%	120%	99%	80%	120%	96%	70%	130%

## Quality Assurance

CLIENT NAME: AMEC FOSTER WHEELER E&I  
 PROJECT: TF13104119  
 SAMPLING SITE:

AGAT WORK ORDER: 16X106561  
 ATTENTION TO: MATT GOSSE  
 SAMPLED BY:

### Water Analysis (Continued)

RPT Date: Jun 27, 2016			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Silver	6202016		< 0.1	< 0.1	0.0%	< 0.1	99%	80%	120%	97%	80%	120%	105%	70%	130%	
Total Strontium	6202016		16	16	0.0%	< 5	97%	80%	120%	97%	80%	120%	120%	70%	130%	
Total Thallium	6202016		< 0.1	< 0.1	0.0%	< 0.1	102%	80%	120%	104%	80%	120%	106%	70%	130%	
Total Tin	6202016		< 2	< 2	0.0%	< 2	99%	80%	120%	101%	80%	120%	105%	70%	130%	
Total Titanium	6202016		78	73	6.6%	< 2	106%	80%	120%	107%	80%	120%	130%	70%	130%	
Total Uranium	6202016		< 0.1	< 0.1	NA	< 0.1	100%	80%	120%	103%	80%	120%	106%	70%	130%	
Total Vanadium	6202016		2	2	0.0%	< 2	93%	80%	120%	92%	80%	120%	102%	70%	130%	
Total Zinc	6202016		6	7	15.4%	< 5	97%	80%	120%	97%	80%	120%	93%	70%	130%	

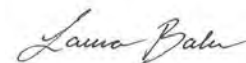
Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Various Inorganics (Water)

Mercury	1		0.00005	0.00006	NA	< 0.00005	97%	80%	120%		80%	120%	99%	70%	130%
Total Phosphorous as P	1	7632802	< 0.03	< 0.03	0.0%	< 0.03	99%	80%	120%		120%	120%	113%	80%	120%
Total Suspended Solids	6222016	8715	< 5	< 5	0.0%	< 5	99%	80%	120%	NA	120%	120%	NA	80%	120%
Total Kjeldahl Nitrogen as N	1	7642034	0.4	0.3	NA	< 0.4	102%	80%	120%		80%	120%	112%	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: \_\_\_\_\_



## Method Summary

CLIENT NAME: AMEC FOSTER WHEELER E&amp;I

AGAT WORK ORDER: 16X106561

PROJECT: TF13104119

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
pH	INOR-121-6001	SM 4500 H+B	PC-TITRATE
Reactive Silica as SiO <sub>2</sub>	INORG-121-6028	SM 4110 B	COLORIMETER
Chloride	INORG-121-6005	SM 4110 B	IC
Fluoride	INORG-121-6005	SM 4110 B	IC
Sulphate	INORG-121-6005	SM 4110 B	IC
Alkalinity	INORG-121-6001	SM 2320 B	PC-TITRATE
True Color	INORG-121-6014	EPA 110.2	NEPHELOMETER
Turbidity	INORG-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	IC
Nitrite as N	INORG-121-6005	SM 4110 B	IC
Ammonia as N	INORG-121-6003	SM 4500-NH <sub>3</sub> G	COLORIMETER
Total Organic Carbon	INORG-121-6026	SM 5310 B	TOC ANALYZER
Ortho-Phosphate as P	INORG-121-6005	SM 4110 B	COLORIMETER
Total Sodium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Potassium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Calcium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Magnesium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Phosphorous	MET-121-6104 & MET-121-6105	SM 3125	ICP/MS
Bicarb. Alkalinity (as CaCO <sub>3</sub> )	INORG-121-6001	SM 2320 B	PC-TITRATE
Carb. Alkalinity (as CaCO <sub>3</sub> )	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
Total Aluminum	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Antimony	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Arsenic	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Barium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Beryllium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Bismuth	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Boron	MET121-6104 & MET-121-6105	SM 3125	ICP/MS

## Method Summary

CLIENT NAME: AMEC FOSTER WHEELER E&I  
 PROJECT: TF13104119  
 SAMPLING SITE:

AGAT WORK ORDER: 16X106561  
 ATTENTION TO: MATT GOSSE  
 SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Cadmium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Chromium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Cobalt	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Copper	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Iron	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Lead	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Manganese	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Molybdenum	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Nickel	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Selenium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Silver	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Strontium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Thallium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Tin	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Titanium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Uranium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Vanadium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Zinc	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Mercury	MET-121-6100 & MET-121-6107	SM 3112 B	CVAAS
Total Phosphorous as P	INORG-121-6009	SM 365.2	COLORIMETER
Total Suspended Solids	INOR-121-6024, 6025	SM 2540C, D	GRAVIMETRIC
Total Kjeldahl Nitrogen as N	INOR-121-6020	SM 4500 NORG D	COLORIMETER



# 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: 6°

Hold Time: \_\_\_\_\_

AGAT Job Number: 16x106561

Notes: \_\_\_\_\_

### Chain of Custody Record

#### Report Information

Company: Amec Foster Wheeler

Contact: Matthew Gosse

Address: B3 CROSBIE RD.

Phone: 727-3228 Fax: \_\_\_\_\_

Client Project #: TF13104119

AGAT Quotation: \_\_\_\_\_

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

#### Report Information (Please print):

1. Name: Matt Gosse

Email: matthew.gosse@amec.com

2. Name: Jim McCarthy

Email: james.mccarthy@amec.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  NSESQ-Cont. Sites

Commercial  HRM 101

Res/Park  Storm Water

Agricultural  Waste Water

FWAL  Other \_\_\_\_\_

Sediment  Other \_\_\_\_\_

#### Report Format

Single Sample per page

Multiple Samples per page

Excel Format Included

#### 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

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 checked="" type="checkbox"/> Total <input type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury	<input type="checkbox"/> BOD <input type="checkbox"/> CBOD	pH	<input checked="" type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (P/I) <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: _____	Hazardous (Y/N)	
GRIZZLE	June 16, 2016	Water	5				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																
CAUSEWAY	"	"	5				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																
ENGLISH PT	"	"	5				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																

Samples Relinquished By (Print Name):  
Matthew Gosse

Date/Time:  
June 16

Samples Received By (Print Name):  
Samantha Baker

Date/Time:  
June 17/16

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

Page 1 of 1

Samples Relinquished By (Sign):  
[Signature]

Date/Time:  
June 16

Samples Received By (Sign):  
[Signature]

Date/Time:  
15:05

Nº: **053536**

CLIENT NAME: AMEC FOSTER WHEELER E&I  
133 CROSBIE ROAD  
ST. JOHNS, NL A1B4A5  
(709) 722-7023

ATTENTION TO: MATT GOSSE

PROJECT: TF13104119.1000

AGAT WORK ORDER: 16X129039

WATER ANALYSIS REVIEWED BY: Jason Coughtrey, Inorganics Supervisor

DATE REPORTED: Aug 30, 2016

PAGES (INCLUDING COVER): 11

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: 16X129039

PROJECT: TF13104119.1000

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

## MTL - Standard Water Analysis + Total Metals

DATE RECEIVED: 2016-08-22

DATE REPORTED: 2016-08-30

Parameter	Unit	SAMPLE DESCRIPTION:		Causeway	English Point	Grizzle	Edwards
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		8/19/2016	8/19/2016	8/18/2016	8/18/2016
		G / S	RDL	7790810	7790815	7790822	7790828
pH				6.91	6.83	6.85	6.84
Reactive Silica as SiO2	mg/L		0.5	2.9	2.8	2.7	2.6
Chloride	mg/L		1	<1	<1	<1	<1
Fluoride	mg/L		0.12	<0.12	<0.12	<0.12	<0.12
Sulphate	mg/L		2	<2	<2	<2	<2
Alkalinity	mg/L		5	7	7	6	6
True Color	TCU		5	25	27	28	44
Turbidity	NTU		0.1	5.1	7.0	2.3	5.8
Electrical Conductivity	umho/cm		1	19	20	18	17
Nitrate + Nitrite as N	mg/L		0.05	<0.05	<0.05	<0.05	<0.05
Nitrate as N	mg/L		0.05	<0.05	<0.05	<0.05	<0.05
Nitrite as N	mg/L		0.05	<0.05	<0.05	<0.05	<0.05
Ammonia as N	mg/L		0.03	0.04	<0.03	<0.03	<0.03
Total Organic Carbon	mg/L		0.5	5.1	5.1	5.4	5.2
Ortho-Phosphate as P	mg/L		0.01	<0.01	<0.01	<0.01	<0.01
Total Sodium	mg/L		0.1	0.8	1.1	0.7	0.7
Total Potassium	mg/L		0.1	0.4	0.5	0.3	0.4
Total Calcium	mg/L		0.1	3.5	2.6	2.4	2.6
Total Magnesium	mg/L		0.1	0.8	0.9	0.7	0.9
Total Phosphorous	mg/L		0.02	<0.02	0.02	<0.02	0.02
Bicarb. Alkalinity (as CaCO3)	mg/L		5	7	7	6	6
Carb. Alkalinity (as CaCO3)	mg/L		10	<10	<10	<10	<10
Hydroxide	mg/L		5	<5	<5	<5	<5
Calculated TDS	mg/L		1	10	10	8	9
Hardness	mg/L			12.0	10.2	8.9	10.2
Langelier Index (@20C)	NA			-3.19	-3.40	-3.47	-3.45
Langelier Index (@ 4C)	NA			-3.51	-3.72	-3.79	-3.77
Saturation pH (@ 20C)	NA			10.1	10.2	10.3	10.3
Saturation pH (@ 4C)	NA			10.4	10.5	10.6	10.6
Anion Sum	me/L			0.14	0.14	0.12	0.12

Certified By:





## Certificate of Analysis

AGAT WORK ORDER: 16X129039

PROJECT: TF13104119.1000

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

### MTL - Standard Water Analysis + Total Metals

DATE RECEIVED: 2016-08-22

DATE REPORTED: 2016-08-30

Parameter	Unit	SAMPLE DESCRIPTION:		Causeway	English Point	Grizzle	Edwards
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		8/19/2016	8/19/2016	8/18/2016	8/18/2016
		G / S	RDL	7790810	7790815	7790822	7790828
Cation sum	me/L			0.32	0.30	0.23	0.29
% Difference/ Ion Balance (NS)	%			39.5	36.9	31.2	41.6
Total Aluminium	ug/L	5		230	262	74	313
Total Antimony	ug/L	2		<2	<2	<2	<2
Total Arsenic	ug/L	2		<2	<2	<2	<2
Total Barium	ug/L	5		10	13	8	15
Total Beryllium	ug/L	2		<2	<2	<2	<2
Total Bismuth	ug/L	2		<2	<2	<2	<2
Total Boron	ug/L	5		<5	<5	<5	<5
Total Cadmium	ug/L		0.017	<0.017	<0.017	<0.017	<0.017
Total Chromium	ug/L		1	<1	<1	<1	<1
Total Cobalt	ug/L		1	<1	<1	<1	<1
Total Copper	ug/L		1	<1	<1	4	9
Total Iron	ug/L		50	226	274	133	305
Total Lead	ug/L		0.5	<0.5	<0.5	<0.5	<0.5
Total Manganese	ug/L		2	11	12	9	13
Total Molybdenum	ug/L		2	<2	<2	<2	<2
Total Nickel	ug/L		2	<2	<2	<2	<2
Total Selenium	ug/L		1	<1	<1	<1	<1
Total Silver	ug/L		0.1	<0.1	<0.1	<0.1	<0.1
Total Strontium	ug/L		5	14	13	12	13
Total Thallium	ug/L		0.1	<0.1	<0.1	<0.1	<0.1
Total Tin	ug/L		2	<2	<2	<2	<2
Total Titanium	ug/L		2	10	11	<2	16
Total Uranium	ug/L		0.1	<0.1	<0.1	<0.1	<0.1
Total Vanadium	ug/L		2	<2	<2	<2	<2
Total Zinc	ug/L		5	<5	<5	<5	8

Certified By:





**AGAT** Laboratories

# Certificate of Analysis

AGAT WORK ORDER: 16X129039

PROJECT: TF13104119.1000

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

MTL - Standard Water Analysis + Total Metals

DATE RECEIVED: 2016-08-22

DATE REPORTED: 2016-08-30

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

7790810-7790828 TOC was analysed at AGAT Montreal.  
When the cation and anion sums are below 1 me/L, the acceptable criteria is less than 0.3me/L.

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 16X129039

PROJECT: TF13104119.1000

11 Morris Drive, Unit 122  
Dartmouth, Nova Scotia  
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CLIENT NAME: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

## Mercury Analysis in Water (Total)

DATE RECEIVED: 2016-08-22

DATE REPORTED: 2016-08-30

Parameter	Unit	SAMPLE DESCRIPTION:		Causeway	English Point	Grizzle	Edwards
		G / S	RDL				
				7790810	7790815	7790822	7790828
Mercury	ug/L	0.026	<0.026	<0.026	<0.026	<0.026	<0.026

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

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 16X129039

PROJECT: TF13104119.1000

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

## Various Inorganics (Water)

DATE RECEIVED: 2016-08-22

DATE REPORTED: 2016-08-30

Parameter	Unit	SAMPLE DESCRIPTION:		Causeway	English Point	Grizzle	Edwards
		G / S	RDL	7790810	7790815	7790822	7790828
Total Phosphorous as P	mg/L	0.03	0.04	0.10	<0.03	0.11	
Total Suspended Solids	mg/L	5	5	<5	<5	7	
Total Kjeldahl Nitrogen as N	mg/L	0.4	2.1	<0.4	2.2	<0.4	
Carbone organique dissous	mg/L	0.30	4.87	4.69	4.94	4.86	

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

Certified By:

## Quality Assurance

CLIENT NAME: AMEC FOSTER WHEELER E&I  
 PROJECT: TF13104119.1000  
 SAMPLING SITE:

AGAT WORK ORDER: 16X129039  
 ATTENTION TO: MATT GOSSE  
 SAMPLED BY:

Water Analysis															
RPT Date: Aug 30, 2016			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

**MTL - Standard Water Analysis + Total Metals**

pH	7790581		7.01	6.92	1.3%	<	101%	80%	120%	NA	80%	120%	NA	80%	120%
Reactive Silica as SiO2	1	7788535	4.1	4.3	4.8%	< 0.5	114%	80%	120%		80%	120%	100%	80%	120%
Chloride	7790416		5	6	2.0%	< 1	101%	80%	120%	NA	80%	120%	92%	80%	120%
Fluoride	7790416		0.16	0.16	NA	< 0.12	112%	80%	120%	NA	80%	120%	107%	80%	120%
Sulphate	7790416		39	40	2.9%	< 2	114%	80%	120%	NA	80%	120%	NA	80%	120%
Alkalinity	7790581		32	31	2.5%	< 5	87%	80%	120%	NA	80%	120%	NA	80%	120%
True Color	1	0377	16	14	13.0%	< 5	105%	80%	120%		80%	120%		80%	120%
Turbidity	1	0377	16.9	16.5	2.0%	< 0.1	99%	80%	120%		80%	120%		80%	120%
Electrical Conductivity	7790581		91	91	0.1%	< 1	97%	80%	120%	NA	80%	120%	NA	80%	120%
Nitrate as N	7790416		0.34	0.34	0.8%	< 0.05	96%	80%	120%	NA	80%	120%	83%	80%	120%
Nitrite as N	7790416		<0.05	<0.05	NA	< 0.05	99%	80%	120%	NA	80%	120%	91%	80%	120%
Ammonia as N	1	7794611	<0.03	<0.03	NA	< 0.03	103%	80%	120%		80%	120%	96%	80%	120%
Total Organic Carbon	1		NA	NA	NA	< 0.5	104%	80%	120%	98%	80%	120%	97%	80%	120%
Ortho-Phosphate as P	1	7788535	<0.01	<0.01	NA	< 0.01	103%	80%	120%		80%	120%	104%	80%	120%
Total Sodium	8242016		137	143	4.3%	< 0.1	120%	80%	120%	120%	80%	120%	102%	70%	130%
Total Potassium	8242016		0.6	0.6	0.0%	< 0.1	114%	80%	120%	116%	80%	120%	121%	70%	130%
Total Calcium	8242016		4.97	4.74	4.7%	< 0.1	120%	80%	120%	111%	80%	120%	101%	70%	130%
Total Magnesium	8242016		0.6	0.6	0.0%	< 0.1	112%	80%	120%	115%	80%	120%	119%	80%	120%
Total Phosphorous	8242016		0.02	< 0.02	0.0%	< 0.02	88%	80%	120%	NA	80%	120%	70%	70%	130%
Bicarb. Alkalinity (as CaCO3)	7790581		32	31	2.5%	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Carb. Alkalinity (as CaCO3)	7790581		<10	<10	NA	< 10	NA	80%	120%	NA	80%	120%	NA	80%	120%
Hydroxide	7790581		<5	<5	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Total Aluminum	8242016		5	7	0.0%	< 5	119%	80%	120%	120%	80%	120%	130%	70%	130%
Total Antimony	8242016		< 2	< 2	0.0%	< 2	80%	80%	120%	106%	80%	120%	98%	70%	130%
Total Arsenic	8242016		< 2	< 2	0.0%	< 2	105%	80%	120%	100%	80%	120%	104%	70%	130%
Total Barium	8242016		7	7	0.0%	< 5	101%	80%	120%	99%	80%	120%	103%	70%	130%
Total Beryllium	8242016		< 2	< 2	0.0%	< 2	108%	80%	120%	107%	80%	120%	105%	70%	130%
Total Bismuth	8242016		< 2	< 2	0.0%	< 2	95%	80%	120%	105%	80%	120%	103%	70%	130%
Total Boron	8242016		14	13	7.4%	< 5	113%	80%	120%	117%	80%	120%	115%	70%	130%
Total Cadmium	8242016		< 0.017	< 0.017	0.0%	< 0.017	97%	80%	120%	100%	80%	120%	98%	70%	130%
Total Chromium	8242016		< 1	< 1	0.0%	< 1	98%	80%	120%	94%	80%	120%	109%	70%	130%
Total Cobalt	8242016		< 1	< 1	0.0%	< 1	104%	80%	120%	97%	80%	120%	101%	70%	130%
Total Copper	8242016		20	17	16.2%	< 1	80%	80%	120%	80%	80%	120%	89%	70%	130%
Total Iron	8242016		< 50	< 50	0.0%	< 50	101%	80%	120%	97%	80%	120%	106%	70%	130%
Total Lead	8242016		< 0.5	< 0.5	0.0%	< 0.5	110%	80%	120%	108%	80%	120%	107%	70%	130%
Total Manganese	8242016		47	48	2.1%	< 2	102%	80%	120%	100%	80%	120%	107%	70%	130%
Total Molybdenum	8242016		< 2	< 2	0.0%	< 2	96%	80%	120%	98%	80%	120%	108%	70%	130%
Total Nickel	8242016		< 2	< 2	0.0%	< 2	104%	80%	120%	94%	80%	120%	100%	70%	130%
Total Selenium	8242016		< 1	< 1	0.0%	< 1	102%	80%	120%	103%	80%	120%	91%	70%	130%

## Quality Assurance

CLIENT NAME: AMEC FOSTER WHEELER E&I  
 PROJECT: TF13104119.1000  
 SAMPLING SITE:

AGAT WORK ORDER: 16X129039  
 ATTENTION TO: MATT GOSSE  
 SAMPLED BY:

### Water Analysis (Continued)

RPT Date: Aug 30, 2016			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Silver	8242016		< 0.1	< 0.1	NA	< 0.1	101%	80%	120%	101%	80%	120%	96%	70%	130%	
Total Strontium	8242016		13	13	0.0%	< 5	99%	80%	120%	99%	80%	120%	105%	70%	130%	
Total Thallium	8242016		< 0.1	< 0.1	0.0%	< 0.1	107%	80%	120%	108%	80%	120%	108%	70%	130%	
Total Tin	8242016		< 2	< 2	0.0%	< 2	99%	80%	120%	104%	80%	120%	106%	70%	130%	
Total Titanium	8242016		< 2	< 2	0.0%	< 2	100%	80%	120%	104%	80%	120%	103%	70%	130%	
Total Uranium	8242016		0.4	0.4	0.0%	< 0.1	107%	80%	120%	108%	80%	120%	116%	70%	130%	
Total Vanadium	8242016		< 2	< 2	0.0%	< 2	93%	80%	120%	96%	80%	120%	103%	70%	130%	
Total Zinc	8242016		8	12	0.0%	< 5	100%	80%	120%	101%	80%	120%	94%	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 (Total)**

Mercury	1		< 0.026	< 0.026	0.0%	< 0.026	98%	80%	120%		80%	120%	101%	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)**

Total Phosphorous as P	1	7784033	4.2	4.0	4.9%	< 0.03	99%	80%	120%		120%	120%	107%	80%	120%
Total Suspended Solids	1	0810	< 5	5	NA	< 5	97%	80%	120%		120%	120%	105%	80%	120%
Total Kjeldahl Nitrogen as N	1	7784033	1.8	1.4	NA	< 0.4	101%	80%	120%		80%	120%	88%	80%	120%
Carbone organique dissous	1		NA	NA	0.0%	< 0.30	101%	80%	120%	101%	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.

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



## Method Summary

CLIENT NAME: AMEC FOSTER WHEELER E&amp;I

AGAT WORK ORDER: 16X129039

PROJECT: TF13104119.1000

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
pH	INOR-121-6001	SM 4500 H+B	PC-TITRATE
Reactive Silica as SiO <sub>2</sub>	INORG-121-6028	SM 4110 B	COLORIMETER
Chloride	INORG-121-6005	SM 4110 B	IC
Fluoride	INORG-121-6005	SM 4110 B	IC
Sulphate	INORG-121-6005	SM 4110 B	IC
Alkalinity	INORG-121-6001	SM 2320 B	PC-TITRATE
True Color	INORG-121-6014	EPA 110.2	NEPHELOMETER
Turbidity	INORG-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	IC
Nitrite as N	INORG-121-6005	SM 4110 B	IC
Ammonia as N	INORG-121-6003	SM 4500-NH <sub>3</sub> G	COLORIMETER
Total Organic Carbon	INORG-121-6026	SM 5310 B	TOC ANALYZER
Ortho-Phosphate as P	INORG-121-6005	SM 4110 B	COLORIMETER
Total Sodium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Potassium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Calcium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Magnesium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Phosphorous	MET-121-6104 & MET-121-6105	SM 3125	ICP/MS
Bicarb. Alkalinity (as CaCO <sub>3</sub> )	INORG-121-6001	SM 2320 B	PC-TITRATE
Carb. Alkalinity (as CaCO <sub>3</sub> )	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
Total Aluminum	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Antimony	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Arsenic	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Barium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Beryllium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Bismuth	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Boron	MET121-6104 & MET-121-6105	SM 3125	ICP/MS

## Method Summary

CLIENT NAME: AMEC FOSTER WHEELER E&amp;I

AGAT WORK ORDER: 16X129039

PROJECT: TF13104119.1000

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Cadmium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Chromium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Cobalt	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Copper	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Iron	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Lead	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Manganese	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Molybdenum	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Nickel	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Selenium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Silver	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Strontium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Thallium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Tin	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Titanium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Uranium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Vanadium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Zinc	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Mercury	INOR-121-6100 & INOR-121-6107	SM 3112 B	CV/AA
Total Phosphorous as P	INORG-121-6009	SM 365.2	COLORIMETER
Total Suspended Solids	INOR-121-6024, 6025	SM 2540C, D	GRAVIMETRIC
Total Kjeldahl Nitrogen as N	INOR-121-6020	SM 4500 NORG D	COLORIMETER
Carbone organique dissous	INOR-101-6049F	MA.300-C1.0	DÉTECTION INFRAROUGE

### Laboratory Use Only

Arrival Condition:  Good  Poor (see notes)

Arrival Temperature: 5°

Hold Time: \_\_\_\_\_

AGAT Job Number: 16x129039

Notes: \_\_\_\_\_

## Chain of Custody Record

P: 902.468.8718 • F: 902.468.8924

### Report Information

Company: Ameq Foster Wheeler

Contact: Matthew Gosse

Address: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Client Project #: TF13104119.1000

AGAT Quotation: \_\_\_\_\_

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

### Report Information (Please print):

1. Name: Matt Gosse

Email: matthew.gosse@ameqfw.com

2. Name: \_\_\_\_\_

Email: \_\_\_\_\_

### Report Format

Single Sample per page

Multiple Samples per page

Excel Format Included

### 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: \_\_\_\_\_

PQ/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

NSESQ-Cont. Sites

Commercial

HRM 101

Res/Park

Storm Water

Agricultural

Waste Water

FWAL

Other \_\_\_\_\_

Sediment

Drinking 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: Total <input checked="" type="checkbox"/> Diss <input type="checkbox"/> Available <input type="checkbox"/>	Mercury	<input type="checkbox"/> BOD <input type="checkbox"/> CBOD	pH	<input checked="" type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus	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: <u>Doc</u>	Other:	Hazardous (Y/N)
<u>Causeway</u>	<u>Aug 19</u>	<u>H2O</u>	<u>5</u>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>			
<u>English Pt</u>	<u>"</u>	<u>1</u>	<u>5</u>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>			
<u>Grizzle</u>	<u>Aug 18</u>	<u>1</u>	<u>3</u>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>			
<u>Edwards</u>	<u>Aug 18</u>	<u>H2O</u>	<u>5</u>		<input checked="" type="checkbox"/>	<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):

M. Gosse

Samples Relinquished By (Signature):

[Signature]

Date/Time:

Date/Time:

Samples Received By (Print Name):

Samantha Baker

Samples Received By (Signature):

[Signature]

Date/Time:

Aug 22/16

Date/Time:

10:05

Pink Copy - Client

Yellow Copy - AGAT

White Copy - AGAT

Page 1 of 1

Nº: **053506**



CLIENT NAME: AMEC FOSTER WHEELER E&I  
133 CROSBIE ROAD  
ST. JOHNS, NL A1B4A5  
(709) 722-7023

ATTENTION TO: MATT GOSSE

PROJECT: TF13104119.1000

AGAT WORK ORDER: 16X133423

WATER ANALYSIS REVIEWED BY: Laura Baker, Inorganics Data Reporter

DATE REPORTED: Sep 13, 2016

PAGES (INCLUDING COVER): 11

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: 16X133423

PROJECT: TF13104119.1000

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

### Analyses Inorganiques

DATE RECEIVED: 2016-09-01

DATE REPORTED: 2016-09-13

Parameter	Unit	SAMPLE DESCRIPTION:		Grizzle	Edwards	Causeway	English Pt
		G / S	RDL				
				7818351	7818388	7818394	7818406
Carbone organique dissous	mg/L	0.30	4.42	4.10	4.06	4.08	

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

7818351 Pour cet échantillon, le résultat pour COD est supérieur à celui du COT. La différence entre ces résultats est dans la variabilité d'acceptabilité des méthodes.

7818394-7818406 Pour cet échantillon, le résultat pour COD est supérieur à celui du COT. La différence entre ces résultats est dans la variabilité d'acceptabilité des méthodes.

Certified By:

# Certificate of Analysis

AGAT WORK ORDER: 16X133423

PROJECT: TF13104119.1000

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

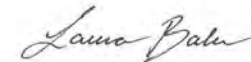
## MTL - Standard Water Analysis + Total Metals

DATE RECEIVED: 2016-09-01

DATE REPORTED: 2016-09-13

Parameter	Unit	SAMPLE DESCRIPTION:		Grizzle	Edwards	Causeway	English Pt
		G / S	RDL	7818351	7818388	7818394	7818406
pH				6.94	6.95	6.97	6.96
Reactive Silica as SiO2	mg/L		0.5	2.9	2.5	2.6	2.7
Chloride	mg/L		1	<1	<1	<1	<1
Fluoride	mg/L		0.12	<0.12	<0.12	<0.12	<0.12
Sulphate	mg/L		2	<2	<2	<2	<2
Alkalinity	mg/L		5	7	7	7	7
True Color	TCU		5	29	41	36	32
Turbidity	NTU		0.1	1.1	4.1	4.4	4.7
Electrical Conductivity	umho/cm		1	19	18	21	21
Nitrate + Nitrite as N	mg/L		0.05	<0.05	<0.05	<0.05	<0.05
Nitrate as N	mg/L		0.05	<0.05	<0.05	<0.05	<0.05
Nitrite as N	mg/L		0.05	<0.05	<0.05	<0.05	<0.05
Ammonia as N	mg/L		0.03	<0.03	<0.03	<0.03	<0.03
Total Organic Carbon	mg/L		0.5	4.0	4.1	3.9	4.0
Ortho-Phosphate as P	mg/L		0.01	<0.01	<0.01	<0.01	<0.01
Total Sodium	mg/L		0.1	0.6	0.6	0.6	0.8
Total Potassium	mg/L		0.1	0.2	0.3	0.2	0.3
Total Calcium	mg/L		0.1	2.2	2.0	1.9	2.2
Total Magnesium	mg/L		0.1	0.6	0.7	0.7	0.7
Total Phosphorous	mg/L		0.02	0.05	0.06	0.06	0.05
Bicarb. Alkalinity (as CaCO3)	mg/L		5	7	7	7	7
Carb. Alkalinity (as CaCO3)	mg/L		10	<10	<10	<10	<10
Hydroxide	mg/L		5	<5	<5	<5	<5
Calculated TDS	mg/L		1	8	8	8	9
Hardness	mg/L			8.0	7.9	7.6	8.4
Langelier Index (@20C)	NA			-3.35	-3.38	-3.38	-3.33
Langelier Index (@ 4C)	NA			-3.67	-3.70	-3.70	-3.65
Saturation pH (@ 20C)	NA			10.3	10.3	10.4	10.3
Saturation pH (@ 4C)	NA			10.6	10.7	10.7	10.6
Anion Sum	me/L			0.14	0.14	0.14	0.14

Certified By:





## Certificate of Analysis

AGAT WORK ORDER: 16X133423

PROJECT: TF13104119.1000

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

### MTL - Standard Water Analysis + Total Metals

DATE RECEIVED: 2016-09-01

DATE REPORTED: 2016-09-13

Parameter	Unit	SAMPLE DESCRIPTION:		Grizzle	Edwards	Causeway	English Pt
		G / S	RDL	7818351	7818388	7818394	7818406
Cation sum	me/L			0.20	0.22	0.22	0.25
% Difference/ Ion Balance (NS)	%			18.0	23.0	21.5	27.5
Total Aluminium	ug/L	5		57	203	212	229
Total Antimony	ug/L	2		<2	<2	<2	<2
Total Arsenic	ug/L	2		<2	<2	<2	<2
Total Barium	ug/L	5		8	9	9	9
Total Beryllium	ug/L	2		<2	<2	<2	<2
Total Bismuth	ug/L	2		<2	<2	<2	<2
Total Boron	ug/L	5		<5	<5	<5	<5
Total Cadmium	ug/L	0.017		<0.017	<0.017	<0.017	<0.017
Total Chromium	ug/L	1		<1	<1	<1	<1
Total Cobalt	ug/L	1		<1	<1	<1	<1
Total Copper	ug/L	1		1	1	1	1
Total Iron	ug/L	50		125	263	250	280
Total Lead	ug/L	0.5		<0.5	<0.5	<0.5	<0.5
Total Manganese	ug/L	2		9	13	11	13
Total Molybdenum	ug/L	2		<2	<2	<2	<2
Total Nickel	ug/L	2		<2	<2	<2	<2
Total Selenium	ug/L	1		<1	<1	<1	<1
Total Silver	ug/L	0.1		<0.1	<0.1	<0.1	<0.1
Total Strontium	ug/L	5		11	11	11	12
Total Thallium	ug/L	0.1		<0.1	<0.1	<0.1	<0.1
Total Tin	ug/L	2		<2	<2	<2	<2
Total Titanium	ug/L	2		<2	11	12	11
Total Uranium	ug/L	0.1		<0.1	<0.1	<0.1	<0.1
Total Vanadium	ug/L	2		<2	<2	<2	<2
Total Zinc	ug/L	5		<5	<5	<5	8

Certified By:



**AGAT** Laboratories

# Certificate of Analysis

AGAT WORK ORDER: 16X133423

PROJECT: TF13104119.1000

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

MTL - Standard Water Analysis + Total Metals

DATE RECEIVED: 2016-09-01

DATE REPORTED: 2016-09-13

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

7818351-7818406 TOC was analysed at AGAT Montreal.  
When the cation and anion sums are below 1 me/L, the acceptable criteria is less than 0.3me/L.

Certified By:



## Certificate of Analysis

AGAT WORK ORDER: 16X133423

PROJECT: TF13104119.1000

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

### Various Inorganics (Water)

DATE RECEIVED: 2016-09-01

DATE REPORTED: 2016-09-13

Parameter	Unit	SAMPLE DESCRIPTION:		Grizzle	Edwards	Causeway	English Pt
		G / S	RDL	Water	Water	Water	Water
Mercury	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Mercury Digest			Y	Y	Y	Y	Y
Total Phosphorous as P	mg/L	0.03	<0.03	<0.03	<0.03	<0.03	0.18
Total Suspended Solids	mg/L	5	<5	11	8	8	6
Total Kjeldahl Nitrogen as N	mg/L	0.4	0.6	<0.4	<0.4	<0.4	<0.4

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

Certified By:

## Quality Assurance

CLIENT NAME: AMEC FOSTER WHEELER E&I  
 PROJECT: TF13104119.1000  
 SAMPLING SITE:

AGAT WORK ORDER: 16X133423  
 ATTENTION TO: MATT GOSSE  
 SAMPLED BY:

Water Analysis															
RPT Date: Sep 13, 2016			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

**MTL - Standard Water Analysis + Total Metals**

pH	7815856		7.07	7.14	1.0%	<	100%	80%	120%	NA	80%	120%	NA	80%	120%
Reactive Silica as SiO2	1	7809000	4.1	4.1	0.0%	< 0.5	111%	80%	120%		80%	120%	90%	80%	120%
Chloride	7815856		<1	<1	NA	< 1	95%	80%	120%	NA	80%	120%	89%	80%	120%
Fluoride	7815856		<0.12	<0.12	NA	< 0.12	109%	80%	120%	NA	80%	120%	81%	80%	120%
Sulphate	7815856		<2	<2	NA	< 2	99%	80%	120%	NA	80%	120%	110%	80%	120%
Alkalinity	7815856		172	172	0.6%	< 5	90%	80%	120%	NA	80%	120%	NA	80%	120%
True Color	1	7817298	11	13	NA	< 5	120%	80%	120%		80%	120%		80%	120%
Turbidity	1	7818406	4.7	4.3	8.9%	< 0.1	96%	80%	120%		80%	120%		80%	120%
Electrical Conductivity	7815856		307	306	0.3%	< 1	100%	80%	120%	NA	80%	120%	NA	80%	120%
Nitrate as N	7815856		<0.05	<0.05	NA	< 0.05	89%	80%	120%	NA	80%	120%	94%	80%	120%
Nitrite as N	7815856		<0.05	<0.05	NA	< 0.05	96%	80%	120%	NA	80%	120%	103%	80%	120%
Ammonia as N	1	7817634	<0.03	<0.03	NA	< 0.03	101%	80%	120%		80%	120%	99%	80%	120%
Total Organic Carbon	1		NA	NA	NA	< 0.5	85%	80%	120%	85%	80%	120%	NA	80%	120%
Ortho-Phosphate as P	1	7809002	<0.01	<0.01	NA	< 0.01	100%	80%	120%		80%	120%	104%	80%	120%
Total Sodium	9022016		8.86	8.48	4.4%	< 0.1	88%	80%	120%	86%	80%	120%	104%	70%	130%
Total Potassium	9022016		1.5	1.5	0.0%	< 0.1	92%	80%	120%	80%	80%	120%	87%	70%	130%
Total Calcium	9022016		55.7	56.6	1.6%	< 0.1	99%	80%	120%	94%	80%	120%	96%	70%	130%
Total Magnesium	9022016		4.37	4.30	1.6%	< 0.1	100%	80%	120%	99%	80%	120%	118%	80%	120%
Total Phosphorous	9022016		0.04	0.04	0.0%	< 0.02	104%	80%	120%	96%	80%	120%	103%	70%	130%
Bicarb. Alkalinity (as CaCO3)	7815856		172	172	0.6%	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Carb. Alkalinity (as CaCO3)	7815856		<10	<10	NA	< 10	NA	80%	120%	NA	80%	120%	NA	80%	120%
Hydroxide	7815856		<5	<5	NA	< 5	NA	80%	120%	NA	80%	120%	NA	80%	120%
Total Aluminum	9022016		11	10	9.5%	< 5	103%	80%	120%	97%	80%	120%	94%	70%	130%
Total Antimony	9022016		< 2	< 2	0.0%	< 2	92%	80%	120%	101%	80%	120%	98%	70%	130%
Total Arsenic	9022016		< 2	< 2	0.0%	< 2	99%	80%	120%	98%	80%	120%	104%	70%	130%
Total Barium	9022016		59	59	0.0%	< 5	97%	80%	120%	92%	80%	120%	79%	70%	130%
Total Beryllium	9022016		< 2	< 2	0.0%	< 2	107%	80%	120%	111%	80%	120%	104%	70%	130%
Total Bismuth	9022016		< 2	< 2	0.0%	< 2	102%	80%	120%	91%	80%	120%	99%	70%	130%
Total Boron	9022016		9	10	10.5%	< 5	102%	80%	120%	103%	80%	120%	102%	70%	130%
Total Cadmium	9022016		< 0.017	< 0.017	0.0%	< 0.017	91%	80%	120%	92%	80%	120%	97%	70%	130%
Total Chromium	9022016		< 1	< 1	0.0%	< 1	105%	80%	120%	97%	80%	120%	93%	70%	130%
Total Cobalt	9022016		< 1	< 1	0.0%	< 1	106%	80%	120%	98%	80%	120%	88%	70%	130%
Total Copper	9022016		23	24	4.3%	< 1	101%	80%	120%	100%	80%	120%	93%	70%	130%
Total Iron	9022016		105	101	3.9%	< 50	103%	80%	120%	99%	80%	120%	104%	70%	130%
Total Lead	9022016		< 0.5	< 0.5	0.0%	< 0.5	104%	80%	120%	95%	80%	120%	100%	70%	130%
Total Manganese	9022016		1030	1130	9.3%	< 2	101%	80%	120%	97%	80%	120%	99%	70%	130%
Total Molybdenum	9022016		< 2	< 2	NA	< 2	96%	80%	120%	96%	80%	120%	94%	70%	130%
Total Nickel	9022016		< 2	< 2	0.0%	< 2	104%	80%	120%	100%	80%	120%	91%	70%	130%
Total Selenium	9022016		< 1	< 1	0.0%	< 1	100%	80%	120%	99%	80%	120%	101%	70%	130%

## Quality Assurance

CLIENT NAME: AMEC FOSTER WHEELER E&amp;I

AGAT WORK ORDER: 16X133423

PROJECT: TF13104119.1000

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

### Water Analysis (Continued)

RPT Date: Sep 13, 2016			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Silver	9022016		< 0.1	< 0.1	0.0%	< 0.1	92%	80%	120%	93%	80%	120%	96%	70%	130%	
Total Strontium	9022016		124	127	2.4%	< 5	101%	80%	120%	96%	80%	120%	98%	70%	130%	
Total Thallium	9022016		< 0.1	< 0.1	0.0%	< 0.1	103%	80%	120%	98%	80%	120%	98%	70%	130%	
Total Tin	9022016		< 2	< 2	0.0%	< 2	98%	80%	120%	92%	80%	120%	97%	70%	130%	
Total Titanium	9022016		< 2	< 2	0.0%	< 2	103%	80%	120%	96%	80%	120%	92%	70%	130%	
Total Uranium	9022016		0.55	0.60	8.7%	< 0.1	101%	80%	120%	92%	80%	120%	105%	70%	130%	
Total Vanadium	9022016		< 2	< 2	0.0%	< 2	104%	80%	120%	99%	80%	120%	94%	70%	130%	
Total Zinc	9022016		10	11	9.5%	< 5	102%	80%	120%	97%	80%	120%	99%	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)**

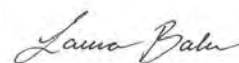
Total Suspended Solids	1	8351	< 5	< 5	0.0%	< 5	105%	80%	120%		120%	120%	92%	80%	120%
Total Kjeldahl Nitrogen as N	1	7798974	1.0	1.8	NA	< 0.4	106%	80%	120%		80%	120%	106%	80%	120%

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

**Analyses Inorganiques**

Carbone organique dissous	7818351	7818351	4.42	4.30	2.9%	< 0.30	85%	80%	120%	85%	80%	120%	84%	80%	120%
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Certified By:





## Method Summary

CLIENT NAME: AMEC FOSTER WHEELER E&amp;I

AGAT WORK ORDER: 16X133423

PROJECT: TF13104119.1000

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Carbone organique dissous	INOR-101-6049F	MA.300-C1.0	DÉTECTION INFRAROUGE
pH	INOR-121-6001	SM 4500 H+B	PC-TITRATE
Reactive Silica as SiO2	INORG-121-6028	SM 4110 B	COLORIMETER
Chloride	INORG-121-6005	SM 4110 B	IC
Fluoride	INORG-121-6005	SM 4110 B	IC
Sulphate	INORG-121-6005	SM 4110 B	IC
Alkalinity	INORG-121-6001	SM 2320 B	PC-TITRATE
True Color	INORG-121-6014	EPA 110.2	NEPHELOMETER
Turbidity	INORG-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	IC
Nitrite as N	INORG-121-6005	SM 4110 B	IC
Ammonia as N	INORG-121-6003	SM 4500-NH3 G	COLORIMETER
Total Organic Carbon	INORG-121-6026	SM 5310 B	TOC ANALYZER
Ortho-Phosphate as P	INORG-121-6005	SM 4110 B	COLORIMETER
Total Sodium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Potassium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Calcium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Magnesium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Phosphorous	MET-121-6104 & MET-121-6105	SM 3125	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 (NS)	CALCULATION	SM 1030E	CALCULATION
Total Aluminum	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Antimony	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Arsenic	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Barium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Beryllium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Bismuth	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Boron	MET121-6104 & MET-121-6105	SM 3125	ICP/MS

## Method Summary

CLIENT NAME: AMEC FOSTER WHEELER E&amp;I

AGAT WORK ORDER: 16X133423

PROJECT: TF13104119.1000

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Cadmium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Chromium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Cobalt	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Copper	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Iron	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Lead	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Manganese	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Molybdenum	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Nickel	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Selenium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Silver	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Strontium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Thallium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Tin	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Titanium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Uranium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Vanadium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Zinc	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Mercury	MET-121-6100 & MET-121-6107	SM 3112 B	CVAAS
Mercury Digest	MET-121-6100 & MET-121-6107	EPA 245.5	CVAAS
Total Phosphorous as P	INORG-121-6009	SM 365.2	COLORIMETER
Total Suspended Solids	INOR-121-6024, 6025	SM 2540C, D	GRAVIMETRIC
Total Kjeldahl Nitrogen as N	INOR-121-6020	SM 4500 NORG D	COLORIMETER

### Laboratory Use Only

Arrival Condition:  Good  Poor (see notes)

Arrival Temperature: 8°

AGAT Job Number: 16X133423

Notes:

## Chain of Custody Record

P: 902.468.8718 • F: 902.468.8924

### Report Information

Company: Ameq Foster Wheeler  
Contact: Matthew Gosse  
Address: 133 Crosbie Road  
Phone: 709-727-3228 Fax: \_\_\_\_\_  
LSD: \_\_\_\_\_  
Client Project #: TF13104119.1000

### Report Information

1. Name: \_\_\_\_\_  
Email: \_\_\_\_\_  
2. Name: \_\_\_\_\_  
Email: \_\_\_\_\_

### Report Format

Single Sample per page  
 Multiple Samples per page  
 Excel Format Included

### 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  NSDFOSP  
 Commercial  HRM 101  
 Res/Park  Storm Water  
 Agricultural  Waste Water  
 FWAL  Sediment  Other \_\_\_\_\_

Drinking 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: Total <input checked="" type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury	<input type="checkbox"/> BOD <input type="checkbox"/> CBOD	pH	<input checked="" type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI)	Tier 2: TPH/BTEX Fractionation	CCME/CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	Tot. Coliforms + E. Coli (Presence/Absence)	Total Coliforms + E. Coli (MPN)	Fecal Coliform (MF)	Other: <u>DOC</u>	Other:	Hazardous (Y/N)
<u>Grizzle</u>	<u>Sept Aug 31, 16</u>	<u>H2O</u>	<u>5</u>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>			
<u>Edwards</u>	<u>"</u>	<u>H2O</u>	<u>5</u>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>			
<u>Causeway</u>	<u>"</u>	<u>H2O</u>	<u>5</u>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>			
<u>English Pt.</u>	<u>"</u>	<u>H2O</u>	<u>5</u>		<input checked="" type="checkbox"/>	<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>Matthew Gosse</u>	Date/Time: <u>Aug 31, 16</u>	Samples Received By (Print Name): <u>C. Deamel</u>	Date/Time: <u>Sept 1/16</u>	White Copy - AGAT
Samples Relinquished By (Sign): <u>[Signature]</u>	Date/Time: <u>Aug 31, 16</u>	Samples Received By (Sign): <u>[Signature]</u>	Date/Time: <u>15:45</u>	Yellow Copy - AGAT
				Page <input type="checkbox"/> of <input type="checkbox"/>
				No: <b>39925</b>

CLIENT NAME: AMEC FOSTER WHEELER E&I  
133 CROSBIE ROAD  
ST. JOHNS, NL A1B4A5  
(709) 722-7023

ATTENTION TO: MATT GOSSE

PROJECT: TF13104119.2000

AGAT WORK ORDER: 16X149167

SOIL ANALYSIS REVIEWED BY: Jason Coughtrey, Inorganics Supervisor

DATE REPORTED: Nov 03, 2016

PAGES (INCLUDING COVER): 16

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: 16X149167

PROJECT: TF13104119.2000

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

### Anion Scan in Soil

DATE RECEIVED: 2016-10-17

DATE REPORTED: 2016-11-03

Parameter	Unit	SAMPLE DESCRIPTION:		GRIZZLE	Upper
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2016-10-15	2016-10-15
		G / S	RDL	7929291	7929315
Chloride, Soluble	mg/L		5	<5	<5
Nitrate, Soluble	mg/L		1	1	<1
Nitrite, Soluble	mg/L		1	<1	<1
Sulfate, Soluble	mg/L		2	11	11
Fluoride, Soluble	mg/L		0.5	<0.5	<0.5

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

Certified By:

# Certificate of Analysis

AGAT WORK ORDER: 16X149167

PROJECT: TF13104119.2000

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

## Available Metals in Soil

DATE RECEIVED: 2016-10-17

DATE REPORTED: 2016-11-03

Parameter	Unit	SAMPLE DESCRIPTION:		GRIZZLE			
		SAMPLE TYPE:		Upper			
		DATE SAMPLED:		Soil			
		G / S	RDL	7929291	2016-10-15	7929315	2016-10-15
Aluminum	mg/kg		10	2470	2060		
Antimony	mg/kg		1	<1	<1		
Arsenic	mg/kg		1	<1	<1		
Barium	mg/kg		5	30	26		
Beryllium	mg/kg		2	<2	<2		
Boron	mg/kg		2	<2	<2		
Cadmium	mg/kg		0.3	<0.3	<0.3		
Chromium	mg/kg		2	7	5		
Cobalt	mg/kg		1	2	2		
Copper	mg/kg		2	6	4		
Iron	mg/kg		50	4400	3560		
Lead	mg/kg		0.5	1.2	0.9		
Lithium	mg/kg		5	<5	<5		
Manganese	mg/kg		2	97	70		
Molybdenum	mg/kg		2	<2	<2		
Nickel	mg/kg		2	5	5		
Selenium	mg/kg		1	<1	<1		
Silver	mg/kg		0.5	<0.5	<0.5		
Strontium	mg/kg		5	<5	<5		
Thallium	mg/kg		0.1	<0.1	<0.1		
Tin	mg/kg		2	3	3		
Uranium	mg/kg		0.1	0.4	0.2		
Vanadium	mg/kg		2	9	7		
Zinc	mg/kg		5	13	11		

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard  
 7929291-7929315 Results are based on the dry weight of the sample.

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 16X149167

PROJECT: TF13104119.2000

 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: AMEC FOSTER WHEELER E&amp;I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

## Cation Scan in Soil

DATE RECEIVED: 2016-10-17

DATE REPORTED: 2016-11-03

Parameter	Unit	SAMPLE DESCRIPTION:		GRIZZLE	Upper
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2016-10-15	2016-10-15
		G / S	RDL	7929291	7929315
Calcium, Soluble	mg/L		1	9	9
Potassium, Soluble	mg/L		2	<2	<2
Magnesium, Soluble	mg/L		1	3	2
Sodium, Soluble	mg/L		2	6	6

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

7929291-7929315 If sodium results are less than detection, SAR is non-calculable and is reported as 0.

Certified By:





# Certificate of Analysis

AGAT WORK ORDER: 16X149167

PROJECT: TF13104119.2000

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

## Grain Size Analysis (Sieve & Pipette)

DATE RECEIVED: 2016-10-17

DATE REPORTED: 2016-11-03

Parameter	Unit	SAMPLE DESCRIPTION:		GRIZZLE	Upper
		G / S	RDL	7929291	7929315
Particle Size Distribution (<12.5mm, -4 PHI)	%		0.1	100	88.4
Particle Size Distribution (<9.5mm, -3 PHI)	%		0.1	100	88.4
Particle Size Distribution (<4.75mm, -2 PHI)	%		0.1	100	88.4
Particle Size Distribution (<2mm, -1 PHI)	%		0.1	99.9	87.8
Particle Size Distribution (<1mm, 0 PHI)	%		0.1	99.8	84.8
Particle Size Distribution (<1/2mm, 1 PHI)	%		0.1	94.1	59.2
Particle Size Distribution (<1/4mm, 2 PHI)	%		0.1	23.1	9.7
Particle Size Distribution (<1/8mm, 3 PHI)	%		0.1	4.6	0.8
Particle Size Distribution (<1/16mm, 4 PHI)	%		0.1	0.4	0.4
Particle Size Distribution (<1/32mm, 5 PHI)	%		0.1	0.4	0.4
Particle Size Distribution (<1/64mm, 6 PHI)	%		0.1	0.3	0.4
Particle Size Distribution (<1/128mm, 7 PHI)	%		0.1	0.2	0.4
Particle Size Distribution (<1/256mm, 8 PHI)	%		0.1	0.2	0.3
Particle Size Distribution (<1/512mm, 9 PHI)	%		0.1	0.1	0.3
Particle Size Distribution (Gravel)	%		1	<1	12
Particle Size Distribution (Sand)	%		1	100	88
Particle Size Distribution (Silt)	%		1	<1	<1
Particle Size Distribution (Clay)	%		1	<1	<1
Particles >75um	%		1	99	100
Classification	Coarse/Fine			Coarse	Coarse

Certified By:





**AGAT** Laboratories

# Certificate of Analysis

AGAT WORK ORDER: 16X149167

PROJECT: TF13104119.2000

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

## Grain Size Analysis (Sieve & Pipette)

DATE RECEIVED: 2016-10-17

DATE REPORTED: 2016-11-03

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

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 16X149167

PROJECT: TF13104119.2000

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 Dartmouth, Nova Scotia  
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CLIENT NAME: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

## Mercury Analysis in Soil

DATE RECEIVED: 2016-10-17

DATE REPORTED: 2016-11-03

		SAMPLE DESCRIPTION:		GRIZZLE	Upper
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2016-10-15	2016-10-15
Parameter	Unit	G / S	RDL	7929291	7929315
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05

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

7929291-7929315 Results are based on the dry weight of the soil.

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# Certificate of Analysis

AGAT WORK ORDER: 16X149167

PROJECT: TF13104119.2000

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

CLIENT NAME: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

## Nutrients Package 1

DATE RECEIVED: 2016-10-17

DATE REPORTED: 2016-11-03

SAMPLE DESCRIPTION: Upper  
 SAMPLE TYPE: Soil  
 DATE SAMPLED: 2016-10-15  
 G / S RDL 7929315

Parameter	Unit	G / S	RDL	7929315
Available Nitrate (NO3-N)	mg/kg		0.5	<0.5
Available Phosphorus (PO4-P)	mg/kg		1	<1
Available Potassium	mg/kg		8	15

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard  
 7929315 Analysis based on dry weight

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 16X149167

PROJECT: TF13104119.2000

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

## Nutrients Package 1

DATE RECEIVED: 2016-10-17

DATE REPORTED: 2016-11-03

SAMPLE DESCRIPTION: GRIZZLE

SAMPLE TYPE: Soil

DATE SAMPLED: 2016-10-15

Parameter	Unit	G / S	RDL	7929291
Available Nitrate (NO3-N)	mg/kg		0.5	<0.5
Available Phosphorus (PO4-P)	mg/kg		1	<1
Available Potassium	mg/kg		8	12

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard  
7929291 Analysis based on dry weight

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 16X149167

PROJECT: TF13104119.2000

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

CLIENT NAME: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

## Soil Analysis - Available Sulphur

DATE RECEIVED: 2016-10-17

DATE REPORTED: 2016-11-03

		SAMPLE DESCRIPTION:		GRIZZLE	Upper
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2016-10-15	2016-10-15
Parameter	Unit	G / S	RDL	7929291	7929315
Available Sulfur (NPKS)	mg/kg		3	<3	<3

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

Certified By:



## Certificate of Analysis

AGAT WORK ORDER: 16X149167

PROJECT: TF13104119.2000

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: AMEC FOSTER WHEELER E&I

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

### Sulphide in Soil

DATE RECEIVED: 2016-10-17

DATE REPORTED: 2016-11-03

Parameter	Unit	SAMPLE DESCRIPTION:		DATE SAMPLED:	
		G / S	RDL	7929291	7929315
Sulphur - Total	%	0.01	0.01	<0.01	
Sulphate Sulphur	%	0.01	0.01	0.02	
Sulphide (Calculation)	%	0.01	<0.01	<0.01	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard  
7929315 Total Sulphur is less than sulphate-sulphur; results are within the expected precision of the test methods.

Certified By:

## Quality Assurance

CLIENT NAME: AMEC FOSTER WHEELER E&amp;I

AGAT WORK ORDER: 16X149167

PROJECT: TF13104119.2000

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

Soil Analysis															
RPT Date: Nov 03, 2016			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

**Available Metals in Soil**

Aluminum	1018201		5810	5980	2.9%	< 10	102%	80%	120%	98%	80%	120%	112%	70%	130%
Antimony	1018201		< 1	< 1	NA	< 1	90%	80%	120%	103%	80%	120%	80%	70%	130%
Arsenic	1018201		< 1	< 1	NA	< 1	103%	80%	120%	99%	80%	120%	88%	70%	130%
Barium	1018201		75	74	1.3%	< 5	100%	80%	120%	98%	80%	120%	108%	70%	130%
Beryllium	1018201		< 2	< 2	NA	< 2	105%	80%	120%	107%	80%	120%	105%	70%	130%
Boron	1018201		< 2	< 2	NA	< 2	104%	80%	120%	101%	80%	120%	98%	70%	130%
Cadmium	1018201		< 0.3	< 0.3	NA	< 0.3	100%	80%	120%	95%	80%	120%	100%	70%	130%
Chromium	1018201		14	14	0.0%	< 2	104%	80%	120%	101%	80%	120%	98%	70%	130%
Cobalt	1018201		5	5	0.0%	< 1	102%	80%	120%	100%	80%	120%	86%	70%	130%
Copper	1018201		5	5	NA	< 2	103%	80%	120%	101%	80%	120%	81%	70%	130%
Iron	1018201		6220	6250	0.5%	< 50	100%	80%	120%	101%	80%	120%	106%	70%	130%
Lead	1018201		1.9	2.3	NA	< 0.5	95%	80%	120%	95%	80%	120%	93%	70%	130%
Lithium	1018201		9	9	NA	< 5	106%	70%	130%	104%	70%	130%	105%	70%	130%
Manganese	1018201		167	165	1.2%	< 2	102%	80%	120%	98%	80%	120%	106%	70%	130%
Molybdenum	1018201		< 2	< 2	NA	< 2	94%	80%	120%	94%	80%	120%	98%	70%	130%
Nickel	1018201		11	11	0.0%	< 2	100%	80%	120%	100%	80%	120%	87%	70%	130%
Selenium	1018201		< 1	< 1	NA	< 1	103%	80%	120%	95%	80%	120%	97%	70%	130%
Silver	1018201		< 0.5	< 0.5	NA	< 0.5	98%	80%	120%	96%	80%	120%	96%	70%	130%
Strontium	1018201		6	7	NA	< 5	104%	80%	120%	100%	80%	120%	109%	70%	130%
Thallium	1018201		< 0.1	< 0.1	NA	< 0.1	97%	80%	120%	96%	80%	120%	NA	70%	130%
Tin	1018201		3	3	NA	< 2	99%	80%	120%	97%	80%	120%	101%	70%	130%
Uranium	1018201		0.43	0.45	NA	< 0.1	94%	80%	120%	96%	80%	120%	97%	70%	130%
Vanadium	1018201		14	14	0.0%	< 2	102%	80%	120%	101%	80%	120%	102%	70%	130%
Zinc	1018201		24	24	NA	< 5	100%	80%	120%	97%	80%	120%	81%	70%	130%

**Mercury Analysis in Soil**

Mercury	1	792705	< 0.05	< 0.05	NA	< 0.05	95%	70%	130%		70%	130%	NA	70%	130%
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**Nutrients Package 1**

Available Nitrate (NO3-N)	7926733		< 0.5	< 0.5	NA	< 0.5	105%	80%	120%	102%	80%	120%	93%	80%	120%
Available Phosphorus (PO4-P)	7926733		< 1	< 1	NA	< 1	98%	80%	120%	99%	80%	120%	NA	80%	120%
Available Potassium	7929291	7929291	12	12	NA	< 8	96%	80%	120%	113%	80%	120%	109%	80%	120%

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

**Cation Scan in Soil**

Calcium, Soluble	7732048		474	490	3.3%	< 1	110%	80%	120%						
Potassium, Soluble	7732048		64	67	4.6%	< 2	94%	80%	120%						
Magnesium, Soluble	7732048		184	192	4.3%	< 1	104%	80%	120%						
Sodium, Soluble	7732048		1260	1290	2.4%	< 2	102%	80%	120%						

## Quality Assurance

CLIENT NAME: AMEC FOSTER WHEELER E&I  
 PROJECT: TF13104119.2000  
 SAMPLING SITE:

AGAT WORK ORDER: 16X149167  
 ATTENTION TO: MATT GOSSE  
 SAMPLED BY:

Soil Analysis (Continued)															
RPT Date: Nov 03, 2016			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

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

**Anion Scan in Soil**

Chloride, Soluble	7938565	7938565	115	109	NA	< 5	105%	80%	120%						
Nitrate, Soluble	7938565	7938565	29	27	NA	< 1	106%	80%	120%	107%	80%	120%	98%	80%	120%
Nitrite, Soluble	7938565	7938565	<20	<20	NA	< 1	105%	80%	120%	94%	80%	120%	95%	80%	120%
Sulfate, Soluble	7938565	7938565	971	931	4.2%	< 2	103%	80%	120%						
Fluoride, Soluble	7938565	7938565	<10	<10	NA	< 0.5	100%	80%	120%						

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

**Sulphide in Soil**

Sulphur - Total	7929291	7929291	0.01	<0.01	NA	< 0.01	86%	80%	120%					
Sulphate Sulphur	7929291	7929291	0.01	0.02	NA	< 0.01	105%	80%	110%	105%	85%	115%		

Comments: RPDs are calculated using raw analytical data and not the rounded duplicate values reported.

**Soil Analysis - Available Sulphur**

Available Sulfur (NPKS)	7929291	7929291	<3	<3	NA	< 3	100%	80%	120%	105%	80%	120%	117%	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: \_\_\_\_\_





## Method Summary

CLIENT NAME: AMEC FOSTER WHEELER E&amp;I

AGAT WORK ORDER: 16X149167

PROJECT: TF13104119.2000

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Chloride, Soluble	SOIL 0140; INST 0150	CARTER & GREGORICH 2007	ION CHROMATOGRAPH
Nitrate, Soluble	SOIL 0140; INST 0150	CARTER & GREGORICH 2007	ION CHROMATOGRAPH
Nitrite, Soluble	SOIL 0140; INST 0150	CARTER & GREGORICH 2007	ION CHROMATOGRAPH
Sulfate, Soluble	SOIL 0140; INST 0150	CARTER & GREGORICH 2007	ION CHROMATOGRAPH
Fluoride, Soluble	INS 0150	ASA 10-2.3 & SM 4500 D	ION CHROMATOGRAPH
Aluminum	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Antimony	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Arsenic	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Barium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Beryllium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Boron	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Cadmium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Chromium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Cobalt	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Copper	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Iron	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Lead	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP-MS
Lithium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP-MS
Manganese	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Molybdenum	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Nickel	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Selenium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Silver	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Strontium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Thallium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Tin	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Uranium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Vanadium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Zinc	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Calcium, Soluble	SOIL 0110; SOIL 0120; INST 0140	SHEPPARD 2007; EATON 2005	ICP/OES

## Method Summary

CLIENT NAME: AMEC FOSTER WHEELER E&amp;I

AGAT WORK ORDER: 16X149167

PROJECT: TF13104119.2000

ATTENTION TO: MATT GOSSE

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Potassium, Soluble	SOIL 0110; SOIL 0120; INST 0140	SHEPPARD 2007; EATON 2005	ICP/OES
Magnesium, Soluble	SOIL 0110; SOIL 0120; INST 0140	SHEPPARD 2007; EATON 2005	ICP/OES
Sodium, Soluble	SOIL 0110; SOIL 0120; INST 0140	SHEPPARD 2007; EATON 2005	ICP/OES
Particle Size Distribution (<12.5mm, -4 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<9.5mm, -3 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<4.75mm, -2 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<2mm, -1 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1mm, 0 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1/2mm, 1 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1/4mm, 2 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1/8mm, 3 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1/16mm, 4 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1/32mm, 5 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1/64mm, 6 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1/128mm, 7 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1/256mm, 8 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1/512mm, 9 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (Gravel)	INOR-121-6031	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (Sand)	INOR-121-6031	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (Silt)	INOR-121-6031	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (Clay)	INOR-121-6031	ASTM D-422-63	SIEVE & PIPETTE
Particles >75um	INOR-121-6031, INOR-121-6034	ASTM D-422-63	CALCULATED
Classification	INOR-121-6031, INOR-121-6031	Atlantic RBCA	CALCULATED
Mercury	INOR-121-6101 & INOR-121-6107	Based on EPA 245.5 & SM 3112B	CV/AA
Available Nitrate (NO3-N)	SOIL 0110; SOIL 0120; SOIL 0130	SHEPPARD 2007, ALBERTA AGRICULTURE 1988	DISCRETE ANALYZER
Available Phosphorus (PO4-P)	SOIL 0110; SOIL 0120; SOIL 0130	SHEPPARD 2007, ALBERTA AGRICULTURE 1988	DISCRETE ANALYZER
Available Potassium	SOIL 0110; SOIL 0120; SOIL 0131; INST 0140	SHEPPARD 2007, ALBERTA AGRICULTURE 1988	ICP/OES
Available Sulfur (NPKS)	SOIL 0110; SOIL 0120; SOIL 0132; INST 0140	SHEPPARD 2007, KOWALENKO 1993	ICP/OES
Sulphur - Total	INOR-181-6027	Modified from ASTM E1915-11	COMBUSTION
Sulphate Sulphur	ARD-181-18009; INOR-181-6028	MEND Report 1.20.1 (09); mod from SM 4500-SO4 E	SPECTROPHOTOMETER

### Laboratory Use Only

Arrival Condition:  Good  Poor (see notes)

Arrival Temperature: 4°

AGAT Job Number: 16X149167

Notes:

## Chain of Custody Record

P: 902.468.8718 • F: 902.468.8924

### Report Information

Company: Amec Foster Wheeler

Contact: Matthew Gosse

Address: 133 Crosbie Rd  
St. John's, NL

Phone: 727-3228 Fax: \_\_\_\_\_

LSID: \_\_\_\_\_

Client Project #: TF1310419.2000

### Report Information

1. Name: Matthew Gosse

Email: matthew.gosse@amecfw.com

2. Name: Jim McCarthy

Email: james.mccarthy@amecfw.com

### Report Format

Single Sample per page

Multiple Samples per page

Excel Format Included

### 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

Industrial  CDWQ  
 Commercial  NSDFOSP  
 Res/Park  HRM 101  
 Agricultural  Storm Water  
 FWAL  Waste Water  
 Sediment  Other \_\_\_\_\_

Drinking 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 checked="" type="checkbox"/> Available	Mercury	<input type="checkbox"/> BOD <input type="checkbox"/> CBOD	pH	<input type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI)	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAAs Cation/Anion Scan	PAHs Grain Size (Pipette)	PEB Total Nutrients - 2510	Tot. Coliforms + E. Coli (Presence/Absence)	Total Coliforms + E. Coli (MPN)	Fecal Coliform (MF)	Other: Mercury	Other: Sulphides/Sulphates	Hazardous (Y/N)
GRIZZLE	Oct 15, 16	SED	6				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>													<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Upper	Oct 15, 16	SED	6				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>													<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
				Checked off Hg & Sulphides & sulphates CWH 17/10/16																								

Samples Relinquished By (Print Name):

Matthew Gosse

Date/Time

Oct 16, 16

Samples Received By (Print Name):

Tim Ford

Date/Time

17-OCT-16

Samples Relinquished By (Sign):

[Signature]

Date/Time

Oct 16, 16

Samples Received By (Sign):

Date/Time

13:25

Pink Copy - Client

Yellow Copy - AGAT

White Copy - AGAT

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Nº: **39928**