

Appendix B

Glenwood Area to Miramichi Bypass:

Laboratory Results for Surface Water Samples

Inorganic Final Report / Rapport inorganique

Client information du Client:

Date Finalized/Finalisée: 07/07/2016

Organization/Organisation: Transportation and Infrastructure
Attention: James Hoyt
Tel. No./No. de tel.:
Client ID/No. de Client: 0933
Order No./No. de l'ordre : **160657707**
Matrix/Matrice: Surface Water/Eau de surface
Sample Type/Type d'échantillon: Surfacewater / Eau de Surface

Client Sample Identifier/
No. d'Echantillon du client:

WC 1 and WC 1 A

Date Collected/Date de prelevement: 2016/06/23
Date Received/reçu: 2016/06/24

Authorization/Autorité: Lori Lamey
Title/Titre: Inorganic Manager/Gérante d'inorganique

Parameter/ paramètre	Date Analyzed/ Date d'analyse	Method/ méthode	Flag/ Avis	Result/ Résultats	Units/ Unités	L.O.Q./ L.D.Q./	Guideline/Indicateur	
Alkalinity/Alcalinité	2016/06/27	SM 2320B (Mod.)		60.9	mg/L			
Aluminum/Aluminium	2016/06/27	EPA 200.8 (Mod.)		0.031	mg/L	0.001		
Antimony/Antimoine	2016/06/27	EPA 200.8 (Mod.)		< 1.0	µg/L	1.0		
Arsenic	2016/06/27	EPA 200.8 (Mod.)		1.2	µg/L	1.0		
Cadmium	2016/06/27	EPA 200.8 (Mod.)		< 0.1	µg/L	0.1		
Calcium	2016/06/27	EPA 200.7 (Mod.)		24.7	mg/L	0.10		
Chloride/Chlorure	2016/06/29	SM 4110B (Mod.)		82.7	mg/L	0.050		
Chromium/Chrome	2016/06/27	EPA 200.8 (Mod.)		0.0010	mg/L	0.0005		
Colour/Couleur ‡	2016/06/28	SM 2120C (Mod.)		135	HU	5		
Conductivity/Conductivité	2016/06/27	SM 2510B (Mod.)		429	µS/cm			
Copper/Cuivre	2016/06/27	EPA 200.8 (Mod.)		0.0010	mg/L	0.0005		
Fluoride/Florure	2016/06/27	SM 4500-F-C (Mod.)		< 0.100	mg/L	0.100		
Iron/Fer	2016/06/27	EPA 200.7 (Mod.)		2.16	mg/L	0.010		
Lead/Plomb	2016/06/27	EPA 200.8 (Mod.)		< 1.0	µg/L	1.0		
Magnesium/Magnésium	2016/06/27	EPA 200.7 (Mod.)		3.02	mg/L	0.10		
Manganese/Manganèse	2016/06/27	EPA 200.8 (Mod.)		0.55	mg/L	0.005		
Nickel	2016/06/27	EPA 200.8 (Mod.)		< 0.005	mg/L	0.005		
Nitrate as N-calc./Nitrate comme N-calculé ‡ ¥	2016/06/30	SM 4500-NO3 I (Mod.)		< 0.05	mg/L	0.05		
Nitrate-nitrite as N / Nitrate-nitrite comme N	2016/06/30	SM 4500-NO3 I (Mod.)		< 0.05	mg/L	0.05		
Nitrite as N / Nitrite comme N	2016/06/30	SM 4500-NO3 I (Mod.)		< 0.05	mg/L	0.05		
Potassium	2016/06/27	EPA 200.8 (Mod.)		1.5	mg/L	0.05		
Sodium	2016/06/27	EPA 200.7 (Mod.)		54.8	mg/L	0.10		
Sulfate	2016/06/29	SM 4110B (Mod.)		5.18	mg/L	0.050		
Susp. Solids/Matières en Susp.	2016/06/27	SM 2540 D (Mod.)		< 10	mg/L	10		
Tot. Phosphorous Low Level/Phosphore tot. - niv. faible	2016/07/06	SM 4500-P-I (Mod.)		0.047	mg/L	0.002		
Total Ammonia/Azote ammoniacal total	2016/07/04	SM 4500-NH3 G		0.019	mg/L	0.010		

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Client information du Client:

Date Finalized/Finalisée: 07/07/2016

Organization/Organisation: Transportation and Infrastructure
 Attention: James Hoyt
 Tel. No./No. de tel.:
 Client ID/No. de Client: 0933
 Order No./No. de l'ordre : **160657707**
 Matrix/Matrice: Surface Water/Eau de surface
 Sample Type/Type d'échantillon: Surfacewater / Eau de Surface

**Client Sample Identifier/
 No. d'Echantillon du client:**
WC 1 and WC 1 A

Date Collected/Date de prelevement: 2016/06/23
 Date Received/reçu: 2016/06/24

Authorization/Autorité: Lori Lamey
 Title/Titre: Inorganic Manager/Gérante d'inorganique

Parameter/ paramètre	Date Analyzed/ Date d'analyse	Method/ méthode	Flag/ Avis	Result/ Résultats	Units/ Unités	L.O.Q./ L.D.Q./	Guideline/Indicateur	
Total Hardness-Calc./Dureté totale-Calculé ‡ §	2016/06/27	EPA 200.7 (Mod.)		74.1	mg/L	0.67		
Total Nitrogen/Azote Totale ‡	2016/06/29	SM 4500-N B		< 0.3	mg/L	0.3		
Total Organic Carbon/Carbone organique tot.	2016/07/04	SM 5310B (Mod.)		9.7	mg/L	1.0		
Turbidity/Turbidité	2016/06/27	SM 2130B (Mod.)		2.7	NTU	0.2		
Zinc	2016/06/27	EPA 200.8 (Mod.)		< 0.005	mg/L	0.005		
pH	2016/06/27	SM 4500-H+B (Mod.)		7.49				

Calculated Parameters/Paramètres calculés					
Sum of Cations	4.04	Sum of Anions	3.67	% Difference	-4.90
Saturation Index @ 25°C	-0.64	CO3(as CaCO3)	0.18	HCO3(as CaCO3)	60.71

[L.O.Q.] Limit of quantitation
 [M.A.C.] Maximum Acceptable Concentration (Drinking water only)
 [A.O.] Aesthetic Objective
 ‡ Non-Accredited Parameter

[L.D.Q.] Limite de quantification
 [C.M.A.] Concentration maximale acceptable (Eau potable seulement)
 [O.E.] ordre esthétique
 ‡ Paramètre non accrédité

¥ Nitrate as N-calc.: (Nitrate-nitrite as N) - (Nitrite as N)
 § Total Hardness-Calc.: (Calcium x 2.497) + (Magnesium x 4.118)

¥ Nitrate comme N-calculé : (Nitrate-nitrite comme N) - (Nitrite comme N)
 § Dureté totale-Calculé: (Calcium x 2.497) + (Magnésium x 4.118)

Results reported refer only to the sample(s) as received.

Les résultats fournis ne se rapportent qu'aux échantillons dans l'état où ils ont été reçus.

For an interpretation of your results, please contact the regional public health office in your area.

Pour une interprétation de vos résultats veuillez contacter le bureau de santé publique dans votre région.

Inorganic Final Report / Rapport inorganique

Client information du Client:

Organization/Organisation: Transportation and Infrastructure
Attention: James Hoyt
Tel. No./No. de tel.:
Client ID/No. de Client: 0933
Order No./No. de l'ordre : **160657702**
Matrix/Matrice: Surface Water/Eau de surface
Sample Type/Type d'échantillon: Surfacewater / Eau de Surface

Date Finalized/Finalisée: 07/07/2016

WC 2, 2 A, 2 B, 2 C, 2 D, 2 E and 2 F

Client Sample Identifier/

No. d'Echantillon du client: BP1

Date Collected/Date de prelevement: 2016/06/23

Date Received/reçu: 2016/06/24

Authorization/Autorité: Lori Lamey
Title/Titre: Inorganic Manager/Gérante d'inorganique

Parameter/ paramètre	Date Analyzed/ Date d'analyse	Method/ méthode	Flag/ Avis	Result/ Résultats	Units/ Unités	L.O.Q./ L.D.Q./	Guideline/Indicateur	
Alkalinity/Alcalinité	2016/06/27	SM 2320B (Mod.)		32.5	mg/L			
Aluminum/Aluminium	2016/06/27	EPA 200.8 (Mod.)		0.015	mg/L	0.001		
Antimony/Antimoine	2016/06/27	EPA 200.8 (Mod.)		< 1.0	µg/L	1.0		
Arsenic	2016/06/27	EPA 200.8 (Mod.)		1.5	µg/L	1.0		
Cadmium	2016/06/27	EPA 200.8 (Mod.)		< 0.1	µg/L	0.1		
Calcium	2016/06/27	EPA 200.7 (Mod.)		13.2	mg/L	0.10		
Chloride/Chlorure	2016/06/29	SM 4110B (Mod.)		23.2	mg/L	0.050		
Chromium/Chrome	2016/06/27	EPA 200.8 (Mod.)		0.0006	mg/L	0.0005		
Colour/Couleur ‡	2016/06/28	SM 2120C (Mod.)		28	HU	5		
Conductivity/Conductivité	2016/06/27	SM 2510B (Mod.)		174	µS/cm			
Copper/Cuivre	2016/06/27	EPA 200.8 (Mod.)		< 0.0005	mg/L	0.0005		
Fluoride/Florure	2016/06/27	SM 4500-F-C (Mod.)		< 0.100	mg/L	0.100		
Iron/Fer	2016/06/27	EPA 200.7 (Mod.)		0.952	mg/L	0.010		
Lead/Plomb	2016/06/27	EPA 200.8 (Mod.)		< 1.0	µg/L	1.0		
Magnesium/Magnésium	2016/06/27	EPA 200.7 (Mod.)		4.05	mg/L	0.10		
Manganese/Manganèse	2016/06/27	EPA 200.8 (Mod.)		0.49	mg/L	0.005		
Nickel	2016/06/27	EPA 200.8 (Mod.)		< 0.005	mg/L	0.005		
Nitrate as N-calc./Nitrate comme N-calculé ‡ ¥	2016/06/30	SM 4500-NO3 I (Mod.)		< 0.05	mg/L	0.05		
Nitrate-nitrite as N / Nitrate-nitrite comme N	2016/06/30	SM 4500-NO3 I (Mod.)		< 0.05	mg/L	0.05		
Nitrite as N / Nitrite comme N	2016/06/30	SM 4500-NO3 I (Mod.)		< 0.05	mg/L	0.05		
Potassium	2016/06/27	EPA 200.8 (Mod.)		1.3	mg/L	0.05		
Sodium	2016/06/27	EPA 200.7 (Mod.)		12.8	mg/L	0.10		
Sulfate	2016/06/29	SM 4110B (Mod.)		13.0	mg/L	0.050		
Susp. Solids/Matières en Susp.	2016/06/27	SM 2540 D (Mod.)		< 10	mg/L	10		
Tot. Phosphorous Low Level/Phosphore tot. - niv. faible	2016/07/06	SM 4500-P-I (Mod.)		0.030	mg/L	0.002		
Total Ammonia/Azote ammoniacal total	2016/07/04	SM 4500-NH3 G		0.025	mg/L	0.010		

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Date Finalized/Finalisée: 07/07/2016

Organization/Organisation: Transportation and Infrastructure
 Attention: James Hoyt
 Tel. No./No. de tel.:
 Client ID/No. de Client: 0933
 Order No./No. de l'ordre : **160657702**
 Matrix/Matrice: Surface Water/Eau de surface
 Sample Type/Type d'échantillon: Surfacewater / Eau de Surface

WC 2, 2 A, 2 B, 2 C, 2 D, 2 E and 2 F

Client Sample Identifier/

No. d'Echantillon du client: BP1

Date Collected/Date de prelevement: 2016/06/23
 Date Received/reçu: 2016/06/24

Authorization/Autorité: Lori Lamey
 Title/Titre: Inorganic Manager/Gérante d'inorganique

Parameter/ paramètre	Date Analyzed/ Date d'analyse	Method/ méthode	Flag/ Avis	Result/ Résultats	Units/ Unités	L.O.Q./ L.D.Q./	Guideline/Indicateur	
Total Hardness-Calc./Dureté totale-Calculé ‡ §	2016/06/27	EPA 200.7 (Mod.)		49.6	mg/L	0.67		
Total Nitrogen/Azote Totale ‡	2016/06/29	SM 4500-N B		< 0.3	mg/L	0.3		
Total Organic Carbon/Carbone organique tot.	2016/07/04	SM 5310B (Mod.)		2.7	mg/L	1.0		
Turbidity/Turbidité	2016/06/27	SM 2130B (Mod.)		1.5	NTU	0.2		
Zinc	2016/06/27	EPA 200.8 (Mod.)		< 0.005	mg/L	0.005		
pH	2016/06/27	SM 4500-H+B (Mod.)		7.07				

Calculated Parameters/Paramètres calculés				
Sum of Cations	1.65	Sum of Anions	1.58	% Difference -2.19
Saturation Index @ 25°C	-1.56	CO3(as CaCO3)	0.04	HCO3(as CaCO3) 32.46

[L.O.Q.] Limit of quantitation
 [M.A.C.] Maximum Acceptable Concentration (Drinking water only)
 [A.O.] Aesthetic Objective
 ‡ Non-Accredited Parameter

[L.D.Q.] Limite de quantification
 [C.M.A.] Concentration maximale acceptable (Eau potable seulement)
 [O.E.] ordre esthétique
 ‡ Paramètre non accrédité

¥ Nitrate as N-calc.: (Nitrate-nitrite as N) - (Nitrite as N)
 § Total Hardness-Calc.: (Calcium x 2.497) + (Magnesium x 4.118)

¥ Nitrate comme N-calculé : (Nitrate-nitrite comme N) - (Nitrite comme N)
 § Dureté totale-Calculé: (Calcium x 2.497) + (Magnésium x 4.118)

Results reported refer only to the sample(s) as received.

Les résultats fournis ne se rapportent qu'aux échantillons dans l'état où ils ont été reçus.

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Inorganic Final Report / Rapport inorganique

Client information du Client:

Date Finalized/Finalisée: 07/07/2016

Organization/Organisation: Transportation and Infrastructure
Attention: James Hoyt
Tel. No./No. de tel.:
Client ID/No. de Client: 0933
Order No./No. de l'ordre : **160657706**
Matrix/Matrice: Surface Water/Eau de surface
Sample Type/Type d'échantillon: Surfacewater / Eau de Surface

Client Sample Identifier/
No. d'Echantillon du client:

WC 4 (34+225)

Date Collected/Date de prelevement: 2016/06/23
Date Received/reçu: 2016/06/24

Authorization/Autorité: Lori Lamey
Title/Titre: Inorganic Manager/Gérante d'inorganique

Parameter/ paramètre	Date Analyzed/ Date d'analyse	Method/ méthode	Flag/ Avis	Result/ Résultats	Units/ Unités	L.O.Q./ L.D.Q./	Guideline/Indicateur	
Alkalinity/Alcalinité	2016/06/27	SM 2320B (Mod.)		40.4	mg/L			
Aluminum/Aluminium	2016/06/27	EPA 200.8 (Mod.)		0.11	mg/L	0.001		
Antimony/Antimoine	2016/06/27	EPA 200.8 (Mod.)		< 1.0	µg/L	1.0		
Arsenic	2016/06/27	EPA 200.8 (Mod.)		< 1.0	µg/L	1.0		
Cadmium	2016/06/27	EPA 200.8 (Mod.)		< 0.1	µg/L	0.1		
Calcium	2016/06/27	EPA 200.7 (Mod.)		18.2	mg/L	0.10		
Chloride/Chlorure	2016/06/29	SM 4110B (Mod.)		33.9	mg/L	0.050		
Chromium/Chrome	2016/06/27	EPA 200.8 (Mod.)		< 0.0005	mg/L	0.0005		
Colour/Couleur ‡	2016/06/28	SM 2120C (Mod.)		37	HU	5		
Conductivity/Conductivité	2016/06/27	SM 2510B (Mod.)		220	µS/cm			
Copper/Cuivre	2016/06/27	EPA 200.8 (Mod.)		0.0009	mg/L	0.0005		
Fluoride/Florure	2016/06/27	SM 4500-F-C (Mod.)		< 0.100	mg/L	0.100		
Iron/Fer	2016/06/27	EPA 200.7 (Mod.)		0.313	mg/L	0.010		
Lead/Plomb	2016/06/27	EPA 200.8 (Mod.)		< 1.0	µg/L	1.0		
Magnesium/Magnésium	2016/06/27	EPA 200.7 (Mod.)		3.51	mg/L	0.10		
Manganese/Manganèse	2016/06/27	EPA 200.8 (Mod.)		0.084	mg/L	0.005		
Nickel	2016/06/27	EPA 200.8 (Mod.)		< 0.005	mg/L	0.005		
Nitrate as N-calc./Nitrate comme N-calculé ‡ ¥	2016/06/30	SM 4500-NO3 I (Mod.)		0.39	mg/L	0.05		
Nitrate-nitrite as N / Nitrate-nitrite comme N	2016/06/30	SM 4500-NO3 I (Mod.)		0.39	mg/L	0.05		
Nitrite as N / Nitrite comme N	2016/06/30	SM 4500-NO3 I (Mod.)		< 0.05	mg/L	0.05		
Potassium	2016/06/27	EPA 200.8 (Mod.)		1.2	mg/L	0.05		
Sodium	2016/06/27	EPA 200.7 (Mod.)		19.4	mg/L	0.10		
Sulfate	2016/06/29	SM 4110B (Mod.)		8.92	mg/L	0.050		
Susp. Solids/Matières en Susp.	2016/06/27	SM 2540 D (Mod.)		< 10	mg/L	10		
Tot. Phosphorous Low Level/Phosphore tot. - niv. faible	2016/07/06	SM 4500-P-I (Mod.)		0.018	mg/L	0.002		
Total Ammonia/Azote ammoniacal total	2016/07/04	SM 4500-NH3 G		0.017	mg/L	0.010		

Inorganic Final Report / Rapport inorganique

Client information du Client:

Date Finalized/Finalisée: 07/07/2016

Organization/Organisation: Transportation and Infrastructure
 Attention: James Hoyt
 Tel. No./No. de tel.:
 Client ID/No. de Client: 0933
 Order No./No. de l'ordre : **160657706**
 Matrix/Matrice: Surface Water/Eau de surface
 Sample Type/Type d'échantillon: Surfacewater / Eau de Surface

**Client Sample Identifier/
No. d'Echantillon du client:**
WC 4 (34+225)

Date Collected/Date de prelevement: 2016/06/23
 Date Received/reçu: 2016/06/24

Authorization/Autorité: Lori Lamey
 Title/Titre: Inorganic Manager/Gérante d'inorganique

Parameter/ paramètre	Date Analyzed/ Date d'analyse	Method/ méthode	Flag/ Avis	Result/ Résultats	Units/ Unités	L.O.Q./ L.D.Q./	Guideline/Indicateur	
Total Hardness-Calc./Dureté totale-Calculé ‡ §	2016/06/27	EPA 200.7 (Mod.)		59.9	mg/L	0.67		
Total Nitrogen/Azote Totale ‡	2016/06/29	SM 4500-N B		0.5	mg/L	0.3		
Total Organic Carbon/Carbone organique tot.	2016/07/04	SM 5310B (Mod.)		3.7	mg/L	1.0		
Turbidity/Turbidité	2016/06/27	SM 2130B (Mod.)		2.0	NTU	0.2		
Zinc	2016/06/27	EPA 200.8 (Mod.)		< 0.005	mg/L	0.005		
pH	2016/06/27	SM 4500-H+B (Mod.)		7.96				

Calculated Parameters/Paramètres calculés					
Sum of Cations	2.10	Sum of Anions	1.98	% Difference	-3.00
Saturation Index @ 25°C	-0.45	CO3(as CaCO3)	0.34	HCO3(as CaCO3)	40.01

[L.O.Q.] Limit of quantitation
 [M.A.C.] Maximum Acceptable Concentration (Drinking water only)
 [A.O.] Aesthetic Objective
 ‡ Non-Accredited Parameter

[L.D.Q.] Limite de quantification
 [C.M.A.] Concentration maximale acceptable (Eau potable seulement)
 [O.E.] ordre esthétique
 ‡ Paramètre non accrédité

¥ Nitrate as N-calc.: (Nitrate-nitrite as N) - (Nitrite as N)
 § Total Hardness-Calc.: (Calcium x 2.497) + (Magnesium x 4.118)

¥ Nitrate comme N-calculé : (Nitrate-nitrite comme N) - (Nitrite comme N)
 § Dureté totale-Calculé: (Calcium x 2.497) + (Magnésium x 4.118)

Results reported refer only to the sample(s) as received.

Les résultats fournis ne se rapportent qu'aux échantillons dans l'état où ils ont été reçus.

For an interpretation of your results, please contact the regional public health office in your area.

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Inorganic Final Report / Rapport inorganique

Client information du Client:

Date Finalized/Finalisée: 07/07/2016

Organization/Organisation: Transportation and Infrastructure
Attention: James Hoyt
Tel. No./No. de tel.:
Client ID/No. de Client: 0933
Order No./No. de l'ordre : **160657705**
Matrix/Matrice: Surface Water/Eau de surface
Sample Type/Type d'échantillon: Surfacewater / Eau de Surface

Client Sample Identifier/

No. d'Echantillon du client: 34+540

WC 5

Date Collected/Date de prelevement: 2016/06/23

Date Received/reçu: 2016/06/24

Authorization/Autorité: Lori Lamey
Title/Titre: Inorganic Manager/Gérante d'inorganique

Parameter/ paramètre	Date Analyzed/ Date d'analyse	Method/ méthode	Flag/ Avis	Result/ Résultats	Units/ Unités	L.O.Q./ L.D.Q./	Guideline/Indicateur	
Alkalinity/Alcalinité	2016/06/27	SM 2320B (Mod.)		31.0	mg/L			
Aluminum/Aluminium	2016/06/27	EPA 200.8 (Mod.)		0.16	mg/L	0.001		
Antimony/Antimoine	2016/06/27	EPA 200.8 (Mod.)		< 1.0	µg/L	1.0		
Arsenic	2016/06/27	EPA 200.8 (Mod.)		1.0	µg/L	1.0		
Cadmium	2016/06/27	EPA 200.8 (Mod.)		< 0.1	µg/L	0.1		
Calcium	2016/06/27	EPA 200.7 (Mod.)		8.37	mg/L	0.10		
Chloride/Chlorure	2016/06/29	SM 4110B (Mod.)		4.32	mg/L	0.050		
Chromium/Chrome	2016/06/27	EPA 200.8 (Mod.)		< 0.0005	mg/L	0.0005		
Colour/Couleur ‡	2016/06/28	SM 2120C (Mod.)		189	HU	5		
Conductivity/Conductivité	2016/06/27	SM 2510B (Mod.)		82.0	µS/cm			
Copper/Cuivre	2016/06/27	EPA 200.8 (Mod.)		0.0005	mg/L	0.0005		
Fluoride/Florure	2016/06/27	SM 4500-F-C (Mod.)		< 0.100	mg/L	0.100		
Iron/Fer	2016/06/27	EPA 200.7 (Mod.)		0.841	mg/L	0.010		
Lead/Plomb	2016/06/27	EPA 200.8 (Mod.)		< 1.0	µg/L	1.0		
Magnesium/Magnésium	2016/06/27	EPA 200.7 (Mod.)		1.75	mg/L	0.10		
Manganese/Manganèse	2016/06/27	EPA 200.8 (Mod.)		0.12	mg/L	0.005		
Nickel	2016/06/27	EPA 200.8 (Mod.)		< 0.005	mg/L	0.005		
Nitrate as N-calc./Nitrate comme N-calculé ‡ ¥	2016/06/30	SM 4500-NO3 I (Mod.)		0.08	mg/L	0.05		
Nitrate-nitrite as N / Nitrate-nitrite comme N	2016/06/30	SM 4500-NO3 I (Mod.)		0.08	mg/L	0.05		
Nitrite as N / Nitrite comme N	2016/06/30	SM 4500-NO3 I (Mod.)		< 0.05	mg/L	0.05		
Potassium	2016/06/27	EPA 200.8 (Mod.)		0.79	mg/L	0.05		
Sodium	2016/06/27	EPA 200.7 (Mod.)		7.84	mg/L	0.10		
Sulfate	2016/06/29	SM 4110B (Mod.)		2.12	mg/L	0.050		
Susp. Solids/Matières en Susp.	2016/06/27	SM 2540 D (Mod.)		< 10	mg/L	10		
Tot. Phosphorous Low Level/Phosphore tot. - niv. faible	2016/07/06	SM 4500-P-I (Mod.)		0.019	mg/L	0.002		
Total Ammonia/Azote ammoniacal total	2016/07/04	SM 4500-NH3 G		0.045	mg/L	0.010		

Inorganic Final Report / Rapport inorganique

Client information du Client:

Date Finalized/Finalisée: 07/07/2016

Organization/Organisation: Transportation and Infrastructure
 Attention: James Hoyt
 Tel. No./No. de tel.:
 Client ID/No. de Client: 0933
 Order No./No. de l'ordre : **160657705**
 Matrix/Matrice: Surface Water/Eau de surface
 Sample Type/Type d'échantillon: Surfacewater / Eau de Surface

**Client Sample Identifier/
No. d'Echantillon du client:**

WC 5

Date Collected/Date de prelevement: 2016/06/23
 Date Received/reçu: 2016/06/24

Authorization/Autorité: Lori Lamey
 Title/Titre: Inorganic Manager/Gérante d'inorganique

Parameter/ paramètre	Date Analyzed/ Date d'analyse	Method/ méthode	Flag/ Avis	Result/ Résultats	Units/ Unités	L.O.Q./ L.D.Q./	Guideline/Indicateur	
Total Hardness-Calc./Dureté totale-Calculé ‡ §	2016/06/27	EPA 200.7 (Mod.)		28.1	mg/L	0.67		
Total Nitrogen/Azote Totale ‡	2016/06/29	SM 4500-N B		0.4	mg/L	0.3		
Total Organic Carbon/Carbone organique tot.	2016/07/04	SM 5310B (Mod.)		15.7	mg/L	1.0		
Turbidity/Turbidité	2016/06/27	SM 2130B (Mod.)		2.7	NTU	0.2		
Zinc	2016/06/27	EPA 200.8 (Mod.)		< 0.005	mg/L	0.005		
pH	2016/06/27	SM 4500-H+B (Mod.)		7.61				

Calculated Parameters/Paramètres calculés				
Sum of Cations	0.99	Sum of Anions	0.80	% Difference -10.98
Saturation Index @ 25°C	-1.21	CO3(as CaCO3)	0.12	HCO3(as CaCO3) 30.86

[L.O.Q.] Limit of quantitation
 [M.A.C.] Maximum Acceptable Concentration (Drinking water only)
 [A.O.] Aesthetic Objective
 ‡ Non-Accredited Parameter

[L.D.Q.] Limite de quantification
 [C.M.A.] Concentration maximale acceptable (Eau potable seulement)
 [O.E.] ordre esthétique
 ‡ Paramètre non accrédité

¥ Nitrate as N-calc.: (Nitrate-nitrite as N) - (Nitrite as N)
 § Total Hardness-Calc.: (Calcium x 2.497) + (Magnesium x 4.118)

¥ Nitrate comme N-calculé : (Nitrate-nitrite comme N) - (Nitrite comme N)
 § Dureté totale-Calculé: (Calcium x 2.497) + (Magnésium x 4.118)

Results reported refer only to the sample(s) as received.

Les résultats fournis ne se rapportent qu'aux échantillons dans l'état où ils ont été reçus.

For an interpretation of your results, please contact the regional public health office in your area.

Pour une interprétation de vos résultats veuillez contacter le bureau de santé publique dans votre région.

Inorganic Final Report / Rapport inorganique

Client information du Client:

Date Finalized/Finalisée: 07/07/2016

Organization/Organisation: Transportation and Infrastructure
Attention: James Hoyt
Tel. No./No. de tel.:
Client ID/No. de Client: 0933
Order No./No. de l'ordre : **160657703**
Matrix/Matrice: Surface Water/Eau de surface
Sample Type/Type d'échantillon: Surfacewater / Eau de Surface

Client Sample Identifier/
No. d'Echantillon du client:

WC 6 (34+945)

Date Collected/Date de prelevement: 2016/06/23
Date Received/reçu: 2016/06/24

Authorization/Autorité: Lori Lamey
Title/Titre: Inorganic Manager/Gérante d'inorganique

Parameter/ paramètre	Date Analyzed/ Date d'analyse	Method/ méthode	Flag/ Avis	Result/ Résultats	Units/ Unités	L.O.Q./ L.D.Q./	Guideline/Indicateur	
Alkalinity/Alcalinité	2016/06/27	SM 2320B (Mod.)		17.2	mg/L			
Aluminum/Aluminium	2016/06/27	EPA 200.8 (Mod.)		0.21	mg/L	0.001		
Antimony/Antimoine	2016/06/27	EPA 200.8 (Mod.)		< 1.0	µg/L	1.0		
Arsenic	2016/06/27	EPA 200.8 (Mod.)		< 1.0	µg/L	1.0		
Cadmium	2016/06/27	EPA 200.8 (Mod.)		< 0.1	µg/L	0.1		
Calcium	2016/06/27	EPA 200.7 (Mod.)		4.80	mg/L	0.10		
Chloride/Chlorure	2016/06/29	SM 4110B (Mod.)		1.08	mg/L	0.050		
Chromium/Chrome	2016/06/27	EPA 200.8 (Mod.)		< 0.0005	mg/L	0.0005		
Colour/Couleur ‡	2016/06/28	SM 2120C (Mod.)		172	HU	5		
Conductivity/Conductivité	2016/06/27	SM 2510B (Mod.)		46.2	µS/cm			
Copper/Cuivre	2016/06/27	EPA 200.8 (Mod.)		0.0006	mg/L	0.0005		
Fluoride/Florure	2016/06/27	SM 4500-F-C (Mod.)		< 0.100	mg/L	0.100		
Iron/Fer	2016/06/27	EPA 200.7 (Mod.)		0.938	mg/L	0.010		
Lead/Plomb	2016/06/27	EPA 200.8 (Mod.)		< 1.0	µg/L	1.0		
Magnesium/Magnésium	2016/06/27	EPA 200.7 (Mod.)		1.31	mg/L	0.10		
Manganese/Manganèse	2016/06/27	EPA 200.8 (Mod.)		0.061	mg/L	0.005		
Nickel	2016/06/27	EPA 200.8 (Mod.)		< 0.005	mg/L	0.005		
Nitrate as N-calc./Nitrate comme N-calculé ‡ ¥	2016/06/30	SM 4500-NO3 I (Mod.)		0.15	mg/L	0.05		
Nitrate-nitrite as N / Nitrate-nitrite comme N	2016/06/30	SM 4500-NO3 I (Mod.)		0.15	mg/L	0.05		
Nitrite as N / Nitrite comme N	2016/06/30	SM 4500-NO3 I (Mod.)		< 0.05	mg/L	0.05		
Potassium	2016/06/27	EPA 200.8 (Mod.)		0.53	mg/L	0.05		
Sodium	2016/06/27	EPA 200.7 (Mod.)		4.21	mg/L	0.10		
Sulfate	2016/06/29	SM 4110B (Mod.)		1.13	mg/L	0.050		
Susp. Solids/Matières en Susp.	2016/06/27	SM 2540 D (Mod.)		< 10	mg/L	10		
Tot. Phosphorous Low Level/Phosphore tot. - niv. faible	2016/07/06	SM 4500-P-I (Mod.)		0.018	mg/L	0.002		
Total Ammonia/Azote ammoniacal total	2016/07/04	SM 4500-NH3 G		0.031	mg/L	0.010		

Inorganic Final Report / Rapport inorganique

Client information du Client:

Date Finalized/Finalisée: 07/07/2016

Organization/Organisation: Transportation and Infrastructure
 Attention: James Hoyt
 Tel. No./No. de tel.:
 Client ID/No. de Client: 0933
 Order No./No. de l'ordre : **160657703**
 Matrix/Matrice: Surface Water/Eau de surface
 Sample Type/Type d'échantillon: Surfacewater / Eau de Surface

**Client Sample Identifier/
No. d'Echantillon du client:**
WC 6 (34+945)

Date Collected/Date de prelevement: 2016/06/23
 Date Received/reçu: 2016/06/24

Authorization/Autorité: Lori Lamey
 Title/Titre: Inorganic Manager/Gérante d'inorganique

Parameter/ paramètre	Date Analyzed/ Date d'analyse	Method/ méthode	Flag/ Avis	Result/ Résultats	Units/ Unités	L.O.Q./ L.D.Q./	Guideline/Indicateur	
Total Hardness-Calc./Dureté totale-Calculé ‡ §	2016/06/27	EPA 200.7 (Mod.)		17.4	mg/L	0.67		
Total Nitrogen/Azote Totale ‡	2016/06/29	SM 4500-N B		0.5	mg/L	0.3		
Total Organic Carbon/Carbone organique tot.	2016/07/04	SM 5310B (Mod.)		15.6	mg/L	1.0		
Turbidity/Turbidité	2016/06/27	SM 2130B (Mod.)		2.8	NTU	0.2		
Zinc	2016/06/27	EPA 200.8 (Mod.)		< 0.005	mg/L	0.005		
pH	2016/06/27	SM 4500-H+B (Mod.)		7.32				

Calculated Parameters/Paramètres calculés					
Sum of Cations	0.62	Sum of Anions	0.41	% Difference	-20.10
Saturation Index @ 25°C	-1.98	CO3(as CaCO3)	0.03	HCO3(as CaCO3)	17.16

[L.O.Q.] Limit of quantitation
 [M.A.C.] Maximum Acceptable Concentration (Drinking water only)
 [A.O.] Aesthetic Objective
 ‡ Non-Accredited Parameter

[L.D.Q.] Limite de quantification
 [C.M.A.] Concentration maximale acceptable (Eau potable seulement)
 [O.E.] ordre esthétique
 ‡ Paramètre non accrédité

¥ Nitrate as N-calc.: (Nitrate-nitrite as N) - (Nitrite as N)
 § Total Hardness-Calc.: (Calcium x 2.497) + (Magnesium x 4.118)

¥ Nitrate comme N-calculé : (Nitrate-nitrite comme N) - (Nitrite comme N)
 § Dureté totale-Calculé: (Calcium x 2.497) + (Magnésium x 4.118)

Results reported refer only to the sample(s) as received.

Les résultats fournis ne se rapportent qu'aux échantillons dans l'état où ils ont été reçus.

For an interpretation of your results, please contact the regional public health office in your area.

Pour une interprétation de vos résultats veuillez contacter le bureau de santé publique dans votre région.

Inorganic Final Report / Rapport inorganique

Client information du Client:

Date Finalized/Finalisée: 07/07/2016

Organization/Organisation: Transportation and Infrastructure
Attention: James Hoyt
Tel. No./No. de tel.:
Client ID/No. de Client: 0933
Order No./No. de l'ordre : **160657701**
Matrix/Matrice: Surface Water/Eau de surface
Sample Type/Type d'échantillon: Surfacewater / Eau de Surface

Client Sample Identifier/
No. d'Echantillon du client: **36+250**

WC 6 A

Date Collected/Date de prelevement: 2016/06/23
Date Received/reçu: 2016/06/24

Authorization/Autorité: Lori Lamey
Title/Titre: Inorganic Manager/Gérante d'inorganique

Parameter/ paramètre	Date Analyzed/ Date d'analyse	Method/ méthode	Flag/ Avis	Result/ Résultats	Units/ Unités	L.O.Q./ L.D.Q./	Guideline/Indicateur	
Alkalinity/Alcalinité	2016/06/27	SM 2320B (Mod.)		20.7	mg/L			
Aluminum/Aluminium	2016/06/27	EPA 200.8 (Mod.)		0.35	mg/L	0.001		
Antimony/Antimoine	2016/06/27	EPA 200.8 (Mod.)		< 1.0	µg/L	1.0		
Arsenic	2016/06/27	EPA 200.8 (Mod.)		< 1.0	µg/L	1.0		
Cadmium	2016/06/27	EPA 200.8 (Mod.)		< 0.1	µg/L	0.1		
Calcium	2016/06/27	EPA 200.7 (Mod.)		5.26	mg/L	0.10		
Chloride/Chlorure	2016/06/29	SM 4110B (Mod.)		1.48	mg/L	0.050		
Chromium/Chrome	2016/06/27	EPA 200.8 (Mod.)		0.0007	mg/L	0.0005		
Colour/Couleur ‡	2016/06/28	SM 2120C (Mod.)		207	HU	5		
Conductivity/Conductivité	2016/06/27	SM 2510B (Mod.)		50.3	µS/cm			
Copper/Cuivre	2016/06/27	EPA 200.8 (Mod.)		0.0019	mg/L	0.0005		
Fluoride/Florure	2016/06/27	SM 4500-F-C (Mod.)		< 0.100	mg/L	0.100		
Iron/Fer	2016/06/27	EPA 200.7 (Mod.)		1.17	mg/L	0.010		
Lead/Plomb	2016/06/27	EPA 200.8 (Mod.)		< 1.0	µg/L	1.0		
Magnesium/Magnésium	2016/06/27	EPA 200.7 (Mod.)		1.67	mg/L	0.10		
Manganese/Manganèse	2016/06/27	EPA 200.8 (Mod.)		0.31	mg/L	0.005		
Nickel	2016/06/27	EPA 200.8 (Mod.)		< 0.005	mg/L	0.005		
Nitrate as N-calc./Nitrate comme N-calculé ‡ ¥	2016/06/30	SM 4500-NO3 I (Mod.)		0.09	mg/L	0.05		
Nitrate-nitrite as N / Nitrate-nitrite comme N	2016/06/30	SM 4500-NO3 I (Mod.)		0.09	mg/L	0.05		
Nitrite as N / Nitrite comme N	2016/06/30	SM 4500-NO3 I (Mod.)		< 0.05	mg/L	0.05		
Potassium	2016/06/27	EPA 200.8 (Mod.)		0.80	mg/L	0.05		
Sodium	2016/06/27	EPA 200.7 (Mod.)		4.57	mg/L	0.10		
Sulfate	2016/06/29	SM 4110B (Mod.)		0.859	mg/L	0.050		
Susp. Solids/Matières en Susp.	2016/06/27	SM 2540 D (Mod.)		< 10	mg/L	10		
Tot. Phosphorous Low Level/Phosphore tot. - niv. faible	2016/07/06	SM 4500-P-I (Mod.)		0.017	mg/L	0.002		
Total Ammonia/Azote ammoniacal total	2016/07/04	SM 4500-NH3 G		0.044	mg/L	0.010		

Inorganic Final Report / Rapport inorganique

Client information du Client:

Date Finalized/Finalisée: 07/07/2016

Organization/Organisation: Transportation and Infrastructure
 Attention: James Hoyt
 Tel. No./No. de tel.:
 Client ID/No. de Client: 0933
 Order No./No. de l'ordre : **160657701**
 Matrix/Matrice: Surface Water/Eau de surface
 Sample Type/Type d'échantillon: Surfacewater / Eau de Surface

**Client Sample Identifier/
 No. d'Echantillon du client:**
36+250
WC 6 A

Date Collected/Date de prelevement: 2016/06/23
 Date Received/reçu: 2016/06/24

Authorization/Autorité: Lori Lamey
 Title/Titre: Inorganic Manager/Gérante d'inorganique

Parameter/ paramètre	Date Analyzed/ Date d'analyse	Method/ méthode	Flag/ Avis	Result/ Résultats	Units/ Unités	L.O.Q./ L.D.Q./	Guideline/Indicateur	
Total Hardness-Calc./Dureté totale-Calculé ‡ §	2016/06/27	EPA 200.7 (Mod.)		20.0	mg/L	0.67		
Total Nitrogen/Azote Totale ‡	2016/06/29	SM 4500-N B		0.5	mg/L	0.3		
Total Organic Carbon/Carbone organique tot.	2016/07/04	SM 5310B (Mod.)		20.0	mg/L	1.0		
Turbidity/Turbidité	2016/06/27	SM 2130B (Mod.)		2.4	NTU	0.2		
Zinc	2016/06/27	EPA 200.8 (Mod.)		< 0.005	mg/L	0.005		
pH	2016/06/27	SM 4500-H+B (Mod.)		7.23				

Calculated Parameters/Paramètres calculés					
Sum of Cations	0.73	Sum of Anions	0.48	% Difference	-20.48
Saturation Index @ 25°C	-1.95	CO3(as CaCO3)	0.03	HCO3(as CaCO3)	20.66

Results Comments:

Ion Balance : Unable to balance due to elevated iron and turbidity.

[L.O.Q.] Limit of quantitation
 [M.A.C.] Maximum Acceptable Concentration (Drinking water only)
 [A.O.] Aesthetic Objective
 ‡ Non-Accredited Parameter

¥ Nitrate as N-calc.: (Nitrate-nitrite as N) - (Nitrite as N)
 § Total Hardness-Calc.: (Calcium x 2.497) + (Magnesium x 4.118)

Results reported refer only to the sample(s) as received.

For an interpretation of your results, please contact the regional public health office in your area.

Commentaires de résultats:

Bilan des ions : impossible d'établir le bilan en raison d'une turbidité et d'une quantité de fer élevées

[L.D.Q.] Limite de quantification
 [C.M.A.] Concentration maximale acceptable (Eau potable seulement)
 [O.E.] ordre esthétique
 ‡ Paramètre non accrédité

¥ Nitrate comme N-calculé : (Nitrate-nitrite comme N) - (Nitrite comme N)
 § Dureté totale-Calculé: (Calcium x 2.497) + (Magnésium x 4.118)

Les résultats fournis ne se rapportent qu'aux échantillons dans l'état où ils ont été reçus.

Pour une interprétation de vos résultats veuillez contacter le bureau de santé publique dans votre région.

Inorganic Final Report / Rapport inorganique

Client information du Client:

Date Finalized/Finalisée: 07/07/2016

Organization/Organisation: Transportation and Infrastructure
Attention: James Hoyt
Tel. No./No. de tel.:
Client ID/No. de Client: 0933
Order No./No. de l'ordre : **160657704**
Matrix/Matrice: Surface Water/Eau de surface
Sample Type/Type d'échantillon: Surfacewater / Eau de Surface

Client Sample Identifier/
No. d'Echantillon du client: **37+325**

WC 6 B

Date Collected/Date de prelevement: 2016/06/22
Date Received/reçu: 2016/06/24

Authorization/Autorité: Lori Lamey
Title/Titre: Inorganic Manager/Gérante d'inorganique

Parameter/ paramètre	Date Analyzed/ Date d'analyse	Method/ méthode	Flag/ Avis	Result/ Résultats	Units/ Unités	L.O.Q./ L.D.Q./	Guideline/Indicateur	
Alkalinity/Alcalinité	2016/06/27	SM 2320B (Mod.)		7.11	mg/L			
Aluminum/Aluminium	2016/06/27	EPA 200.8 (Mod.)		0.50	mg/L	0.001		
Antimony/Antimoine	2016/06/27	EPA 200.8 (Mod.)		< 1.0	µg/L	1.0		
Arsenic	2016/06/27	EPA 200.8 (Mod.)		2.4	µg/L	1.0		
Cadmium	2016/06/27	EPA 200.8 (Mod.)		< 0.1	µg/L	0.1		
Calcium	2016/06/27	EPA 200.7 (Mod.)		3.15	mg/L	0.10		
Chloride/Chlorure	2016/06/29	SM 4110B (Mod.)		0.465	mg/L	0.050		
Chromium/Chrome	2016/06/27	EPA 200.8 (Mod.)		0.0007	mg/L	0.0005		
Colour/Couleur ‡	2016/06/28	SM 2120C (Mod.)		346	HU	5		
Conductivity/Conductivité	2016/06/27	SM 2510B (Mod.)		25.7	µS/cm			
Copper/Cuivre	2016/06/27	EPA 200.8 (Mod.)		0.0036	mg/L	0.0005		
Fluoride/Florure	2016/06/27	SM 4500-F-C (Mod.)		< 0.100	mg/L	0.100		
Iron/Fer	2016/06/27	EPA 200.7 (Mod.)		2.44	mg/L	0.010		
Lead/Plomb	2016/06/27	EPA 200.8 (Mod.)		1.5	µg/L	1.0		
Magnesium/Magnésium	2016/06/27	EPA 200.7 (Mod.)		0.84	mg/L	0.10		
Manganese/Manganèse	2016/06/27	EPA 200.8 (Mod.)		0.42	mg/L	0.005		
Nickel	2016/06/27	EPA 200.8 (Mod.)		< 0.005	mg/L	0.005		
Nitrate as N-calc./Nitrate comme N-calculé ‡ ¥	2016/06/30	SM 4500-NO3 I (Mod.)		< 0.05	mg/L	0.05		
Nitrate-nitrite as N / Nitrate-nitrite comme N	2016/06/30	SM 4500-NO3 I (Mod.)		< 0.05	mg/L	0.05		
Nitrite as N / Nitrite comme N	2016/06/30	SM 4500-NO3 I (Mod.)		< 0.05	mg/L	0.05		
Potassium	2016/06/27	EPA 200.8 (Mod.)		0.20	mg/L	0.05		
Sodium	2016/06/27	EPA 200.7 (Mod.)		1.78	mg/L	0.10		
Sulfate	2016/06/29	SM 4110B (Mod.)		0.072	mg/L	0.050		
Susp. Solids/Matières en Susp.	2016/06/27	SM 2540 D (Mod.)		22	mg/L	10		
Tot. Phosphorous Low Level/Phosphore tot. - niv. faible	2016/07/06	SM 4500-P-I (Mod.)		0.029	mg/L	0.002		
Total Ammonia/Azote ammoniacal total	2016/07/04	SM 4500-NH3 G		0.091	mg/L	0.010		

Inorganic Final Report / Rapport inorganique

Client information du Client:

Date Finalized/Finalisée: 07/07/2016

Organization/Organisation: Transportation and Infrastructure
 Attention: James Hoyt
 Tel. No./No. de tel.:
 Client ID/No. de Client: 0933
 Order No./No. de l'ordre : **160657704**
 Matrix/Matrice: Surface Water/Eau de surface
 Sample Type/Type d'échantillon: Surfacewater / Eau de Surface

**Client Sample Identifier/
 No. d'Echantillon du client:**

37+325

WC 6 B

Date Collected/Date de prelevement: 2016/06/22
 Date Received/reçu: 2016/06/24

Authorization/Autorité: Lori Lamey
 Title/Titre: Inorganic Manager/Gérante d'inorganique

Parameter/ paramètre	Date Analyzed/ Date d'analyse	Method/ méthode	Flag/ Avis	Result/ Résultats	Units/ Unités	L.O.Q./ L.D.Q./	Guideline/Indicateur	
Total Hardness-Calc./Dureté totale-Calculé ‡ §	2016/06/27	EPA 200.7 (Mod.)		11.3	mg/L	0.67		
Total Nitrogen/Azote Totale ‡	2016/06/29	SM 4500-N B		0.7	mg/L	0.3		
Total Organic Carbon/Carbone organique tot.	2016/07/04	SM 5310B (Mod.)		28.7	mg/L	1.0		
Turbidity/Turbidité	2016/06/27	SM 2130B (Mod.)		4.8	NTU	0.2		
Zinc	2016/06/27	EPA 200.8 (Mod.)		0.009	mg/L	0.005		
pH	2016/06/27	SM 4500-H+B (Mod.)		6.12				

Calculated Parameters/Paramètres calculés					
Sum of Cations	0.52	Sum of Anions	0.17	% Difference	-51.43
Saturation Index @ 25°C	-3.73	CO3(as CaCO3)	0.00	HCO3(as CaCO3)	7.11

Results Comments:

Ion Balance : Unable to balance due to elevated iron and turbidity.

[L.O.Q.] Limit of quantitation
 [M.A.C.] Maximum Acceptable Concentration (Drinking water only)
 [A.O.] Aesthetic Objective
 ‡ Non-Accredited Parameter

¥ Nitrate as N-calc.: (Nitrate-nitrite as N) - (Nitrite as N)
 § Total Hardness-Calc.: (Calcium x 2.497) + (Magnesium x 4.118)

Results reported refer only to the sample(s) as received.

For an interpretation of your results, please contact the regional public health office in your area.

Commentaires de résultats:

Bilan des ions : impossible d'établir le bilan en raison d'une turbidité et d'une quantité de fer élevées

[L.D.Q.] Limite de quantification
 [C.M.A.] Concentration maximale acceptable (Eau potable seulement)
 [O.E.] ordre esthétique
 ‡ Paramètre non accrédité

¥ Nitrate comme N-calculé : (Nitrate-nitrite comme N) - (Nitrite comme N)
 § Dureté totale-Calculé: (Calcium x 2.497) + (Magnésium x 4.118)

Les résultats fournis ne se rapportent qu'aux échantillons dans l'état où ils ont été reçus.

Pour une interprétation de vos résultats veuillez contacter le bureau de santé publique dans votre région.

Inorganic Final Report / Rapport inorganique

Client information du Client:

Date Finalized/Finalisée: 07/07/2016

Organization/Organisation: Transportation and Infrastructure
Attention: James Hoyt
Tel. No./No. de tel.:
Client ID/No. de Client: 0933
Order No./No. de l'ordre : **160657708**
Matrix/Matrice: Surface Water/Eau de surface
Sample Type/Type d'échantillon: Surfacewater / Eau de Surface

Client Sample Identifier/
No. d'Echantillon du client:

WC 7 (A140+390)

Date Collected/Date de prelevement: 2016/06/23
Date Received/reçu: 2016/06/24

Authorization/Autorité: Lori Lamey
Title/Titre: Inorganic Manager/Gérante d'inorganique

Parameter/ paramètre	Date Analyzed/ Date d'analyse	Method/ méthode	Flag/ Avis	Result/ Résultats	Units/ Unités	L.O.Q./ L.D.Q./	Guideline/Indicateur	
Alkalinity/Alcalinité	2016/06/27	SM 2320B (Mod.)		21.6	mg/L			
Aluminum/Aluminium	2016/06/27	EPA 200.8 (Mod.)		0.18	mg/L	0.001		
Antimony/Antimoine	2016/06/27	EPA 200.8 (Mod.)		< 1.0	µg/L	1.0		
Arsenic	2016/06/27	EPA 200.8 (Mod.)		1.0	µg/L	1.0		
Cadmium	2016/06/27	EPA 200.8 (Mod.)		< 0.1	µg/L	0.1		
Calcium	2016/06/27	EPA 200.7 (Mod.)		8.29	mg/L	0.10		
Chloride/Chlorure	2016/06/29	SM 4110B (Mod.)		9.38	mg/L	0.050		
Chromium/Chrome	2016/06/27	EPA 200.8 (Mod.)		0.0007	mg/L	0.0005		
Colour/Couleur ‡	2016/06/28	SM 2120C (Mod.)		207	HU	5		
Conductivity/Conductivité	2016/06/27	SM 2510B (Mod.)		78.3	µS/cm			
Copper/Cuivre	2016/06/27	EPA 200.8 (Mod.)		< 0.0005	mg/L	0.0005		
Fluoride/Florure	2016/06/27	SM 4500-F-C (Mod.)		< 0.100	mg/L	0.100		
Iron/Fer	2016/06/27	EPA 200.7 (Mod.)		1.23	mg/L	0.010		
Lead/Plomb	2016/06/27	EPA 200.8 (Mod.)		< 1.0	µg/L	1.0		
Magnesium/Magnésium	2016/06/27	EPA 200.7 (Mod.)		1.40	mg/L	0.10		
Manganese/Manganèse	2016/06/27	EPA 200.8 (Mod.)		0.59	mg/L	0.005		
Nickel	2016/06/27	EPA 200.8 (Mod.)		< 0.005	mg/L	0.005		
Nitrate as N-calc./Nitrate comme N-calculé ‡ ¥	2016/06/30	SM 4500-NO3 I (Mod.)		< 0.05	mg/L	0.05		
Nitrate-nitrite as N / Nitrate-nitrite comme N	2016/06/30	SM 4500-NO3 I (Mod.)		< 0.05	mg/L	0.05		
Nitrite as N / Nitrite comme N	2016/06/30	SM 4500-NO3 I (Mod.)		< 0.05	mg/L	0.05		
Potassium	2016/06/27	EPA 200.8 (Mod.)		0.42	mg/L	0.05		
Sodium	2016/06/27	EPA 200.7 (Mod.)		7.63	mg/L	0.10		
Sulfate	2016/06/29	SM 4110B (Mod.)		< 0.050	mg/L	0.050		
Susp. Solids/Matières en Susp.	2016/06/27	SM 2540 D (Mod.)		< 10	mg/L	10		
Tot. Phosphorous Low Level/Phosphore tot. - niv. faible	2016/07/06	SM 4500-P-I (Mod.)		0.026	mg/L	0.002		
Total Ammonia/Azote ammoniacal total	2016/07/04	SM 4500-NH3 G		0.019	mg/L	0.010		

Inorganic Final Report / Rapport inorganique

Client information du Client:

Date Finalized/Finalisée: 07/07/2016

Organization/Organisation: Transportation and Infrastructure
 Attention: James Hoyt
 Tel. No./No. de tel.:
 Client ID/No. de Client: 0933
 Order No./No. de l'ordre : **160657708**
 Matrix/Matrice: Surface Water/Eau de surface
 Sample Type/Type d'échantillon: Surfacewater / Eau de Surface

**Client Sample Identifier/
 No. d'Echantillon du client:**

WC 7 (A140+390)

Date Collected/Date de prelevement: 2016/06/23
 Date Received/reçu: 2016/06/24

Authorization/Autorité: Lori Lamey
 Title/Titre: Inorganic Manager/Gérante d'inorganique

Parameter/ paramètre	Date Analyzed/ Date d'analyse	Method/ méthode	Flag/ Avis	Result/ Résultats	Units/ Unités	L.O.Q./ L.D.Q./	Guideline/Indicateur	
Total Hardness-Calc./Dureté totale-Calculé ‡ §	2016/06/27	EPA 200.7 (Mod.)		26.5	mg/L	0.67		
Total Nitrogen/Azote Totale ‡	2016/06/29	SM 4500-N B		0.4	mg/L	0.3		
Total Organic Carbon/Carbone organique tot.	2016/07/04	SM 5310B (Mod.)		23.9	mg/L	1.0		
Turbidity/Turbidité	2016/06/27	SM 2130B (Mod.)		1.6	NTU	0.2		
Zinc	2016/06/27	EPA 200.8 (Mod.)		< 0.005	mg/L	0.005		
pH	2016/06/27	SM 4500-H+B (Mod.)		6.82				

Calculated Parameters/Paramètres calculés				
Sum of Cations	0.98	Sum of Anions	0.71	% Difference -16.26
Saturation Index @ 25°C	-2.16	CO3(as CaCO3)	0.01	HCO3(as CaCO3) 21.58

Results Comments:

Ion Balance : Unable to balance due to elevated turbidity.

[L.O.Q.] Limit of quantitation
 [M.A.C.] Maximum Acceptable Concentration (Drinking water only)
 [A.O.] Aesthetic Objective
 ‡ Non-Accredited Parameter

¥ Nitrate as N-calc.: (Nitrate-nitrite as N) - (Nitrite as N)
 § Total Hardness-Calc.: (Calcium x 2.497) + (Magnesium x 4.118)

Results reported refer only to the sample(s) as received.

For an interpretation of your results, please contact the regional public health office in your area.

Commentaires de résultats:

Bilan des ions : impossible d'établir le bilan en raison d'une turbidité élevée.

[L.D.Q.] Limite de quantification
 [C.M.A.] Concentration maximale acceptable (Eau potable seulement)
 [O.E.] ordre esthétique
 ‡ Paramètre non accrédité

¥ Nitrate comme N-calculé : (Nitrate-nitrite comme N) - (Nitrite comme N)
 § Dureté totale-Calculé: (Calcium x 2.497) + (Magnésium x 4.118)

Les résultats fournis ne se rapportent qu'aux échantillons dans l'état où ils ont été reçus.

Pour une interprétation de vos résultats veuillez contacter le bureau de santé publique dans votre région.

Appendix C

Glenwood Area to Miramichi Bypass:

Fish Habitat Assessment

(Modified NBDNR/DFO Stream Survey Forms)

Table 1. Glenwood Area to Miramichi Bypass: Fish Habitat Assessment

Watercourse/ Drainage (Watercourse Crossing No.)	Chainage	Coordinates	Reach Number	Stream Type	Channel Type	Length (m)	Average Width (m)							Substrate (%)							Av. Depth Wet Width (cm)		% Undercut Bank		% Overhanging Veg		Large Woody Debris	Embeddedness %	% Site		Stream Bank Vegetation				Bank Erosion-Left Bank 0-50%		Bank Erosion-Right Bank 0-50%		Diss. O ₂ (% sat)	pH	Specific Cond. (µs/cm)	Temp. (C)		Depth (cm)			Pool Rating Criteria		Pool Tail						
							Wet	Bank Channel	Bedrock	Boulder	Rock	Rubble	Gravel	Sand	Fines	L	R	L	R	Riffle/Run	Pools	% Shade	Bare Ground	Grasses	Shrubs	Trees			Stable	Bare Stable	Eroding	Stable	Bare Stable	Eroding	Water	Air	Wet 1/4	Wet 1/2				Wet 3/4	Number	Letter	Embeddedness	x sub. size (cm)	% Fine	% Turbulence							
														L	R	L	R																																						
Black Brook (1)	31+043 100+300 400+700	47 01'17.8" 65 26'53.5"	1	13	1	100	50+	-	0	0	0	40	10	20	100	0	0	0	0	-	n alterd	watercourse	flow	along	DU	impoundments																													
			2a	Beaver dam																																																			
			2c	Concrete culvert under existing Route 11.																																																			
			2c	8	1	20	2.20	2.5				organic					25	0	0	50	20	0	4	0	0	50	0	50	50	0	50	0	0	50	0	0	78		1436	23	27	20	20	20	-	-	-	-	-	-					
2d	Culvert under King Steet.																																																						
3																												Watercourse has been split into two channels. The main channel is a 1.2 m wide channel meandering through a constructed swale. Channel is bounded on both sides by cattails and has very low gradient. The secondary channel is also constructed but is more linear. It also is bounded by cattails and has a very low gradient. Both watercourses drain into an open water marsh.																											
Black Brook (1A)	400+415 300+650 70+255	47 01'26.3" 65 26'48.2"	1	Assessed a part of 4+275																																																			
			2a	100 marsh with open water. Emergent and Submergent vedgetation.																																																			
			2b	Rail Trail Culvert 8 m																																																			
			2c	8	1	50	1.75	2	0	0	0	0	10	90	65	40	30	35	35	5	4	100	0	30	5	50	45	0	50	0	0	50	0	0	78	7.2	106.1	10	18	9	11	8	3	b	20	4	20	5							
3	3	18	1	250	0.86	1	0	0	0	5	40	30	25	12	40	40	10	10	50	35	60	40	80	20	50	0	30	40	5	5	40	5	5	-	-	-	10	18	6	11	12	<0.5	30	2	20	5									
Unmapped Trib to Black Brook (2 and 2A) Borrow Pit Pond	31+575 300+400	47 01'23.3" 65 26'26.8"	1	Assessed under WC 2 B 200+450																																																			
			2a	Main Borrow Pit Pond. > 1 m deep with submergent and emergent vedgetation																																																			
			2b	Linear Pond" extenstion/ drainage, up to 3/4 m deep extending length of borrow pit.																																																			
			3	Assessed under WC 2 B																																																			
Unmapped Drainage to Black Brook (2B)	200+550	47 01'21.3" 65 26'29.2"	1	Assessed as Borrow Pit Pond																																																			
			2a	Drainage in ditch, up to 2 m high "banks", mostly stagnant water																																																			
			2b	Small, mostly (< 1 m wide) channel drainig water into Borrow Pit Pond 1																																																			
			2c	Two beaver dams, impounding discharge from Borrow Pit Pond.																																																			
3	8	1	100	2.50	3	0	0	0	0	0	100	Up to 2 m wide, standing water in 2 to 5 m wide channel conveying outflow of borrow pit. Some flow visible at beaver dams.																																											
Unmapped Drainage to Black Brook (2C)	80+525	47 01'19.8" 65 26'16.5"	1	Dainage ditch along access path to borrow pit.																																																			
			2	Drainage channel (30 to 150 cm wide) draining into Borrow Pit Pond 1. This channel conveyed the vast majority of the flow into the channel at the time of survey.																																																			
			3	Borrow Pit Pond assessed under WC 2 and 2 A.																																																			
Unmapped Drainage to Black Brook (2D)	31+700 300+480 200+550	47 01'23.8" x 65 26'20.9"	1	Assesed as WC 2F																																																			
			2	Outlet and downstream extent of excavated drainage averaging .75 m deep and ranging from 0.30 to 1.5 m.																																																			
			3	Assessed as WC 2 and 2A																																																			

Table 1. Glenwood Area to Miramichi Bypass: Fish Habitat Assessment

Watercourse/ Drainage (Watercourse Crossing No.)	Chainage	Coordinates	Reach Number	Stream Type	Channel Type	Length (m)	Average Width (m)							Substrate (%)							Av. Depth Wet Width (cm)	% Undercut Bank		% Overhanging Veg		Large Woody Debris	Embeddedness %	% Site		Stream Bank Vegetation				Bank Erosion-Left Bank 0-50%			Bank Erosion-Right Bank 0-50%			Diss. O ₂ (% sat)	pH	Specific Cond. (µs/cm)	Temp. (C)		Depth (cm)			Pool Rating Criteria		Pool Tail		
							Wet	Bank Channel	Bedrock	Boulder	Rock	Rubble	Gravel	Sand	Fines	Grass	Shrub	Tree	Forb	Other		Grass	Shrub	Tree	Forb			Other	Stable	Bare Stable	Eroding	Stable	Bare Stable	Eroding	Water	Air	Wet 1/4	Wet 1/2	Wet 3/4				Number	Letter	Embeddedness	x sub. size (cm)	% Fine	% Turbulence				
							Γ	∩	Γ	∩	Γ	∩	Γ	∩	Γ	∩	Γ	∩	Γ	∩		Γ	∩	Γ	∩			Γ	∩	Γ	∩	Γ	∩	Γ	∩	Γ	∩	Γ	∩				Γ	∩	Γ	∩	Γ	∩	Γ	∩	Γ	∩
Unmapped Drainage to Black Brook (2E)	80+525	47 01'19.8" 65 26'16.5"	1	Dainage ditch along access path to borrow pit.																																																
			2	Drainage channel (30 to 150 cm wide) draining into Borrow Pit Pond 1. This channel conveyed the vast majority of the flow into the channel at the time of survey.																																																
			3	Borrow Pit Pond assessed imder																																																
Drainage to Borrow Pit Pond A, Trib to Black Brook (2F)	31+850 200+700 80+840	47 05'25.1" 65 26'10.5"	1	Starts in PDA																																																
			2	Drainage channel ~ 200 m long (30 to 150 cm wide) draining into Borrow Pit Pond 1. This channel conveyed the vast majority of the flow into the channel at the time of survey.																																																
			3	Assessed under 70+625																																																
Unnamed Trib. To Unnamed Trib. to Napan River (3)	33+810	47 01'11.9" x 65 24'48.1"	1	swale																																																
			2a	~400	Swale/Ditch with partiall defined channel in an active pasture. Runs in ROW for ~ 400m																																															
			2b	6	Culverts (2 metal) under farm lane.																																															
			2c	1 ## 70 na 1	Isolated sections of pooled water between "riffle" sections.																																															
Unnamed trib to Napan River (4)	34+225	47 01'01.3" 65 24'35.7"	1	3/8	1	100	1.20	2	0	0	0	15	55	10	25	15	15	10	0	0	0	1	100	0	10	5	95	0	0	50	0	0	50	0	0	10	15	10	-	-	-	-	-									
			2a	8 m concrete culvert under farm path																																																
			2b	3/8	1	67	1.30	1.8	0	0	5	15	50	10	25	15	10	10	0	0	0	1	100	0	5	10	90	0	0	50	0	0	50	0	0	110	222	16	15	20	15	-	-	-	-	-						
			3	3/8	1	100	1.40	1.9	0	0	5	15	50	10	25	15	10	10	0	0	0	1	100	0	10	10	90	0	0	35	0	15	50	0	0	15	15	15	-	-	-	-	-									
Napan River (5)	34+540	47 00'53.3" 65 24'26.3"	1	8	2	100	8.00	10	0	5	15	20	40	60	10	50	0	0	10	5	1	1	70	30	20	20	5	60	15	0	50	0	0	50	0	89	25	40	25	3	b	1	10	10	0							
			2	1	8	85	11.00	13	0	0	10	30	0	30	40	100	10	10	5	15	6	4	100	0	5	10	40	40	10	0	50	0	0	50	0	69	18	25	100	100	100	-	-	-	-	-						
			3	8	1	100	9.00	12	0	5	20	15	35	35	10	50	10	10	10	20	20	1	100	0	10	15	25	40	20	25	25	0	25	25	0	40	60	40	-	-	-	-	-									
Unnamed trib to Napan River (6)	34+945	47 00'43.1" 65 24' 14.4"	1	8	1	100	1.20	2	0	0	0	10	50	35	5	0	5	10	10	3	n/a	100	0	70	0	10	85	5	15	30	0	15	30	0	10	15	10	-	-	-	-	-										
			2	No channel																																																
			3a	8	1	28	1.10	2	0	0	0	5	60	35	5	5	5	30	30	3	n/a	100	0	70	0	20	75	5	15	30	0	15	30	0	51	14	22	10	15	10	3	b	1	8	10	15						
			3b	8	1	72	0.80	1	0	0	0	10	55	35	6	10	5	10	10	25	n/a	100	0	50	30	10	40	20	15	30	5	15	30	5	13	23	14	-	-	-	-	-										
Unnamed Trib. To Unnamed Trib. to Napan River (6a)	36+250	47 00'10.0" 65 23'36.5"	1	3/8	1	150	0.55	1	0	0	0	30	25	25	20	7.1	40	30	20	10	40	<20	100	0	90	30	40	10	20	0	25	25	20	20	10	-	-	-	14	25	5	7	4	-	-	-	-					
			2	3/8	1	75	1.20	1	0	0	0	0	80	20	10	10	5	0	5	0	1	100	0	60	10	5	40	45	50	0	0	50	0	0	83	49	17	27	10	10	10	-	-	-	-	-						
			3	3/8	1	100	1.20	1	0	0	0	0	80	20	10	10	5	0	5	0	1	100	0	60	10	5	40	45	50	0	0	50	0	0	83	49	17	27	10	10	10	-	-	-	-	-						

