ANNEX XI: APPENDIX E
WATER QUALITY DATA

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Abbreviations

Abbreviation	Definition
BTEX	benzene, toluene, ethylbenzene, xylene
$CaCO_3$	calcium carbonate
CWQG	Canadian Water Quality Guideline
DWQG	Drinking Water Quality Guideline
DO	dissolved oxygen
H+	hydrogen ions
ID	identification
max	maximum
min	minimum
NAD	North American Datum
pH	potential of hydrogen, provides measure of the acidity or alkalinity of a solution on a scale of 0 to 14
SSWQO	Site-Specific Water Quality Objective
WQ	water quality

Units of Measure

Unit	Definition
<	less than
%	percent
% Sat	percent saturation
°C	degrees Celsius
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
CFU/100 mL	coliform forming units per 100 millilitres
m	metre
meq/L	milliequivalents per litre
mg/L	milligrams per litre
mg N/L	milligrams of nitrogen per litre
mg P/L	milligrams of phosphorus per litre
NTU	nephelometric turbidity units

Table E-1 Field Profile Data From Lac du Sauvage During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
Aa-1 (WQ)	24-Jul-13	11	4.7	Surface	12.5	10.7	98.5	12
				0.5	12.5	10.6	98.2	12
				1	12.4	10.6	98.6	12
				2	12.4	10.6	98.4	12
				3	12.2	10.7	97.8	12
				4	12.0	10.6	97.8	12
				5	11.9	10.6	97.2	12
				6	11.8	10.6	97	12
				7	11.7	10.6	96.6	12
				8	11.5	10.5	95.3	12
				9	11.3	10.3	94	12
Aa-1 (WQ)	13-Aug-13	11	6.75	Surface	18.7	9.9	102.9	13
				0.5	18.6	10.0	102.7	13
				1	18.4	10.0	102.8	13
				2	18.1	10.3	105.0	13
				3	17.9	10.4	106.2	13
				4	16.4	10.8	105.8	12
				5	16.0	10.8	106.2	12
				6	14.5	10.9	103.6	12
				7	13.1	10.4	98.3	12
				8	12.9	9.9	92.6	12
				9	12.7	9.5	88.1	12
				10	12.6	9.3	85.6	12
Aa-1 (WQ)	11-Sep-13	11	6.5	Surface	8.4	10.9	93.2	23
				0.5	8.3	11.0	93.2	23
				1	8.3	10.9	93.0	23
				2	8.3	10.9	93.0	23
				3	8.2	10.9	92.5	23
				4	8.1	11.0	92.6	23
				5	8.0	11.0	92.5	23
				5.5	7.9	10.9	91.8	23
				6	7.9	10.9	92.1	23
				7	7.8	10.9	91.6	23
				8	7.7	10.9	91.2	23
				9	7.6	10.9	91.0	23
				10	7.6	10.9	91.0	23
				11	7.5	10.8	89.6	23
Aa-2 (WQ)	24-Jul-13	5.1	4.75	Surface	12.7	10.6	99.0	12
				0.5	12.6	10.6	98.8	12
				1	12.7	10.6	98.9	12
				2	12.6	10.6	98.8	12
				3	12.6	10.6	98.2	12
				4	12.5	10.5	98.7	12

Table E-1 Field Profile Data From Lac du Sauvage During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
Aa-2 (WQ)	13-Aug-13	5	4	Surface	18.3	9.7	101.9	13
				0.5	18.3	9.7	101.6	13
				1	18.3	9.7	101.4	13
				2	18.2	9.7	101.5	13
				3	17.4	9.9	101.3	12
				4	16.5	10.1	101.2	13
Aa-2 (WQ)	7-Sep-13	3.65	3.65	Surface	9.4	11.2	97.8	11
				0.5	9.7	11.2	97.9	11
				1	9.7	11.1	97.6	11
				2	9.7	11.1	97.5	11
				3	9.7	11.1	97.4	11
Ab-1 (WQ)	23-Jul-13	12.7	7.3	Surface	10.7	11.3	100.3	12
				0.5	10.6	11.2	100.1	12
				1	10.5	11.3	100.0	12
				2	10.4	11.2	98.9	12
				3	10.3	11.3	98.9	12
				4	10.3	11.3	99.1	12
				5	10.3	11.2	99.1	12
				7	10.3	11.2	98.7	12
				8	10.3	11.2	98.5	12
				9	10.3	11.2	97.7	12
				10	10.0	11.2	97.9	12
				11	9.8	11.2	97.9	12
				12	—	10.5	98.0	12
Ab-1 (WQ)	12-Aug-13	12.5	9.5	Surface	17.9	9.4	99.2	14
				0.5	17.4	9.8	102.6	14
				1	17.2	9.9	103.0	14
				2	16.9	9.4	97.8	15
				3	16.2	10.3	104.8	15
				4	15.7	9.5	95.0	15
				5	14.7	10.1	99.1	15
				6	13.6	10.2	98.0	14
				7	12.7	10.4	97.3	14
				8	12.4	10.2	95.5	14
				9	12.1	10.5	97.2	14
				10	12.0	10.6	98.1	14
				11	11.8	10.5	97.0	14
				12	11.7	10.9	100.5	15

Table E-1 Field Profile Data From Lac du Sauvage During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
Ab-1 (WQ)	11-Sep-13	12.7	7.3	Surface	9.5	10.6	92.8	23
				0.5	9.5	10.6	92.8	23
				1	9.4	10.6	92.7	23
				2	9.4	10.7	92.5	23
				3	9.3	10.6	92.4	23
				4	9.3	10.6	92.2	23
				5	9.3	10.6	92.1	23
				6	9.2	10.6	92.0	23
				6.5	9.2	10.6	91.9	23
				7	9.2	10.6	91.8	23
				8	9.2	10.5	91.7	23
				9	9.2	10.5	91.5	23
				10	9.2	10.5	91.4	23
				11	9.2	10.5	91.2	23
				12	9.2	10.5	91.0	23
Ab-2 (WQ)	23-Jul-13	4.6	4.6	Surface	11.6	11.2	101.6	12
				0.5	11.1	11.1	100.8	12
				1	10.9	11.2	101.0	12
				2	10.9	11.2	100.9	12
				3	10.9	11.2	100.9	12
				4	10.7	11.4	101.4	12
Ab-2 (WQ)	12-Aug-13	4.6	4.6	Surface	17.8	9.8	101.4	13
				0.5	17.8	9.8	101.7	13
				1	17.7	9.8	101.1	13
				2	17.1	9.8	100.2	13
				2.5	16.9	9.8	100.1	13
				3	16.8	9.9	100.0	13
				4	15.5	10.1	99.8	12
Ac-1 (WQ)	20-Jul-13	13	5.7	Surface	11.5	10.0	96.7	11
				0.5	11.0	10.0	95.9	11
				1	10.7	10.0	95.0	12
				2	10.6	10.1	95.1	11
				3	10.6	10.2	95.6	11
				4	10.5	10.2	95.7	11
				5	10.4	10.2	95.9	11
				6	10.1	10.3	96.3	11
				7	9.9	10.4	96.5	11
				8	9.9	10.4	96.6	11
				9	9.8	10.5	96.7	11
				10	9.8	10.5	96.7	11
				11	9.7	10.5	96.8	11

Table E-1 Field Profile Data From Lac du Sauvage During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
Ac-1 (WQ)	10-Aug-13	12.5	10.25	Surface	17.2	10.3	106.8	15
				0.5	16.4	10.2	104.5	15
				1	16.3	10.2	105.0	15
				2	16.0	10.2	103.9	15
				3	15.9	10.3	104.5	15
				4	15.8	10.1	101.4	14
				5	14.4	10.7	104.4	15
				6	13.6	10.9	105.1	14
				7	12.7	10.8	102.6	14
				8	12.3	10.9	101.5	14
				9	12.2	10.8	101.3	14
				10	12.1	10.7	99.1	14
				11	11.9	10.3	95.5	14
				12	11.8	10.2	94.5	14
Ac-1 (WQ)	11-Sep-13	11	6.7	0.025	—	—	—	—
				Surface	9.4	10.7	92.8	23
				0.5	9.1	10.7	92.9	23
				1	9.1	10.7	92.2	23
				2	9.0	10.7	92.5	23
				3	8.9	10.8	92.5	23
				4	8.8	10.7	92.4	23
				5	8.8	10.7	92.2	23
				5.5	8.7	10.7	92.1	23
				6	8.7	10.7	92.1	23
				7	8.7	10.7	91.9	23
				8	8.7	10.7	91.7	23
				9	8.7	10.7	91.5	23
				10	8.7	10.7	91.3	23
				11	8.6	10.6	91.1	23
Ac-2 (WQ)	21-Jul-13	5.25	5.25	Surface	10.5	10.8	97.0	11
				0.5	10.5	10.8	97.0	11
				1	10.5	10.9	97.4	11
				2	10.5	10.9	97.5	11
				3	10.5	11.0	96.9	11
				4	9.9	11.0	96.5	11
Ac-2 (WQ)	10-Aug-13	4.4	4.4	Surface	18.5	10.0	104.3	13
				0.5	17.0	10.2	104.2	13
				1	16.8	10.3	104.0	13
				2	16.5	10.3	104.0	13
				2.5	16.2	10.4	103.8	13
				3	15.8	10.4	103.6	13
				4	15.7	10.4	102.8	13

Table E-1 Field Profile Data From Lac du Sauvage During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
Ac-4 (WQ)	21-Jul-13	13	7.7	Surface	10.7	10.6	95.8	12
				0.5	10.7	10.6	95.4	12
				1	10.7	10.6	95.5	12
				2	10.7	10.6	95.2	12
				3	10.6	10.6	95.0	12
				4	10.5	10.6	94.8	12
				5	10.5	10.6	94.2	12
				6	10.4	10.6	94.2	12
				7	10.3	10.6	94.0	12
				8	10.2	10.5	93.1	12
				9	10.1	10.6	93.2	12
				10	9.8	10.4	91.4	12
				11	9.6	10.4	90.7	11
Ac-4 (WQ)	11-Aug-13	12.2	10.2	Surface	17.9	8.7	92.1	15
				0.5	17.2	8.8	92.1	15
				1	16.9	8.8	91.0	15
				2	16.4	9.0	92.1	15
				3	16.1	8.6	87.8	15
				4	15.6	8.8	88.1	14
				5	14.7	9.3	91.5	15
				6	13.5	9.4	89.6	14
				7	12.8	9.6	91.2	14
				8	12.3	9.8	91.8	14
				9	12.2	9.7	90.7	14
				10	12.1	9.2	85.1	14
				11	12.0	9.5	88.2	14
				12	11.9	9.3	86.4	15
Ac-4 (WQ)	11-Sep-13	12.9	6.7	Surface	10.3	10.6	92.6	23
				2	9.5	10.6	92.6	23
				3	9.5	10.6	92.8	23
				4	9.4	10.6	92.7	23
				5	9.3	10.6	92.3	23
				6	9.2	10.6	92.2	23
				6.5	9.2	10.6	92.3	23
				7	9.2	10.6	92.0	23
				8	9.1	10.6	91.7	23
				9	9.1	10.6	91.6	23
				10	9.1	10.5	91.3	23
				11	9.1	10.5	91.0	23
				12	9.0	10.5	90.8	23

Table E-1 Field Profile Data From Lac du Sauvage During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
Ac-5 (WQ)	21-Jul-13	4.8	4.8	Surface	11.5	11.0	100.4	12
				0.5	11.5	11.0	100.3	12
				1	11.5	10.9	100.0	12
				2	11.0	11.0	98.7	12
				3	10.3	11.1	98.7	12
				4	10.3	11.1	98.5	11
Ac-5 (WQ)	11-Aug-13	5	5	Surface	18.23	10.18	104.70	13
				0.5	17.50	10.15	104.10	13
				1	16.92	10.18	103.60	12
				2	16.75	10.16	102.80	12
				2.5	16.50	10.20	102.55	12
				3	16.25	10.24	102.30	12
				4	15.68	10.36	102.50	12
Ac-7 (WQ)	20-Jul-13	13	5.7	Surface	11.98	9.68	94.30	12
				0.5	11.20	9.97	95.30	11
				1	10.60	10.20	96.10	11
				2	10.47	10.24	96.30	11
				3	10.42	10.26	96.30	11
				4	10.31	10.30	96.50	11
				5	10.22	10.33	96.60	11
				6	10.13	10.37	96.70	11
				7	10.06	10.40	96.80	11
				8	9.78	10.51	97.20	11
				9	9.76	10.52	97.30	11
				10	9.72	10.54	97.30	11
				11	9.62	10.58	97.50	11
Ac-7 (WQ)	11-Aug-13	12.5	10	Surface	17.0	9.7	99.6	15
				0.5	16.7	9.4	97.4	15
				1	16.6	9.2	94.7	15
				2	16.1	9.5	96.6	14
				3	16.0	9.7	98.7	15
				4	15.6	9.9	99.3	15
				5	14.7	10.1	99.5	14
				6	13.7	10.1	97.4	14
				7	13.1	10.4	98.4	14
				8	12.5	10.4	98.0	14
				9	12.3	10.1	94.2	14
				10	12.2	10.1	95.2	14
				11	12.1	10.0	93.1	14
				12	11.9	9.9	92.2	14

Table E-1 Field Profile Data From Lac du Sauvage During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
Ac-7 (WQ)	11-Sep-13	13	6.2	Surface	9.0	10.7	92.6	24
				0.5	9.0	10.7	92.5	23
				1	9.0	10.7	92.4	23
				2	9.0	10.7	92.1	23
				3	9.0	10.7	92.0	23
				4	8.9	10.6	91.8	23
				5	8.9	10.6	91.6	23
				6	8.9	10.6	91.4	23
				6.5	8.9	10.6	91.4	23
				7	8.9	10.6	91.3	23
				8	8.9	10.6	91.1	23
				9	8.9	10.5	91.0	23
				10	8.9	10.5	90.9	23
				11	8.8	10.6	90.9	23
				12	8.8	10.5	90.7	23
Ac-8 (WQ)	21-Jul-13	4.9	4.9	Surface	10.9	10.9	98.1	11
				0.5	10.9	10.9	98.1	11
				1	10.9	10.9	97.9	11
				2	10.9	10.9	97.8	11
				3	10.9	10.9	97.4	11
				4	10.6	10.9	97.1	11
Ac-8 (WQ)	10-Aug-13	5.5	5.5	Surface	18.6	9.2	98.7	15
				0.5	17.3	9.5	99.0	15
				1	16.7	9.5	98.1	15
				2	16.7	9.4	96.3	15
				2.5	16.4	9.6	97.7	15
				3	16.1	9.8	99.0	15
				4	16.0	10.0	102.3	15
				5	14.5	10.0	98.2	15
Ad-1 (WQ)	25-Jul-13	13	6.8	Surface	12.5	10.7	99.7	12
				0.5	12.5	10.8	99.8	12
				1	12.5	10.7	99.4	12
				2	12.5	10.7	99.2	12
				3	12.5	10.7	99.5	12
				4	12.5	10.6	99.1	12
				5	12.5	10.7	99.3	12
				6	12.5	10.7	99.2	12
				7	11.3	10.9	97.9	12
				8	11.1	10.8	97.2	12
				9	10.9	10.8	96.8	12
				10	10.2	10.7	94.2	12
				11	10.1	10.7	94.1	12

Table E-1 Field Profile Data From Lac du Sauvage During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
Ad-1 (WQ)	10-Aug-13	12.8	7	Surface	17.0	9.5	98.6	15
				0.5	17.0	9.5	98.7	15
				1	16.8	9.4	97.3	15
				2	16.3	9.5	97.1	15
				3	15.8	9.5	96.1	15
				4	15.3	9.8	97.0	15
				5	14.0	10.2	98.7	14
				6	13.5	10.2	98.0	14
				7	13.0	10.2	97.2	14
				8	12.5	10.1	94.0	14
				9	12.0	10.0	93.7	14
				10	11.8	9.7	90.3	14
				11	11.7	9.8	89.8	14
				11.5	11.7	9.7	89.7	14
				12	11.6	9.7	89.6	14
Ad-1 (WQ)	7-Sep-13	13	7.4	Surface	10.5	9.1	81.4	23
				0.5	10.5	8.2	73.4	23
				1	10.5	6.9	61.6	23
				2	10.5	5.5	49.0	23
				3	10.5	4.3	38.9	23
				4	10.5	3.8	34.2	23
				5	10.5	3.2	28.5	23
				6	10.5	2.5	22.9	23
				6.5	10.5	2.3	21.2	23
				7	10.5	2.3	20.2	23
				8	10.5	2.0	18.3	23
				9	10.5	1.8	15.8	23
				10	10.5	1.9	16.8	23
				11	10.5	2.4	20.4	23
				12	10.5	1.7	15.5	23
Ad-2 (WQ)	23-Jul-13	4.8	4.8	Surface	12.5	10.9	100.9	12
				0.5	12.5	10.8	101.0	12
				1	12.6	10.8	100.8	12
				2	12.4	10.8	100.7	12
				3	11.9	11.0	100.4	12
				4	11.6	11.0	100.3	12
Ad-2 (WQ)	10-Aug-13	4.3	4.3	Surface	17.2	9.5	98.9	15
				0.5	17.1	9.7	100.2	15
				1	17.0	9.1	97.0	15
				2	16.9	9.4	96.7	15
				3	15.9	9.5	95.4	15
				4	15.6	9.7	96.8	14

Table E-1 Field Profile Data From Lac du Sauvage During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
Ad-2 (WQ)	5-Sep-13	5.25	5.25	Surface	11.1	11.3	101.5	11
				0.5	11.1	11.3	101.6	11
				1	11.1	11.3	101.6	11
				2	11.0	11.3	101.4	11
				2.5	11.0	11.2	101.2	11
				3	11.0	11.2	100.9	11
				4	10.9	11.2	100.4	11
				4.5	10.9	11.2	101.0	11
Ae-1 (WQ)	25-Jul-13	12	6.6	Surface	12.6	10.6	100.1	12
				0.5	12.6	10.8	100.0	12
				1	12.6	10.8	100.2	12
				2	12.5	10.8	100.1	12
				3	12.5	10.8	100.8	12
				4	12.5	10.8	100.2	12
				5	12.4	10.9	100.3	12
				6	12.2	10.9	100.1	12
				7	11.2	10.9	98.8	12
				8	10.8	10.9	97.2	12
				9	10.6	10.9	96.7	12
				10	10.6	10.8	96.0	12
				11	10.4	10.7	95.1	12
Ae-1 (WQ)	9-Aug-13	14	7.75	Surface	16.9	10.4	106.8	14
				0.5	16.8	10.2	105.1	14
				1	16.6	10.0	102.5	14
				2	16.0	9.9	100.9	14
				3	15.9	10.0	100.9	14
				4	15.8	9.5	98.0	14
				5	15.3	9.8	97.5	14
				6	13.9	10.8	101.0	14
				7	13.1	9.5	91.1	14
				8	12.8	9.7	92.1	14
				9	12.6	9.6	92.2	14
				10	12.3	9.0	85.7	14
				11	12.1	9.1	85.0	14
				12	12.1	9.0	83.2	14
				13	12.0	7.5	71.7	15

Table E-1 Field Profile Data From Lac du Sauvage During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
Ae-1 (WQ)	5-Sep-13	10.75	5.5	Surface	10.8	11.1	99.4	11
				0.5	10.8	11.1	99.6	11
				1	10.8	11.1	99.4	11
				2	10.8	11.1	99.5	11
				2.5	—	—	—	—
				3	10.7	11.1	99.0	11
				4	10.5	11.1	98.8	11
				5	10.5	11.0	98.2	11
				6	10.5	11.0	98.0	11
				7	10.5	11.0	97.7	11
				8	10.4	11.0	97.5	11
				9	10.4	11.0	97.4	11
				9.5	—	—	—	—
Ae-2 (WQ)	25-Jul-13	5.2	5.2	Surface	12.7	10.7	100.5	12
				0.5	12.7	10.7	100.3	12
				1	12.7	10.9	—	12
				2	12.6	10.8	100.7	12
				3	12.6	10.8	11.2	12
				4	12.6	10.9	100.6	12
				5	12.6	10.9	100.4	12
Ae-2 (WQ)	9-Aug-13	5	5	Surface	17.6	10.2	105.0	12
				0.5	17.6	10.1	104.4	12
				1	17.5	10.1	104.2	12
				2	17.4	10.2	104.3	12
				3	17.1	10.0	102.5	12
				4	16.3	10.5	104.9	12
Ae-2 (WQ)	5-Sep-13	5	5	Surface	10.8	11.1	99.6	11
				0.5	10.8	11.1	99.6	11
				1	10.7	11.4	99.6	11
				2	10.6	11.1	99.1	11
				2.5	10.6	11.1	99.3	11
				3	10.6	11.1	99.1	11
				4	10.6	11.1	99.0	11

— = no data; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % Sat = percent saturation; µS/cm = microsiemens per centimetre; WQ = water quality.

Table E-2 Laboratory Water Quality Data From Lac du Sauvage During the Open-Water Period, 2013
Part A

Location		Guidelines					Lac du Sauvage Sampling Stations										
		Aquatic Life					Aa-1				Aa-2			Ab-1			
Sample Name							Aa-1-MID	Aa-1-TOP	Aa-1-BOTTOM	Aa-1-MID	Aa-2-MID	Aa-2-MID	Aa-2-MID	Ab-1-MID	Ab-1-TOP	Ab-1-BOTTOM	Ab-1-MID
Sampling Season							Late Spring	Summer	Summer	Fall	Late Spring	Summer	Fall	Late Spring	Summer	Summer	Fall
Sample Date							24-Jul-13	13-Aug-13	13-Aug-13	11-Sep-13	24-Jul-13	13-Aug-13	7-Sep-13	23-Jul-13	12-Aug-13	12-Aug-13	11-Sep-13
Easting (NAD 83, 12W)							552282	552282	552282	552282	552773	552773	552773	547766	547766	547766	547766
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7165025	7165025	7165025	7165025	7165665	7165665	7165665	7162266	7162266	7162266	7162266
Field Measured																	
Total depth	m	—	—	—	—	—	11.0	11.0	11.0	11.0	5.1	5.0	3.7	13.0	13.0	13.0	13.0
Sample depth	m	—	—	—	—	—	5.0	1.0	10.0	5.5	2.0	2.0	2.0	6.0	1.0	11.0	6.5
Secchi depth	m	—	—	—	—	—	4.7	6.8	6.8	6.5	4.8	4.0	3.7	7.3	9.5	9.5	7.3
Water temperature	°C	—	—	—	—	—	11.9	18.4	12.6	7.9	12.6	18.2	9.7	10.3	17.2	11.8	9.2
Specific conductivity	µS/cm	—	—	—	—	—	12	13	12	23	12	13	11	12	14	14	23
Dissolved oxygen	mg/L	—	6.5	—	—	—	10.6	10.0	9.3	10.9	10.6	9.7	11.1	11.3	9.9	10.5	10.6
Dissolved oxygen saturation	%	—	—	—	—	—	97	103	86	92	99	102	98	99	103	97	92
Conventional Parameters																	
Alkalinity, gran (as H+)	meq/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	0.11	<0.1	<0.1	<0.1	<0.1	<0.1	0.15
Alkalinity, total (as $CaCO_3$)	mg/L	—	—	—	—	—	4	3.8	4.1	4.3	4.1	3.8	4.5	4.6	4.1	3.9	4.1
Conductance	µS/cm	—	—	—	—	—	15	14	14	13	14	15	14	15	14	14	14
Hardness	mg/L	—	—	—	—	—	4.8	4.5	4.5	5	4.7	4.5	4.9	4.6	4.5	4.6	4.8
pH	pH units	—	6.5 – 9.0	6.5 – 8.5	—	—	**6.3**[C, D]	**6.3**[C, D]	**6.3**[C, D]	6.7	**6.3**[C, D]	**6.1**[C, D]	6.7	6.7	**6.4**[C, D]	**6.4**[C, D]	6.7
Total dissolved solids	mg/L	—	—	500	—	—	18	10	13	18	<10	10	15	—	16	12	<10
Total suspended solids	mg/L	—	—	—	—	—	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity	NTU	—	—	—	—	—	0.57	0.60	0.68	0.61	0.49	0.55	0.75	0.41	0.47	0.66	0.45
Major Ions																	
Bicarbonate	mg/L	—	—	—	—	—	<5.0	<5.0	<5.0	5.3	<5.0	<5.0	5.5	5.6	<5.0	<5.0	5.1
Calcium	mg/L	—	—	—	—	—	0.88	0.79	0.80	0.91	0.86	0.83	0.87	—	0.83	0.84	0.90
Chloride	mg/L	640	120	250	—	64.5[i]	<0.5	<0.5	<0.5	<0.5	<0.5	0.63	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride	mg/L	—	0.12	1.5	—	—	<0.02	0.025	0.027	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02
Magnesium	mg/L	—	—	—	—	—	0.63	0.60	0.60	0.65	0.63	0.60	0.65	—	0.58	0.59	0.63
Potassium	mg/L	—	—	—	112	41	0.59	0.53	0.53	0.55	0.58	0.53	0.56	—	0.50	0.49	0.52
Sodium	mg/L	—	—	200	—	—	0.62	0.63	0.61	0.62	0.60	0.64	0.65	—	0.60	0.60	0.61
Sulphate	mg/L	—	—	500	250[i]	22.7[i]	1.4	1.3	1.4	1.4	1.2	1.7	1.1	1.2	1.2	1.1	1.4
Nutrients																	
Total organic carbon	mg/L	—	—	—	—	—	3	3.6	3.5	2.8	3	3.6	3.5	2.8	3.3	3.3	2.7
Dissolved organic carbon	mg/L	—	—	—	—	—	3.6	3.9	3.7	6.3	3.7	3.8	3.6	3.1	3.2	3.4	4.2
Total nitrogen (calculated)	mg N/L	—	—	—	—	—	0.24	<0.05	0.053	0.14	0.17	<0.05	0.16	0.25	0.077	0.067	0.15
Total Kjeldahl Nitrogen	mg N/L	—	—	—	—	—	0.24	<0.05	0.053	0.14	0.17	<0.05	0.16	0.25	0.077	0.067	0.15
Total ammonia	mg N/L	—	2.7 – 139[j]	—	—	—	0.013	0.0053	0.024	0.03	0.013	0.0071	0.013	0.011	0.0092	0.0053	0.018
Nitrate	mg N/L	124	2.9	10		0.57[i]	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Nitrite	mg N/L	—	0.06	1	—	—	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002

Table E-2 Laboratory Water Quality Data From Lac du Sauvage During the Open-Water Period, 2013
Part A

Location		Guidelines					Lac du Sauvage Sampling Stations										
		Aquatic Life					Aa-1				Aa-2			Ab-1			
Sample Name							Aa-1-MID	Aa-1-TOP	Aa-1-BOTTOM	Aa-1-MID	Aa-2-MID	Aa-2-MID	Aa-2-MID	Ab-1-MID	Ab-1-TOP	Ab-1-BOTTOM	Ab-1-MID
Sampling Season							Late Spring	Summer	Summer	Fall	Late Spring	Summer	Fall	Late Spring	Summer	Summer	Fall
Sample Date							24-Jul-13	13-Aug-13	13-Aug-13	11-Sep-13	24-Jul-13	13-Aug-13	7-Sep-13	23-Jul-13	12-Aug-13	12-Aug-13	11-Sep-13
Easting (NAD 83, 12W)							552282	552282	552282	552282	552773	552773	552773	547766	547766	547766	547766
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7165025	7165025	7165025	7165025	7165665	7165665	7165665	7162266	7162266	7162266	7162266
Nutrients (Continued)																	
Total phosphorus	mg P/L	—	—	—	—	—	0.0078	0.0065	0.0094	0.0097	0.0063	0.0065	0.0087	0.0046	0.0026	0.0055	0.005
Total dissolved phosphorus	mg P/L	—	—	—	—	—	0.004	0.0018	0.0029	0.0026	0.0018	0.0025	0.0024	0.0021	0.0013	0.0011	0.0022
Dissolved orthophosphate	mg/L	—	—	—	—	—	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	—	<0.001	<0.001	<0.001
Silica, reactive	mg/L	—	—	—	—	—	0.14	0.14	0.15	0.15	0.14	—	0.15	0.091	0.11	0.1	0.11
Other Parameters																	
Benzene	µg/L	—	370	5	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	—	90	2.4	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	—	2	24	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene	µg/L	—	—	300	—	—	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71
Petroleum hydrocarbons – F1 (C6-C10)	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Petroleum hydrocarbons – F1 (C6-C10)-BTEX	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Petroleum hydrocarbons – F2 (C10-C16)	mg/L	—	—	—	—	—	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total recoverable hydrocarbons	mg/L	—	—	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	<1.0	<1.0	<1.0	<1.0
Fecal coliform	CFU/100 mL	—	—	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Metals																	
Aluminum	µg/L	—	5 or 100[j]	100	—	—	**8.4[C]**	**6.5[C]**	**40[C]**	4.7	**8.5[C]**	**5.9[C]**	5.7	6.3	4.3	**5.8[C]**	2.2
Antimony	µg/L	—	—	6	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	µg/L	—	5	10	—	—	0.42	0.43	1.2	0.45	0.39	0.45	0.44	0.28	0.3	0.3	0.29
Barium	µg/L	—	—	1,000	—	—	1.5	1.2	2.3	1.2	1.4	1.2	1.2	1.1	0.91	1	0.86
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	29,000	1,500	5,000	—	—	3.2	3.2	3.3	2.4	3	3	3	2	2.8	4.8	2
Cadmium	µg/L	0.11[k]	0.04[k]	5	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	—	1	50	—	—	<0.06	<0.06	0.15	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Chromium VI	µg/L	—	1	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	µg/L	—	—	—	—	—	0.016	0.015	0.053	0.016	0.02	0.017	0.017	0.015	0.01	0.012	0.011
Copper	µg/L	—	2[j]	1,000	—	—	0.64	0.63	0.67	0.54	0.76	0.56	0.59	0.54	0.54	0.53	0.53
Iron	µg/L	—	300	300	—	—	22	14	267	16	20	13	19	13	4.8	7.1	7.9
Lead	µg/L	—	1[j]	10	—	—	<0.01	<0.01	0.019	0.028	<0.01	<0.01	0.028	<0.01	<0.01	<0.01	0.015
Lithium	µg/L	—	—	—	—	—	1	1.3	1.2	1.2	1.1	1.3	1.2	0.99	1.1	1.2	1.1
Manganese	µg/L	—	—	50	—	—	4.7	2.9	15	3.5	4.2	2.9	3.6	3.2	2	2.9	3.7

Table E-2 Laboratory Water Quality Data From Lac du Sauvage During the Open-Water Period, 2013
Part A

Location		Guidelines					Lac du Sauvage Sampling Stations										
		Aquatic Life					Aa-1				Aa-2			Ab-1			
Sample Name							Aa-1-MID	Aa-1-TOP	Aa-1-BOTTOM	Aa-1-MID	Aa-2-MID	Aa-2-MID	Aa-2-MID	Ab-1-MID	Ab-1-TOP	Ab-1-BOTTOM	Ab-1-MID
Sampling Season							Late Spring	Summer	Summer	Fall	Late Spring	Summer	Fall	Late Spring	Summer	Summer	Fall
Sample Date							24-Jul-13	13-Aug-13	13-Aug-13	11-Sep-13	24-Jul-13	13-Aug-13	7-Sep-13	23-Jul-13	12-Aug-13	12-Aug-13	11-Sep-13
Easting (NAD 83, 12W)							552282	552282	552282	552282	552773	552773	552773	547766	547766	547766	547766
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7165025	7165025	7165025	7165025	7165665	7165665	7165665	7162266	7162266	7162266	7162266
Total Metals (Continued)																	
Mercury	µg/L	—	0.026	1	—	—	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00051	0.00053	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	—	73	—	223,000	19,000	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	—	25[j]	—	—	—	0.27	0.27	0.31	0.25	0.26	0.24	0.33	0.3	0.29	0.27	0.26
Selenium	µg/L	—	1	10	—	—	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	—	0.1	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	—	—	—	—	—	5.4	5.2	5.2	5.3	5.5	5.2	5.1	5.4	5.1	5.4	5.3
Thallium	µg/L	—	0.8	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	µg/L	—	—	—	—	—	0.3	<0.1	3.2	0.34	0.25	<0.1	0.4	0.35	0.12	0.18	0.31
Uranium	µg/L	33	15	20	—	—	0.016	0.016	0.026	0.016	0.017	0.017	0.016	0.018	0.02	0.019	0.02
Vanadium	µg/L	—	—	—	300	30	<0.05	<0.05	0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	—	30	5,000	—	—	<0.8	<0.8	0.93	1.3	<0.8	<0.8	2.1	2.4	<0.8	<0.8	<0.8
Dissolved Metals																	
Aluminum	µg/L	—	—	—	—	—	5.2	4.3	2.9	1.6	2.7	3.7	<0.3	—	2.8	2.4	<0.3
Antimony	µg/L	—	—	—	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	—	0.043	<0.02	<0.02
Arsenic	µg/L	—	—	—	—	—	0.38	0.42	0.59	0.39	0.37	0.47	0.41	—	0.31	0.28	0.29
Barium	µg/L	—	—	—	—	—	1.3	1.1	1.5	1.1	1.3	1.1	1.1	—	0.86	0.87	0.79
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	—	<0.01	<0.01	<0.01
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	—	<0.01	<0.01	<0.01
Boron	µg/L	—	—	—	—	—	4.2	3.1	4.1	2.4	3.4	3.3	2.9	—	3.1	2.9	2.2
Cadmium	µg/L	—	—	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	—	<0.005	<0.005	<0.005
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	—	<0.1	<0.1	<0.1
Chromium	µg/L	—	—	—	—	—	<0.06	<0.06	<0.06	<0.06	0.12	<0.06	<0.06	—	<0.06	<0.06	<0.06
Cobalt	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	0.011	<0.01	0.01	<0.01	—	<0.01	<0.01	<0.01
Copper	µg/L	—	—	—	—	—	0.59	0.65	0.55	0.54	0.64	0.56	0.63	—	0.5	0.49	0.57
Iron	µg/L	—	—	—	—	—	3.8	4.8	8.8	5.6	2.8	4.1	3.8	—	1.6	1.7	2.8
Lead	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	0.041	<0.01	<0.01	<0.01	—	<0.01	<0.01	<0.01
Lithium	µg/L	—	—	—	—	—	1.1	1.1	1.2	1.4	1.1	1.3	1.2	—	1.2	1.2	1
Manganese	µg/L	—	—	—	—	—	0.76	1	3.3	0.8	0.46	0.81	0.96	—	0.9	0.5	0.76
Mercury	µg/L	—	—	—	—	—	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00058	0.00084	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	—	<0.05	<0.05	<0.05
Nickel	µg/L	—	—	—	—	—	0.26	0.22	0.24	0.25	0.27	0.22	0.2	—	0.26	0.24	0.23
Selenium	µg/L	—	—	—	—	—	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	—	<0.04	<0.04	<0.04

Table E-2 Laboratory Water Quality Data From Lac du Sauvage During the Open-Water Period, 2013
Part A

Location		Guidelines					Lac du Sauvage Sampling Stations										
		Aquatic Life					Aa-1				Aa-2			Ab-1			
Sample Name							Aa-1-MID	Aa-1-TOP	Aa-1-BOTTOM	Aa-1-MID	Aa-2-MID	Aa-2-MID	Aa-2-MID	Ab-1-MID	Ab-1-TOP	Ab-1-BOTTOM	Ab-1-MID
Sampling Season							Late Spring	Summer	Summer	Fall	Late Spring	Summer	Fall	Late Spring	Summer	Summer	Fall
Sample Date							24-Jul-13	13-Aug-13	13-Aug-13	11-Sep-13	24-Jul-13	13-Aug-13	7-Sep-13	23-Jul-13	12-Aug-13	12-Aug-13	11-Sep-13
Easting (NAD 83, 12W)							552282	552282	552282	552282	552773	552773	552773	547766	547766	547766	547766
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7165025	7165025	7165025	7165025	7165665	7165665	7165665	7162266	7162266	7162266	7162266
Dissolved Metals (Continued)																	
Silver	µg/L	—	—	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	—	<0.005	<0.005	<0.005
Strontium	µg/L	—	—	—	—	—	6	5	5.1	5.5	5.5	5.2	5.1	—	5.3	5.3	5.3
Thallium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	—	<0.01	<0.01	<0.01
Tin	µg/L	—	—	—	—	—	0.077	<0.05	<0.05	<0.05	0.29	<0.05	0.12	—	<0.05	<0.05	<0.05
Titanium	µg/L	—	—	—	—	—	0.23	<0.1	<0.1	0.14	<0.1	<0.1	0.16	—	<0.1	<0.1	0.14
Uranium	µg/L	—	—	—	—	—	0.012	0.016	0.015	0.014	0.014	0.015	0.014	—	0.017	0.018	0.02
Vanadium	µg/L	—	—	—	—	—	0.055	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	—	<0.05	<0.05	<0.05
Zinc	µg/L	—	—	—	—	—	0.84	<0.8	<0.8	1.4	1.3	<0.8	<0.8	—	<0.8	<0.8	<0.8

Notes:
Bolded concentrations are higher than relevant water quality guidelines.
C) = concentration higher than the relevant chronic aquatic life guideline or outside the recommended pH or dissolved oxygen (DO) concentration range.
D) = concentration higher than the relevant drinking water guideline or outside the recommended pH or DO concentration range.
Guideline exceedances by median concentrations are based on guidelines calculated using median values of hardness, pH, and temperature, and are not included in the percent exceedance calculations.
Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision after comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Measured concentrations equal to the guideline values were not identified as exceedances.
a) Source: CCME (Canadian Council of Ministers of the Environment). (1999, with updates to 2014). Canadian Environmental Quality Guidelines. Winnipeg, MB, Canada.
b) Source: Health Canada. (2012). Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.
c) See Part E.
d) See Part E.
e) See Part E.
f) See Part E.
g) See Part E.
h) See Part E.
i) Guidelines based on hardness of 4.7 mg $CaCO_3$/L.
j) Guidelines based on pH of 6.0 to 7.2, temperature of 4.4°C to 20.4°C, and water hardness of 3.6 to 7.4 mg/L.
k) Acute guideline applies to all waters of hardness below 5.3 mg $CaCO_3$/L; chronic guideline applies to all waters of hardness below 17 mg $CaCO_3$/L.
— = no guideline or data; CWQG = Canadian Drinking Water Quality Guidelines; DWQG = Drinking Water Quality Guidelines; SSWQO = Site-Specific Water Quality Objective; NAD = North American Datum; H+ = hydrogen ions; $CaCO_3$ = calcium carbonate; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % = percent; meq/L = milliequivalents per litre; pH = potential of hydrogen, provides measure of the acidity or alkalinity of a solution on a scale of 0 to 14; NTU = nephelometric turbidity units; mg N/L = milligrams of nitrogen per litre; mg P/L = milligrams of phosphorus per litre; µg/L = micrograms per litre; CFU/100 mL = coliform forming units per 100 millilitres; BTEX = benzene, toluene, ethylbenzene, xylene; < = less than.

Table E-2 Laboratory Water Quality Data from Lac du Sauvage during the Open-Water Period, 2013
Part B

Location		Guidelines					Lac du Sauvage Sampling Stations											
		Aquatic Life					Ab-2		Ac-1				Ac-2		Ac-4			
Sample Name							Ab-2-MID	Ab-2-MID	Ac-1-MID	Ac-1-TOP	Ac-1-BOTTOM	Ac-1-MID	Ac-2-MID	Ac-2-MID	Ac-4-MID	Ac-4-TOP	Ac-4-BOTTOM	Ac-4-MID
Sampling Season							Late Spring	Summer	Late Spring	Summer	Summer	Fall	Late Spring	Summer	Late Spring	Summer	Summer	Fall
Sample Date							23-Jul-13	12-Aug-13	20-Jul-13	10-Aug-13	10-Aug-13	11-Sep-13	21-Jul-13	10-Aug-13	21-Jul-13	11-Aug-13	11-Aug-13	11-Sep-13
Easting (NAD 83, 12W)							548215	548215	543339	543339	543339	543339	545832	545832	543695	543695	543695	543695
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7161177	7161177	7165138	7165138	7165138	7165138	7165447	7165447	7162938	7162938	7162938	7162938
Field Measured																		
Total depth	m	—	—	—	—	—	4.6	4.6	13.0	12.5	12.5	11.0	5.3	4.4	13.0	12.0	12.0	13.0
Sample depth	m	—	—	—	—	—	2.0	2.5	6.0	1.0	11.0	5.5	2.0	2.5	6.0	1.0	11.0	6.5
Secchi depth	m	—	—	—	—	—	4.6	4.6	5.7	10.3	10.3	6.7	5.3	4.4	7.7	10.0	10.0	6.7
Water temperature	°C	—	—	—	—	—	10.9	16.9	10.1	16.3	11.9	8.7	10.5	16.2	10.4	16.9	12.0	9.2
Specific conductivity	µS/cm	—	—	—	—	—	12	13	11	15	14	23	11	13	12	15	14	23
Dissolved oxygen	mg/L	—	6.5	—	—	—	11.2	9.8	10.3	10.2	10.3	10.7	10.9	10.4	10.6	8.8	9.5	10.6
Dissolved oxygen saturation	%	—	—	—	—	—	101	100	96	105	95.5	92.1	98	104	94	91	88	92
Conventional Parameters																		
Alkalinity, gran (as H+)	meq/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.14	<0.1	<0.1	0.11	<0.1
Alkalinity, total (as $CaCO_3$)	mg/L	—	—	—	—	—	4.2	3.9	3.9	4.6	4.2	4.2	4.4	4.0	3.9	3.7	3.7	4.1
Conductance	µS/cm	—	—	—	—	—	14	14	14	16	15	14	15	14	14	15	14	13
Hardness	mg/L	—	—	—	—	—	4.6	4.6	5	4.9	4.5	4.9	4.7	4.5	4.8	4.7	4.8	5
pH	pH units	—	6.5 – 9.0	6.5 – 8.5	—	—	6.5	**6.4**[C, D]	**6.5**[C, D]	6.5	**6.3**[C, D]	6.7	6.8	**6.4**[C, D]	**6.4**[C, D]	**6.3**[C, D]	**6.3**[C, D]	6.7
Total dissolved solids	mg/L	—	—	500	—	—	—	19	<10	22	19	11	16	19	15	12	<10	<10
Total suspended solids	mg/L	—	—	—	—	—	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity	NTU	—	—	—	—	—	0.44	0.37	0.63	0.35	0.63	0.60	0.62	0.46	0.47	0.36	0.42	0.45
Major Ions																		
Bicarbonate	mg/L	—	—	—	—	—	5.1	<5.0	<5.0	5.7	5.2	5.2	5.4	<5.0	<5.0	<5.0	<5.0	<5.0
Calcium	mg/L	—	—	—	—	—	—	0.84	0.92	0.93	0.84	0.92	0.85	0.83	0.86	0.85	0.87	0.92
Chloride	mg/L	640	120	250	—	64.5[i]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride	mg/L	—	0.12	1.5	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Magnesium	mg/L	—	—	—	—	—	—	0.61	0.65	0.62	0.59	0.63	0.62	0.60	0.63	0.62	0.63	0.65
Potassium	mg/L	—	—	—	112	41	—	0.51	0.65	0.52	0.50	0.53	0.53	0.50	0.53	0.55	0.55	0.53
Sodium	mg/L	—	—	200	—	—	—	0.62	0.67	0.63	0.59	0.61	0.60	0.59	0.64	0.59	0.60	0.71
Sulphate	mg/L	—	—	500	250[i]	22.7[i]	1.2	1.1	1.1	1.3	1.1	1.3	1.2	1.2	1.2	1.1	1.2	1.3
Nutrients																		
Total organic carbon	mg/L	—	—	—	—	—	2.7	3.4	3.3	3.4	3.5	2.7	3.4	—	2.8	3.4	3.4	2.7
Dissolved organic carbon	mg/L	—	—	—	—	—	3.2	3.2	3.4	3.7	3.7	2.7	3.3	—	3.2	3.3	3.3	2.6
Total nitrogen (calculated)	mg N/L	—	—	—	—	—	0.17	0.058	0.18	0.12	0.12	0.22	0.23	0.13	0.13	0.18	0.11	0.12
Total Kjeldahl Nitrogen	mg N/L	—	—	—	—	—	0.17	0.058	0.18	0.12	0.12	0.22	0.23	0.13	0.13	0.18	0.11	0.12
Total ammonia	mg N/L	—	2.7 – 139[i]	—	—	—	0.009	0.0089	0.0076	<0.005	0.0069	<0.005	0.0083	0.0054	0.014	0.013	0.01	0.018
Nitrate	mg N/L	124	2.9	10		0.57[i]	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Nitrite	mg N/L	—	0.06	1	—	—	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002

Table E-2 Laboratory Water Quality Data from Lac du Sauvage during the Open-Water Period, 2013
Part B

Location		Guidelines					Lac du Sauvage Sampling Stations											
		Aquatic Life					Ab-2		Ac-1				Ac-2		Ac-4			
Sample Name							Ab-2-MID	Ab-2-MID	Ac-1-MID	Ac-1-TOP	Ac-1-BOTTOM	Ac-1-MID	Ac-2-MID	Ac-2-MID	Ac-4-MID	Ac-4-TOP	Ac-4-BOTTOM	Ac-4-MID
Sampling Season							Late Spring	Summer	Late Spring	Summer	Summer	Fall	Late Spring	Summer	Late Spring	Summer	Summer	Fall
Sample Date							23-Jul-13	12-Aug-13	20-Jul-13	10-Aug-13	10-Aug-13	11-Sep-13	21-Jul-13	10-Aug-13	21-Jul-13	11-Aug-13	11-Aug-13	11-Sep-13
Easting (NAD 83, 12W)							548215	548215	543339	543339	543339	543339	545832	545832	543695	543695	543695	543695
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7161177	7161177	7165138	7165138	7165138	7165138	7165447	7165447	7162938	7162938	7162938	7162938
Nutrients (Continued)																		
Total phosphorus	mg P/L	—	—	—	—	—	0.0068	0.0032	0.0092	0.0028	0.014	0.0079	0.0057	0.0036	0.0035	0.0037	0.0041	0.0061
Total dissolved phosphorus	mg P/L	—	—	—	—	—	0.0025	<0.001	0.0038	<0.001	0.0012	0.0027	0.0015	<0.001	0.0024	0.001	0.0011	0.0021
Dissolved orthophosphate	mg/L	—	—	—	—	—	—	<0.001	<0.01	<0.001	<0.001	<0.001	—	<0.001	<0.001	<0.001	<0.001	<0.001
Silica, reactive	mg/L	—	—	—	—	—	0.1	0.11	0.12	0.12	0.11	0.11	0.12	0.11	0.11	0.11	0.11	0.11
Other Parameters																		
Benzene	µg/L	—	370	5	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	—	90	2.4	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	—	2	24	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene	µg/L	—	—	300	—	—	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71
Petroleum hydrocarbons – F1 (C6-C10)	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Petroleum hydrocarbons – F1 (C6-C10)-BTEX	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Petroleum hydrocarbons – F2 (C10-C16)	mg/L	—	—	—	—	—	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total recoverable hydrocarbons	mg/L	—	—	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fecal coliform	CFU/100 mL	—	—	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Metals																		
Aluminum	µg/L	—	5 or 100[j]	100	—	—	7.1	**5.6**[C]	**15**[C]	5.2	**7.2**[C]	4.6	11	**9.0**[C]	**12**[C]	3.4	**8.0**[C]	3.5
Antimony	µg/L	—	—	6	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	µg/L	—	5	10	—	—	0.29	0.34	0.29	0.29	0.29	0.3	0.29	0.32	0.29	0.34	0.31	0.31
Barium	µg/L	—	—	1,000	—	—	1	0.95	1.3	0.89	1	0.95	1.2	1	1.2	0.98	1.1	0.91
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	29,000	1,500	5,000	—	—	2.1	3.2	3.3	3.8	2.8	2.2	1.9	4.4	2.2	3.3	2.8	4.3
Cadmium	µg/L	0.11[k]	0.04[k]	5	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	—	1	50	—	—	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Chromium VI	µg/L	—	1	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	µg/L	—	—	—	—	—	0.014	0.012	0.02	0.012	0.015	0.014	0.02	0.014	0.019	<0.01	0.011	0.015
Copper	µg/L	—	2[j]	1,000	—	—	0.57	0.66	0.73	0.54	0.55	0.53	0.58	0.64	0.6	0.6	0.58	0.55
Iron	µg/L	—	300	300	—	—	11	6.7	22	6.1	14	11	20	7.8	18	5.1	9.2	9
Lead	µg/L	—	1[j]	10	—	—	<0.01	<0.01	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01
Lithium	µg/L	—	—	—	—	—	1.2	1.3	1.2	1.3	1.3	1.1	1	1.3	1.1	<0.5	<0.5	1.3
Manganese	µg/L	—	—	50	—	—	3.4	2.6	4.3	2.2	5.2	3.8	4.6	2.7	3.8	0.99	3.5	4
Mercury	µg/L	—	0.026	1	—	—	<0.0005	<0.0005	0.00051	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00081	<0.0005	<0.0005	<0.0005

Table E-2 Laboratory Water Quality Data from Lac du Sauvage during the Open-Water Period, 2013
Part B

Location		Guidelines					Lac du Sauvage Sampling Stations											
		Aquatic Life					Ab-2		Ac-1				Ac-2		Ac-4			
Sample Name							Ab-2-MID	Ab-2-MID	Ac-1-MID	Ac-1-TOP	Ac-1-BOTTOM	Ac-1-MID	Ac-2-MID	Ac-2-MID	Ac-4-MID	Ac-4-TOP	Ac-4-BOTTOM	Ac-4-MID
Sampling Season							Late Spring	Summer	Late Spring	Summer	Summer	Fall	Late Spring	Summer	Late Spring	Summer	Summer	Fall
Sample Date							23-Jul-13	12-Aug-13	20-Jul-13	10-Aug-13	10-Aug-13	11-Sep-13	21-Jul-13	10-Aug-13	21-Jul-13	11-Aug-13	11-Aug-13	11-Sep-13
Easting (NAD 83, 12W)							548215	548215	543339	543339	543339	543339	545832	545832	543695	543695	543695	543695
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7161177	7161177	7165138	7165138	7165138	7165138	7165447	7165447	7162938	7162938	7162938	7162938
Total Metals (Continued)																		
Molybdenum	µg/L	—	73	—	223,000	19,000	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	—	25[j]	—	—	—	0.29	0.3	0.31	0.29	0.32	0.27	0.32	0.3	0.31	0.29	0.31	0.36
Selenium	µg/L	—	1	10	—	—	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	—	0.1	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	—	—	—	—	—	5.4	5.4	5.7	5.2	5.3	5.4	5.2	5.2	5.4	5.6	5.4	5.6
Thallium	µg/L	—	0.8	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	µg/L	—	—	—	—	—	0.38	<0.1	0.47	0.24	0.43	0.36	0.61	0.25	0.5	0.11	0.61	0.37
Uranium	µg/L	33	15	20	—	—	0.019	0.02	0.023	0.023	0.022	0.021	0.024	0.022	0.025	0.022	0.021	0.023
Vanadium	µg/L	—	—	—	300	30	<0.05	<0.05	0.053	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	—	30	5,000	—	—	<0.8	1	1.6	<0.8	<0.8	<0.8	<0.8	<0.8	2.9	1.3	<0.8	1.7
Dissolved Metals																		
Aluminum	µg/L	—	—	—	—	—	—	3.1	5.1	3.5	3.7	2.1	7.3	3.8	3.4	3.6	3.6	<0.3
Antimony	µg/L	—	—	—	—	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	µg/L	—	—	—	—	—	—	0.33	0.3	0.32	0.29	0.29	0.29	0.29	0.26	0.31	0.33	0.3
Barium	µg/L	—	—	—	—	—	—	0.88	1.2	0.93	1.1	0.9	1.2	0.96	1.1	1	1.1	0.85
Beryllium	µg/L	—	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	—	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	—	—	—	—	—	—	2.9	5.3	4.4	4.1	2.5	2.5	2.6	2.7	3.1	3.1	2.3
Cadmium	µg/L	—	—	—	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cesium	µg/L	—	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	—	—	—	—	—	—	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Cobalt	µg/L	—	—	—	—	—	—	<0.01	0.011	<0.01	<0.01	0.012	0.011	0.01	<0.01	<0.01	<0.01	<0.01
Copper	µg/L	—	—	—	—	—	—	0.57	0.91	0.57	0.51	0.53	0.62	0.57	0.51	0.58	0.55	0.48
Iron	µg/L	—	—	—	—	—	—	2.8	7.2	1.5	3.3	5.7	8.8	2.6	2.8	6.3	2.5	<1.0
Lead	µg/L	—	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	—	—	—	—	—	—	1.2	1.3	1	1.1	1.3	1.3	1.2	1.3	<0.5	<0.5	1.2
Manganese	µg/L	—	—	—	—	—	—	1.2	0.97	0.64	0.79	1.1	1.3	0.73	0.88	0.96	0.48	0.23
Mercury	µg/L	—	—	—	—	—	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00056	<0.0005	0.00065	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	—	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	—	—	—	—	—	—	0.28	0.33	0.29	0.28	0.29	0.27	0.26	0.36	0.32	0.29	0.26
Selenium	µg/L	—	—	—	—	—	—	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	—	—	—	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Table E-2 Laboratory Water Quality Data from Lac du Sauvage during the Open-Water Period, 2013
Part B

Location		Guidelines					Lac du Sauvage Sampling Stations											
		Aquatic Life					Ab-2		Ac-1				Ac-2		Ac-4			
Sample Name							Ab-2-MID	Ab-2-MID	Ac-1-MID	Ac-1-TOP	Ac-1-BOTTOM	Ac-1-MID	Ac-2-MID	Ac-2-MID	Ac-4-MID	Ac-4-TOP	Ac-4-BOTTOM	Ac-4-MID
Sampling Season							Late Spring	Summer	Late Spring	Summer	Summer	Fall	Late Spring	Summer	Late Spring	Summer	Summer	Fall
Sample Date							23-Jul-13	12-Aug-13	20-Jul-13	10-Aug-13	10-Aug-13	11-Sep-13	21-Jul-13	10-Aug-13	21-Jul-13	11-Aug-13	11-Aug-13	11-Sep-13
Easting (NAD 83, 12W)							548215	548215	543339	543339	543339	543339	545832	545832	543695	543695	543695	543695
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7161177	7161177	7165138	7165138	7165138	7165138	7165447	7165447	7162938	7162938	7162938	7162938
Dissolved Metals (Continued)																		
Strontium	µg/L	—	—	—	—	—	—	5.3	5.7	6.2	5.1	5.4	5.5	5	5.6	5.5	5.5	5.6
Thallium	µg/L	—	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	µg/L	—	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	0.054	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	µg/L	—	—	—	—	—	—	<0.1	0.11	<0.1	<0.1	0.28	0.22	0.15	<0.1	0.16	0.1	<0.1
Uranium	µg/L	—	—	—	—	—	—	0.02	0.021	0.021	0.02	0.021	0.026	0.02	0.021	0.021	0.021	0.014
Vanadium	µg/L	—	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	—	—	—	—	—	—	0.83	2.8	0.81	1.2	1.2	<0.8	<0.8	2.1	1.5	<0.8	1.1

Note:
Bolded concentrations are higher than relevant water quality guidelines.
C) = concentration higher than the relevant chronic aquatic life guideline or outside the recommended pH or DO concentration range.
D) = concentration higher than the relevant drinking water guideline or outside the recommended pH or DO concentration range.
Guideline exceedances by median concentrations are based on guidelines calculated using median values of hardness, pH, and temperature, and are not included in the percent exceedance calculations.
Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision after comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Measured concentrations equal to the guideline values were not identified as exceedances.
a) Source: CCME (Canadian Council of Ministers of the Environment). (1999, with updates to 2014). Canadian Environmental Quality Guidelines. Winnipeg, MB, Canada.
b) Source: Health Canada. (2012). Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.
c) See Part E.
d) See Part E.
e) See Part E.
f) See Part E.
g) See Part E.
h) See Part E.
j) Guidelines based on pH of 6.0 to 7.2, temperature of 4.4°C to 20.4°C, and water hardness of 3.6 to 7.4 mg/L.
k) Acute guideline applies to all waters of hardness below 5.3 mg $CaCO_3$/L; chronic guideline applies to all waters of hardness below 17 mg $CaCO_3$/L.
— = no guideline or data; CWQG = Canadian Drinking Water Quality Guidelines; DWQG = Drinking Water Quality Guidelines; SSWQO = Site-Specific Water Quality Objective; NAD = North American Datum; H+ = hydrogen ions; $CaCO_3$ = calcium carbonate; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % = percent; meq/L = milliequivalents per litre; pH = potential of hydrogen, provides measure of the acidity or alkalinity of a solution on a scale of 0 to 14; DO = dissolved oxygen; NTU = nephelometric turbidity units; mg N/L = milligrams of nitrogen per litre; mg P/L = milligrams of phosphorus per litre; µg/L = micrograms per litre; CFU/100 mL = coliform forming units per 100 millilitres; BTEX = benzene, toluene, ethylbenzene, xylene; < = less than.

Table E-2 Laboratory Water Quality Data from Lac du Sauvage during the Open-Water Period, 2013
Part C

Location		Guidelines					Lac du Sauvage Sampling Stations											
		Aquatic Life					Ac-5		Ac-7				Ac-8		Ad-1			
Sample Name							Ac-5-MID	Ac-5-MID	Ac-7-MID	Ac-7-TOP	Ac-7-BOTTOM	Ac-7-MID	Ac-8-MID	Ac-8-MID	Ad-1-MID	Ad-1-TOP	Ad-1-BOTTOM	Ad-1-MID
Sampling Season							Late Spring	Summer	Late Spring	Summer	Summer	Fall	Late Spring	Summer	Late Spring	Summer	Summer	Fall
Sample Date							21-Jul-13	11-Aug-13	20-Jul-13	11-Aug-13	11-Aug-13	11-Sep-13	21-Jul-13	10-Aug-13	25-Jul-13	10-Aug-13	10-Aug-13	7-Sep-13
Easting (NAD 83, 12W)							543149	543149	544247	544247	544247	544247	544777	544777	539898	539898	539898	539898
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7163287	7163287	7165068	7165068	7165068	7165068	7165855	7165855	7168781	7168781	7168781	7168781
Field Measured																		
Total depth	m	—	—	—	—	—	4.8	5.0	13.0	13.0	13.0	13.0	4.9	5.5	13.0	13.0	13.0	13.0
Sample depth	m	—	—	—	—	—	2.0	2.5	6.0	1.0	11.0	6.5	2.0	2.5	6.0	1.0	12.0	6.5
Secchi depth	m	—	—	—	—	—	4.8	5.0	5.7	10.0	10.0	6.2	4.9	5.5	6.8	7.0	7.0	7.4
Water temperature	°C	—	—	—	—	—	11.0	16.5	10.1	16.6	12.1	8.9	10.9	16.4	12.5	16.8	11.7	10.5
Specific conductivity	µS/cm	—	—	—	—	—	12	12	11	15	14	23	11	15	12	15	14	23
Dissolved oxygen	mg/L	—	6.5	—	—	—	11.0	10.2	10.4	9.2	10.0	10.6	10.9	9.6	10.7	9.4	9.7	—
Dissolved oxygen saturation	%	—	—	—	—	—	99	103	97	95	93	91	98	98	99	97	90	—
Conventional Parameters																		
Alkalinity, gran (as H+)	meq/L	—	—	—	—	—	0.12	0.1	0.11	<0.1	<0.1	0.12	0.1	<0.1	0.13	<0.1	<0.1	<0.1
Alkalinity, total (as $CaCO_3$)	mg/L	—	—	—	—	—	4.2	3.9	3.9	3.8	4.0	5.4	4.2	4.1	4.2	4.1	4.2	4.4
Conductance	µS/cm	—	—	—	—	—	14	14	14	14	14	14	14	15	15	15	15	14
Hardness	mg/L	—	—	—	—	—	4.8	4.5	4.8	4.7	4.7	4.8	4.8	4.4	4.6	4.6	4.6	4.9
pH	pH units	—	6.5 – 9.0	6.5 – 8.5	—	—	**6.4**[C, D]	**6.4**[C, D]	**6.4**[C, D]	**6.4**[C, D]	**6.3**[C, D]	6.8	**6.5**[C, D]	**6.4**[C, D]	**6.4**[C, D]	**6.4**[C, D]	**6.4**[C, D]	6.6
Total dissolved solids	mg/L	—	—	500	—	—	17	19	14	12	<10	14	18	12	12	11	<10	25
Total suspended solids	mg/L	—	—	—	—	—	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity	NTU	—	—	—	—	—	0.46	0.30	0.66	0.34	0.48	0.60	0.58	0.35	0.51	0.41	0.57	0.59
Major Ions																		
Bicarbonate	mg/L	—	—	—	—	—	5.1	<5.0	<5.0	<5.0	<5.0	6.6	5.1	<5.0	5.1	<5.0	5.1	5.4
Calcium	mg/L	—	—	—	—	—	0.88	0.80	0.90	0.86	0.86	0.89	0.88	0.82	0.84	0.86	0.84	0.82
Chloride	mg/L	640	120	250	—	64.5[i]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride	mg/L	—	0.12	1.5	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Magnesium	mg/L	—	—	—	—	—	0.63	0.60	0.63	0.61	0.61	0.63	0.62	0.58	0.60	0.61	0.61	0.66
Potassium	mg/L	—	—	—	112	41	0.54	0.53	0.57	0.54	0.54	0.53	0.53	0.49	0.55	0.51	0.50	0.55
Sodium	mg/L	—	—	200	—	—	0.61	0.55	0.59	0.57	0.58	0.60	0.60	0.58	0.59	0.61	0.61	0.60
Sulphate	mg/L	—	—	500	250[i]	22.7[i]	1.2	1.1	1.3	1.2	1.2	1.4	1.1	1.2	1.2	1.3	1.2	1.1
Nutrients																		
Total organic carbon	mg/L	—	—	—	—	—	2.9	3.4	3.2	3.4	3.7	3.1	3	3.3	3.2	3.4	3.5	3.5
Dissolved organic carbon	mg/L	—	—	—	—	—	3.6	3.3	3.3	3.6	3.5	3.3	3.5	3.4	3.3	3.4	3.2	3.5
Total nitrogen (calculated)	mg N/L	—	—	—	—	—	0.13	0.14	0.18	0.13	0.15	0.14	0.12	0.12	0.16	0.1	0.075	0.13
Total Kjeldahl Nitrogen	mg N/L	—	—	—	—	—	0.13	0.14	0.18	0.13	0.15	0.14	0.12	0.12	0.16	0.1	0.075	0.13
Total ammonia	mg N/L	—	2.7 – 139[i]	—	—	—	0.0098	<0.005	0.012	0.006	0.0059	0.017	<0.005	0.0076	0.014	0.0065	0.0064	0.016
Nitrate	mg N/L	124	2.9	10	—	0.57[i]	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Nitrite	mg N/L	—	0.06	1	—	—	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Total phosphorus	mg P/L	—	—	—	—	—	0.0052	0.005	0.006	0.0042	0.0063	0.0063	0.0066	0.0028	0.0073	0.0037	0.003	0.0066

Table E-2 Laboratory Water Quality Data from Lac du Sauvage during the Open-Water Period, 2013
Part C

Location		Guidelines					Lac du Sauvage Sampling Stations											
		Aquatic Life					Ac-5		Ac-7				Ac-8		Ad-1			
Sample Name							Ac-5-MID	Ac-5-MID	Ac-7-MID	Ac-7-TOP	Ac-7-BOTTOM	Ac-7-MID	Ac-8-MID	Ac-8-MID	Ad-1-MID	Ad-1-TOP	Ad-1-BOTTOM	Ad-1-MID
Sampling Season							Late Spring	Summer	Late Spring	Summer	Summer	Fall	Late Spring	Summer	Late Spring	Summer	Summer	Fall
Sample Date							21-Jul-13	11-Aug-13	20-Jul-13	11-Aug-13	11-Aug-13	11-Sep-13	21-Jul-13	10-Aug-13	25-Jul-13	10-Aug-13	10-Aug-13	7-Sep-13
Easting (NAD 83, 12W)							543149	543149	544247	544247	544247	544247	544777	544777	539898	539898	539898	539898
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7163287	7163287	7165068	7165068	7165068	7165068	7165855	7165855	7168781	7168781	7168781	7168781
Nutrients (Continued)																		
Total dissolved phosphorus	mg P/L	—	—	—	—	—	0.0022	0.0025	0.0027	0.0016	0.0014	0.0029	0.0015	<0.001	0.0021	<0.001	<0.001	0.002
Dissolved orthophosphate	mg/L	—	—	—	—	—	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	—	<0.001	<0.001	<0.001	<0.001	<0.001
Silica, reactive	mg/L	—	—	—	—	—	0.11	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.12	0.1	0.11
Other Parameters																		
Benzene	µg/L	—	370	5	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	—	90	2.4	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	—	2	24	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene	µg/L	—	—	300	—	—	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71
Petroleum hydrocarbons - F1 (C6-C10)	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Petroleum hydrocarbons - F1 (C6-C10)-BTEX	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Petroleum hydrocarbons - F2 (C10-C16)	mg/L	—	—	—	—	—	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total recoverable hydrocarbons	mg/L	—	—	—	—	—	<1.0	<1.0	<1.0	<1.0	1.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fecal coliform	CFU/100 mL	—	—	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Metals																		
Aluminum	µg/L	—	5 or 100[j]	100	—	—	**8.9[C]**	**5.9[C]**	**13[C]**	**6.6[C]**	**6.7[C]**	5.5	**21[C]**	2.7	**9.5[C]**	**8.7[C]**	**10[C]**	6.4
Antimony	µg/L	—	—	6	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	µg/L	—	5	10	—	—	0.28	0.33	0.29	0.31	0.33	0.29	0.28	0.14	0.31	0.38	0.38	0.29
Barium	µg/L	—	—	1,000	—	—	1.1	1.1	1.3	1	1.1	0.99	1.3	0.44	1.2	1	1.2	0.9
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	29,000	1,500	5,000	—	—	3	2.9	3.1	2.8	2.6	3.8	2.8	3.1	2.4	3.8	3.1	2.5
Cadmium	µg/L	0.11[k]	0.04[k]	5	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	—	1	50	—	—	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.074	<0.06	<0.06	<0.06	<0.06	<0.06
Chromium VI	µg/L	—	1	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	µg/L	—	—	—	—	—	0.016	0.013	0.016	0.012	0.014	0.015	0.019	<0.01	0.019	0.019	0.022	0.012
Copper	µg/L	—	2[j]	1,000	—	—	0.56	0.6	0.61	0.56	0.6	0.56	0.61	0.24	0.69	0.62	0.54	0.56
Iron	µg/L	—	300	300	—	—	13	6.4	19	5.5	8.4	12	20	6.2	21	16	25	11
Lead	µg/L	—	1[j]	10	—	—	0.025	<0.01	<0.01	<0.01	<0.01	0.013	0.032	<0.01	0.014	<0.01	<0.01	0.016
Lithium	µg/L	—	—	—	—	—	0.99	<0.5	1.1	<0.5	<0.5	1.1	1.1	1.2	1.1	1.2	1.2	1.3
Manganese	µg/L	—	—	50	—	—	3.3	2.2	4.4	2	3.6	3.7	4.5	1.2	4.4	8.1	12	4.4
Mercury	µg/L	—	0.026	1	—	—	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00065	<0.0005	<0.0005	<0.0005	<0.0005	0.005
Molybdenum	µg/L	—	73	—	223,000	19,000	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	—	25[j]	—	—	—	0.32	0.29	0.34	0.3	0.29	0.26	0.35	0.12	0.34	0.33	0.31	0.27

Table E-2 Laboratory Water Quality Data from Lac du Sauvage during the Open-Water Period, 2013
Part C

Location		Guidelines					Lac du Sauvage Sampling Stations											
		Aquatic Life					Ac-5		Ac-7				Ac-8		Ad-1			
Sample Name							Ac-5-MID	Ac-5-MID	Ac-7-MID	Ac-7-TOP	Ac-7-BOTTOM	Ac-7-MID	Ac-8-MID	Ac-8-MID	Ad-1-MID	Ad-1-TOP	Ad-1-BOTTOM	Ad-1-MID
Sampling Season							Late Spring	Summer	Late Spring	Summer	Summer	Fall	Late Spring	Summer	Late Spring	Summer	Summer	Fall
Sample Date							21-Jul-13	11-Aug-13	20-Jul-13	11-Aug-13	11-Aug-13	11-Sep-13	21-Jul-13	10-Aug-13	25-Jul-13	10-Aug-13	10-Aug-13	7-Sep-13
Easting (NAD 83, 12W)							543149	543149	544247	544247	544247	544247	544777	544777	539898	539898	539898	539898
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7163287	7163287	7165068	7165068	7165068	7165068	7165855	7165855	7168781	7168781	7168781	7168781
Total Metals (Continued)																		
Selenium	µg/L	—	1	10	—	—	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	—	0.1	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	—	—	—	—	—	5.2	5.3	5.4	5.3	5.1	5.2	5.3	4.8	5.5	5.2	5.3	5.2
Thallium	µg/L	—	0.8	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	µg/L	—	—	—	—	—	0.24	0.15	0.81	<0.1	0.2	0.31	1	0.13	0.47	0.27	0.39	0.25
Uranium	µg/L	33	15	20	—	—	0.021	0.023	0.022	0.022	0.022	0.021	0.023	0.023	0.026	0.025	0.025	0.022
Vanadium	µg/L	—	—	—	300	30	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	—	30	5,000	—	—	<0.8	1.3	<0.8	1.2	2.2	1.1	1.4	<0.8	<0.8	<0.8	1.2	<0.8
Dissolved Metals																		
Aluminum	µg/L	—	—	—	—	—	4.2	2.9	3.9	2.6	3.5	0.92	3.8	2.6	3.4	4.3	3.7	3.3
Antimony	µg/L	—	—	—	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	µg/L	—	—	—	—	—	0.29	0.33	0.28	0.3	0.33	0.28	0.29	0.28	0.3	0.3	0.29	0.31
Barium	µg/L	—	—	—	—	—	1.1	1.1	1.1	1	1.1	0.83	1.2	0.95	1.2	1	0.99	0.88
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	—	—	—	—	—	3.3	2.8	5.9	3	2.8	2	2.5	4.1	3.1	4.1	2.6	2.4
Cadmium	µg/L	—	—	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	—	—	—	—	—	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Cobalt	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01
Copper	µg/L	—	—	—	—	—	0.57	0.57	0.56	0.59	0.55	0.53	0.64	0.53	0.62	0.57	0.52	0.54
Iron	µg/L	—	—	—	—	—	3.6	2.4	3.9	1.8	2.6	3.6	3.6	1.9	4.9	5.7	3.4	4.3
Lead	µg/L	—	—	—	—	—	0.01	<0.01	<0.01	<0.01	<0.01	0.017	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	—	—	—	—	—	1.4	<0.5	1.3	<0.5	<0.5	0.9	1.3	1.2	1	1.3	1.3	1.1
Manganese	µg/L	—	—	—	—	—	0.99	0.75	0.71	0.72	0.6	0.73	0.86	0.66	0.84	0.59	0.46	1.2
Mercury	µg/L	—	—	—	—	—	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.005
Molybdenum	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	—	—	—	—	—	0.31	0.28	0.34	0.28	0.28	0.31	0.29	0.25	0.3	0.27	0.28	0.27
Selenium	µg/L	—	—	—	—	—	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	—	—	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	—	—	—	—	—	5.6	5.2	5.7	5.5	5.4	5.2	5.6	4.9	5.4	5.3	5.3	5.1
Thallium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Table E-2 Laboratory Water Quality Data from Lac du Sauvage during the Open-Water Period, 2013
Part C

Location		Guidelines					Lac du Sauvage Sampling Stations											
		Aquatic Life					Ac-5		Ac-7				Ac-8		Ad-1			
Sample Name							Ac-5-MID	Ac-5-MID	Ac-7-MID	Ac-7-TOP	Ac-7-BOTTOM	Ac-7-MID	Ac-8-MID	Ac-8-MID	Ad-1-MID	Ad-1-TOP	Ad-1-BOTTOM	Ad-1-MID
Sampling Season							Late Spring	Summer	Late Spring	Summer	Summer	Fall	Late Spring	Summer	Late Spring	Summer	Summer	Fall
Sample Date							21-Jul-13	11-Aug-13	20-Jul-13	11-Aug-13	11-Aug-13	11-Sep-13	21-Jul-13	10-Aug-13	25-Jul-13	10-Aug-13	10-Aug-13	7-Sep-13
Easting (NAD 83, 12W)							543149	543149	544247	544247	544247	544247	544777	544777	539898	539898	539898	539898
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7163287	7163287	7165068	7165068	7165068	7165068	7165855	7165855	7168781	7168781	7168781	7168781
Dissolved Metals (Continued)																		
Titanium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	0.17	<0.1	<0.1	<0.1	0.14	<0.1	0.17
Uranium	µg/L	—	—	—	—	—	0.02	0.022	0.021	0.022	0.02	0.019	0.021	0.021	0.023	0.023	0.021	0.02
Vanadium	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	—	—	—	—	—	1.2	2.1	1.3	<0.8	1.1	1.1	<0.8	<0.8	<0.8	1	<0.8	<0.8

Note:
Bolded concentrations are higher than relevant water quality guidelines.
C) = concentration higher than the relevant chronic aquatic life guideline or outside the recommended pH or DO concentration range.
D) = concentration higher than the relevant drinking water guideline or outside the recommended pH or DO concentration range.
Guideline exceedances by median concentrations are based on guidelines calculated using median values of hardness, pH, and temperature, and are not included in the percent exceedance calculations.
Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision after comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Measured concentrations equal to the guideline values were not identified as exceedances.
a) Source: CCME (Canadian Council of Ministers of the Environment). (1999, with updates to 2014). Canadian Environmental Quality Guidelines. Winnipeg, MB, Canada.
b) Source: Health Canada. (2012). Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.
c) See Part E.
d) See Part E.
e) See Part E.
f) See Part E.
g) See Part E.
h) See Part E.
i) Guidelines based on hardness of 4.7 mg $CaCO_3$/L.
j) Guidelines based on pH of 6.0 to 7.2, temperature of 4.4°C to 20.4°C, and water hardness of 3.6 to 7.4 mg/L.
k) Acute guideline applies to all waters of hardness below 5.3 mg $CaCO_3$/L; chronic guideline applies to all waters of hardness below 17 mg $CaCO_3$/L.
— = no guideline or data; CWQG = Canadian Drinking Water Quality Guidelines; DWQG = Drinking Water Quality Guidelines; SSWQO = Site-Specific Water Quality Objective; NAD = North American Datum; H+ = hydrogen ions; $CaCO_3$ = calcium carbonate; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % = percent; meq/L = milliequivalents per litre; pH = potential of hydrogen, provides measure of the acidity or alkalinity of a solution on a scale of 0 to 14; DO = dissolved oxygen; NTU = nephelometric turbidity units; mg N/L = milligrams of nitrogen per litre; mg P/L = milligrams of phosphorus per litre; µg/L = micrograms per litre; CFU/100 mL = coliform forming units per 100 millilitres; BTEX = benzene, toluene, ethylbenzene, xylene; < = less than.

Table E-2 Laboratory Water Quality Data from Lac du Sauvage during the Open-Water Period, 2013
Part D

Location		Guidelines					Lac du Sauvage Sampling Stations									
		Aquatic Life					Ad-2			Ae-1				Ae-2		
Sample Name							Ad-2-MID	Ad-2-MID	Ad-2-MID	Ae-1-MID	Ae-1-TOP	Ae-1-BOTTOM	Ae-1-MID	Ae-2-MID	Ae-2-MID	Ae-2-MID
Sampling Season							Late Spring	Summer	Fall	Late Spring	Summer	Summer	Fall	Late Spring	Summer	Fall
Sample Date							23-Jul-13	10-Aug-13	5-Sep-13	25-Jul-13	9-Aug-13	9-Aug-13	5-Sep-13	25-Jul-13	9-Aug-13	5-Sep-13
Easting (NAD 83, 12W)							539868	539868	539868	542494	542494	542494	542494	542589	542589	542589
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7168991	7168991	7168991	7170252	7170252	7170252	7170252	7170675	7170675	7170675
Field Measured																
Total depth	m	—	—	—	—	—	4.8	4.3	5.3	12.0	14.0	14.0	11.0	5.2	5.0	5.0
Sample depth	m	—	—	—	—	—	2.0	2.0	2.5	6.0	1.0	13.0	5.3	2.0	2.0	2.0
Secchi depth	m	—	—	—	—	—	4.8	4.3	5.3	6.6	7.8	7.8	5.5	5.2	5.0	5.0
Water temperature	°C	—	—	—	—	—	12.4	16.9	11.0	12.2	16.6	12.0	10.5	12.6	17.4	10.6
Specific conductivity	µS/cm	—	—	—	—	—	12	15	11	12	14	15	11	12	12	11
Dissolved oxygen	mg/L	—	6.5	—	—	—	10.8	9.4	11.2	10.9	10.0	7.5	11.0	10.8	10.2	11.1
Dissolved oxygen saturation	%	—	—	—	—	—	101	97	101	100	102.5	71.7	98	101	104	99
Conventional Parameters																
Alkalinity, gran (as H+)	meq/L	—	—	—	—	—	0.14	<0.1	<0.1	<0.1	<0.1	<0.1	0.11	<0.1	<0.1	0.14
Alkalinity, total (as $CaCO_3$)	mg/L	—	—	—	—	—	3.9	4.0	4.6	3.7	4.3	4.3	4.6	3.9	4	4.5
Conductance	µS/cm	—	—	—	—	—	14	15	14	14	15	15	14	14	14	14
Hardness	mg/L	—	—	—	—	—	4.6	4.5	5	4.8	4.5	4.5	4.9	4.8	4.4	4.9
pH	pH units	—	6.5 – 9.0	6.5 – 8.5	—	—	**6.5**[C, D]	**6.4**[C, D]	6.7	**6.4**[C, D]	**6.4**[C, D]	**6.3**[C, D]	6.6	**6.4**[C, D]	**6.4**[C, D]	6.6
Total dissolved solids	mg/L	—	—	500	—	—	10	21	20	16	20	18	23	15	22	19
Total suspended solids	mg/L	—	—	—	—	—	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity	NTU	—	—	—	—	—	0.50	0.56	0.86	0.48	0.40	0.51	0.60	0.49	0.31	0.76
Major Ions																
Bicarbonate	mg/L	—	—	—	—	—	<5.0	<5.0	5.6	<5.0	5.2	5.2	5.6	<5.0	<5.0	5.5
Calcium	mg/L	—	—	—	—	—	0.88	0.86	0.94	0.90	0.84	0.82	0.84	0.93	0.81	0.90
Chloride	mg/L	640	120	250	—	64.5[i]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride	mg/L	—	0.12	1.5	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Magnesium	mg/L	—	—	—	—	—	0.59	0.59	0.65	0.63	0.58	0.59	0.62	0.61	0.57	0.64
Potassium	mg/L	—	—	—	112	41	0.53	0.51	0.55	0.56	0.49	0.50	0.55	0.56	0.49	0.54
Sodium	mg/L	—	—	200	—	—	0.54	0.59	0.64	0.60	0.59	0.60	0.59	0.60	0.59	0.66
Sulphate	mg/L	—	—	500	250[i]	22.7[i]	1.2	1.2	1.1	1.2	1.2	1.1	1	1.1	1.2	1
Nutrients																
Total organic carbon	mg/L	—	—	—	—	—	2.9	3.4	3.5	3.4	3.5	3.4	3.4	3.8	3.2	3.4
Dissolved organic carbon	mg/L	—	—	—	—	—	3.2	3.6	3.4	3.1	3.7	3.5	3.5	3.9	3.4	3.4
Total nitrogen (calculated)	mg N/L	—	—	—	—	—	0.2	0.11	0.16	0.18	0.1	0.13	0.13	0.17	0.13	0.13
Total Kjeldahl Nitrogen	mg N/L	—	—	—	—	—	0.2	0.11	0.16	0.18	0.1	0.13	0.13	0.17	0.13	0.13
Total ammonia	mg N/L	—	2.7 – 139[i]	—	—	—	0.0093	0.0068	0.012	0.015	0.0071	0.0056	0.015	0.024	0.008	0.019
Nitrate	mg N/L	124	2.9	10		0.57[i]	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Nitrite	mg N/L	—	0.06	1	—	—	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Total phosphorus	mg P/L	—	—	—	—	—	0.0072	0.0036	0.0064	0.0056	0.0046	0.005	0.0059	0.0064	0.0033	0.0069

Table E-2 Laboratory Water Quality Data from Lac du Sauvage during the Open-Water Period, 2013
Part D

Location		Guidelines					Lac du Sauvage Sampling Stations									
		Aquatic Life					Ad-2			Ae-1				Ae-2		
Sample Name							Ad-2-MID	Ad-2-MID	Ad-2-MID	Ae-1-MID	Ae-1-TOP	Ae-1-BOTTOM	Ae-1-MID	Ae-2-MID	Ae-2-MID	Ae-2-MID
Sampling Season							Late Spring	Summer	Fall	Late Spring	Summer	Summer	Fall	Late Spring	Summer	Fall
Sample Date							23-Jul-13	10-Aug-13	5-Sep-13	25-Jul-13	9-Aug-13	9-Aug-13	5-Sep-13	25-Jul-13	9-Aug-13	5-Sep-13
Easting (NAD 83, 12W)							539868	539868	539868	542494	542494	542494	542494	542589	542589	542589
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7168991	7168991	7168991	7170252	7170252	7170252	7170252	7170675	7170675	7170675
Nutrients (Continued)																
Total dissolved phosphorus	mg P/L	—	—	—	—	—	0.0028	<0.001	0.0028	0.0035	<0.001	<0.001	0.0028	0.0027	0.0012	0.0032
Dissolved orthophosphate	mg/L	—	—	—	—	—	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silica, reactive	mg/L	—	—	—	—	—	0.11	0.12	0.12	0.13	0.12	0.14	0.12	0.12	0.12	0.12
Other Parameters																
Benzene	µg/L	—	370	5	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	—	90	2.4	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	—	2	24	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene	µg/L	—	—	300	—	—	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71
Petroleum hydrocarbons - F1 (C6-C10)	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Petroleum hydrocarbons - F1 (C6-C10)-BTEX	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Petroleum hydrocarbons - F2 (C10-C16)	mg/L	—	—	—	—	—	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total recoverable hydrocarbons	mg/L	—	—	—	—	—	<1.0	<1.0	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1
Fecal coliform	CFU/100 mL	—	—	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Metals																
Aluminum	µg/L	—	5 or 100[j]	100	—	—	**9.4[C]**	**10[C]**	8.9	**8.8[C]**	**6.7[C]**	**9.5[C]**	7.3	**12[C]**	**6.1[C]**	4.4
Antimony	µg/L	—	—	6	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	µg/L	—	5	10	—	—	0.3	0.36	0.33	0.29	0.35	0.33	0.3	0.33	0.35	0.31
Barium	µg/L	—	—	1,000	—	—	1.2	1.1	0.98	1.1	1.1	1.2	1.1	1.4	1.1	0.99
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	29,000	1,500	5,000	—	—	2.7	2.8	3.8	2.5	2.8	2.8	2.7	3.1	4.3	2.6
Cadmium	µg/L	0.11[k]	0.04[k]	5	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	—	1	50	—	—	0.065	<0.06	0.068	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Chromium VI	µg/L	—	1	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	µg/L	—	—	—	—	—	0.019	0.018	0.022	0.016	0.013	0.017	0.017	0.02	0.015	0.014
Copper	µg/L	—	2[j]	1,000	—	—	0.69	0.57	0.68	0.64	0.62	0.54	0.56	0.62	0.57	0.56
Iron	µg/L	—	300	300	—	—	17	19	18	16	9.1	19	12	22	10	11
Lead	µg/L	—	1[j]	10	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	<0.01
Lithium	µg/L	—	—	—	—	—	1.1	1.3	1.3	0.99	1.1	1.2	1.3	1.3	1.2	1.2
Manganese	µg/L	—	—	50	—	—	3.6	3.2	5	3.5	2.7	8.2	4.5	4.7	2.8	4.5
Mercury	µg/L	—	0.026	1	—	—	<0.0005	<0.0005	0.005	<0.0005	<0.0005	<0.0005	0.005	<0.0005	<0.0005	0.005
Molybdenum	µg/L	—	73	—	223,000	19,000	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	—	25[j]	—	—	—	0.33	0.31	0.36	0.33	0.3	0.3	0.28	0.35	0.29	0.26

Table E-2 Laboratory Water Quality Data from Lac du Sauvage during the Open-Water Period, 2013
Part D

Location		Guidelines					Lac du Sauvage Sampling Stations									
		Aquatic Life					Ad-2			Ae-1				Ae-2		
Sample Name							Ad-2-MID	Ad-2-MID	Ad-2-MID	Ae-1-MID	Ae-1-TOP	Ae-1-BOTTOM	Ae-1-MID	Ae-2-MID	Ae-2-MID	Ae-2-MID
Sampling Season							Late Spring	Summer	Fall	Late Spring	Summer	Summer	Fall	Late Spring	Summer	Fall
Sample Date							23-Jul-13	10-Aug-13	5-Sep-13	25-Jul-13	9-Aug-13	9-Aug-13	5-Sep-13	25-Jul-13	9-Aug-13	5-Sep-13
Easting (NAD 83, 12W)							539868	539868	539868	542494	542494	542494	542494	542589	542589	542589
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7168991	7168991	7168991	7170252	7170252	7170252	7170252	7170675	7170675	7170675
Total Metals (Continued)																
Selenium	µg/L	—	1	10	—	—	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	—	0.1	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	—	—	—	—	—	5.4	5.1	5.4	5.4	5	5.1	5.4	5.5	5.1	5.2
Thallium	µg/L	—	0.8	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	µg/L	—	—	—	—	—	0.42	0.54	0.6	0.48	<0.1	0.32	0.32	0.58	0.22	0.36
Uranium	µg/L	33	15	20	—	—	0.024	0.026	0.024	0.024	0.023	0.025	0.022	0.026	0.024	0.022
Vanadium	µg/L	—	—	—	300	30	<0.05	<0.05	0.059	<0.05	<0.05	0.051	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	—	30	5,000	—	—	1	<0.8	1.7	<0.8	1.3	<0.8	<0.8	0.93	<0.8	<0.8
Dissolved Metals																
Aluminum	µg/L	—	—	—	—	—	3.9	3.2	3	3	3.3	3.3	3.6	3.8	2.8	3.2
Antimony	µg/L	—	—	—	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	µg/L	—	—	—	—	—	0.32	0.34	0.31	0.28	0.31	0.28	0.31	0.31	0.32	0.31
Barium	µg/L	—	—	—	—	—	1.1	0.96	0.95	1.1	1	1.1	0.99	1.3	1.1	0.99
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	—	—	—	—	—	2.1	3	2.7	3.2	3.9	3.2	2.5	2.5	4.1	2.6
Cadmium	µg/L	—	—	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	—	—	—	—	—	<0.06	<0.06	0.07	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.12
Cobalt	µg/L	—	—	—	—	—	<0.01	<0.01	0.014	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.012
Copper	µg/L	—	—	—	—	—	0.63	0.59	0.63	0.61	0.55	0.53	0.53	0.62	0.55	0.57
Iron	µg/L	—	—	—	—	—	4.3	5.4	8.4	3.7	3	4	5	4.7	3.2	6.9
Lead	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.027	<0.01	<0.01	<0.01
Lithium	µg/L	—	—	—	—	—	1.3	1.4	1.4	1.2	1.3	1.2	1	1.2	1.2	1.1
Manganese	µg/L	—	—	—	—	—	0.98	0.39	1.4	0.62	0.59	0.61	1	0.99	1.1	1.2
Mercury	µg/L	—	—	—	—	—	<0.0005	<0.0005	0.005	<0.0005	<0.0005	<0.0005	0.005	<0.0005	<0.0005	0.005
Molybdenum	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	—	—	—	—	—	0.31	0.27	0.31	0.31	0.27	0.27	0.29	0.32	0.27	0.28
Selenium	µg/L	—	—	—	—	—	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	—	—	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	—	—	—	—	—	5.6	5.2	5.4	5.7	5.1	5.1	5.2	5.4	5.1	5.2
Thallium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	µg/L	—	—	—	—	—	0.38	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Table E-2 Laboratory Water Quality Data from Lac du Sauvage during the Open-Water Period, 2013
Part D

Location		Guidelines					Lac du Sauvage Sampling Stations									
		Aquatic Life					Ad-2			Ae-1				Ae-2		
Sample Name							Ad-2-MID	Ad-2-MID	Ad-2-MID	Ae-1-MID	Ae-1-TOP	Ae-1-BOTTOM	Ae-1-MID	Ae-2-MID	Ae-2-MID	Ae-2-MID
Sampling Season							Late Spring	Summer	Fall	Late Spring	Summer	Summer	Fall	Late Spring	Summer	Fall
Sample Date							23-Jul-13	10-Aug-13	5-Sep-13	25-Jul-13	9-Aug-13	9-Aug-13	5-Sep-13	25-Jul-13	9-Aug-13	5-Sep-13
Easting (NAD 83, 12W)							539868	539868	539868	542494	542494	542494	542494	542589	542589	542589
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7168991	7168991	7168991	7170252	7170252	7170252	7170252	7170675	7170675	7170675
Dissolved Metals (Continued)																
Titanium	µg/L	—	—	—	—	—	0.1	<0.1	0.35	0.14	<0.1	<0.1	0.27	<0.1	<0.1	0.61
Uranium	µg/L	—	—	—	—	—	0.023	0.024	0.024	0.023	0.023	0.023	0.021	0.022	0.023	0.022
Vanadium	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	—	—	—	—	—	0.96	<0.8	1.7	<0.8	<0.8	<0.8	<0.8	1.3	<0.8	1.3

Note:
Bolded concentrations are higher than relevant water quality guidelines.
C) = concentration higher than the relevant chronic aquatic life guideline or outside the recommended pH or DO concentration range.
D) = concentration higher than the relevant drinking water guideline or outside the recommended pH or DO concentration range.
Guideline exceedances by median concentrations are based on guidelines calculated using median values of hardness, pH, and temperature, and are not included in the percent exceedance calculations.
Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision after comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Measured concentrations equal to the guideline values were not identified as exceedances.
a) Source: CCME (Canadian Council of Ministers of the Environment). (1999, with updates to 2014). Canadian Environmental Quality Guidelines. Winnipeg, MB, Canada.
b) Source: Health Canada. (2012). Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.
c) See Part E.
d) See Part E.
e) See Part E.
f) See Part E.
g) See Part E.
h) See Part E.
i) Guidelines based on hardness of 4.7 mg $CaCO_3$/L.
j) Guidelines based on pH of 6.0 to 7.2, temperature of 4.4°C to 20.4°C, and water hardness of 3.6 to 7.4 mg/L.
k) Acute guideline applies to all waters of hardness below 5.3 mg $CaCO_3$/L; chronic guideline applies to all waters of hardness below 17 mg $CaCO_3$/L.
— = no guideline or data; CWQG = Canadian Drinking Water Quality Guidelines; DWQG = Drinking Water Quality Guidelines; SSWQO = Site-Specific Water Quality Objective; NAD = North American Datum; H+ = hydrogen ions; $CaCO_3$ = calcium carbonate; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % = percent; meq/L = milliequivalents per litre; pH = potential of hydrogen, provides measure of the acidity or alkalinity of a solution on a scale of 0 to 14; DO = dissolved oxygen; NTU = nephelometric turbidity units; mg N/L = milligrams of nitrogen per litre; mg P/L = milligrams of phosphorus per litre; µg/L = micrograms per litre; CFU/100 mL = coliform forming units per 100 millilitres; BTEX = benzene, toluene, ethylbenzene, xylene; < = less than

Table E-2 Laboratory Water Quality Data from Lac du Sauvage during the Open-Water Period, 2013
Part E

Location		Guidelines					Summary Statistics											
		Aquatic Life												% Above Guideline				
Sample Name																		
Sampling Season																		
Sample Date																		
Easting (NAD 83, 12W)																		
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Field Measured																		
Total depth	m	—	—	—	—	—	45	3.7	11.0	9.6	14.0	3.80	0.57	—	—	—	—	—
Sample depth	m	—	—	—	—	—	45	1.0	2.5	4.6	13.0	3.50	0.52	—	—	—	—	—
Secchi depth	m	—	—	—	—	—	45	3.7	6.5	6.5	10.3	1.90	0.29	—	—	—	—	—
Water temperature	°C	—	—	—	—	—	45	7.9	12.0	12.8	18.4	3.00	0.45	—	—	—	—	—
Specific conductivity	µS/cm	—	—	—	—	—	45	11.0	13.0	14.2	23.0	3.80	0.56	—	—	—	—	—
Dissolved oxygen	mg/L	—	6.5	—	—	—	44	7.5	10.4	10.3	11.3	0.75	0.11	—	—	—	—	—
Dissolved oxygen saturation	%	—	—	—	—	—	44	72	98	97	105	6.00	0.90	—	—	—	—	—
Conventional Parameters																		
Alkalinity, gran (as H+)	meq/L	—	—	—	—	—	45	<0.1	<0.1	0.34	0.12	1.8	0.27	—	—	—	—	—
Alkalinity, total (as $CaCO_3$)	mg/L	—	—	—	—	—	45	3.7	4.1	4.1	5.4	0.32	0.047	—	—	—	—	—
Conductance	µS/cm	—	—	—	—	—	45	13	14	14	16	0.52	0.077	—	—	—	—	—
Hardness	mg/L	—	—	—	—	—	45	4.4	4.7	4.7	5.0	0.18	0.026	—	—	—	—	—
pH	pH units	—	6.5 – 9.0	6.5 – 8.5	—	—	45	**6.1**[C, D]	**6.4**[C, D]	**6.5**[C, D]	6.8	0.16	0.023	—	69	69	—	—
Total dissolved solids	mg/L	—	—	500	—	—	43	<10	15	14	25	5.6	0.85	—	—	—	—	—
Total suspended solids	mg/L	—	—	—	—	—	45	<3.0	<3.0	<3.0	<3.0	—	—	—	—	—	—	—
Turbidity	NTU	—	—	—	—	—	45	0.30	0.50	0.52	0.86	0.13	0.019	—	—	—	—	—
Major Ions																		
Bicarbonate	mg/L	—	—	—	—	—	45	<5	<5	3.8	6.6	1.5	0.22	—	—	—	—	—
Calcium	mg/L	—	—	—	—	—	45	0.77	0.86	0.86	0.94	0.042	0.0063			—	—	—
Chloride	mg/L	640	120	250	—	64.5[i]	45	<0.5	<0.5	0.26	0.63	0.057	0.0084	—	—	—	—	—
Fluoride	mg/L	—	0.12	1.5	—	—	45	<0.02	<0.02	0.010	0.027	0.0036	0.00054	—	—	—	—	—
Magnesium	mg/L	—	—	—	—	—	45	0.57	0.62	0.62	0.65	0.021	0.0031	—	—	—	—	—
Potassium	mg/L	—	—	—	112	41	45	0.48	0.53	0.53	0.65	0.029	0.0044	—	—	—	—	—
Sodium	mg/L	—	—	200	—	—	45	0.54	0.60	0.61	0.71	0.03	0.004	—	—	—	—	—
Sulphate	mg/L	—	—	500	250[i]	22.7[i]	45	1.0	1.2	1.2	1.7	0.12	0.018	—	—	—	—	—
Nutrients																		
Total organic carbon	mg/L	—	—	—	—	—	44	2.7	3.4	3.3	3.8	0.3	0.045	—	—	—	—	—
Dissolved organic carbon	mg/L	—	—	—	—	—	44	2.6	3.4	3.5	6.3	0.52	0.079	—	—	—	—	—
Total nitrogen (calculated)	mg N/L	—	—	—	—	—	45	<0.05	0.13	0.14	0.25	0.051	0.0075	—	—	—	—	—
Total Kjeldahl Nitrogen	mg N/L	—	—	—	—	—	45	<0.05	0.13	0.14	0.25	0.051	0.0075	—	—	—	—	—
Total ammonia	mg N/L	—	2.7 – 139[i]	—	—	—	45	<0.005	0.0092	0.010	0.030	0.006	0.0009	—	—	—	—	—
Nitrate	mg N/L	124	2.9	10	—	0.57[i]	45	<0.006	<0.006	<0.006	<0.006	—	—	—	—	—	—	—
Nitrite	mg N/L	—	0.06	1	—	—	45	<0.002	<0.002	<0.002	<0.002	—	—	—	—	—	—	—
Total phosphorus	mg P/L	—	—	—	—	—	45	0.0026	0.0059	0.0057	0.014	0.0022	0.00033	—	—	—	—	—

Table E-2 Laboratory Water Quality Data from Lac du Sauvage during the Open-Water Period, 2013
Part E

Location		Guidelines					Summary Statistics												
Sample Name		Aquatic Life												% Above Guideline					
Sampling Season																			
Sample Date																			
Easting (NAD 83, 12W)																			
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Nutrients (Continued)																			
Total dissolved phosphorus	mg P/L	—	—	—	—	—	45	<0.001	0.0021	0.0019	0.0040	0.00098	0.00015	—	—	—	—	—	
Dissolved orthophosphate	mg/L	—	—	—	—	—	41	<0.001	<0.001	<0.01	<0.01	—	—	—	—	—	—	—	
Silica, reactive	mg/L	—	—	—	—	—	44	0.091	0.11	0.12	0.15	0.013	0.002	—	—	—	—	—	
Other Parameters																			
Benzene	µg/L	—	370	5	—	—	45	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—	
Ethylbenzene	µg/L	—	90	2.4	—	—	45	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—	
Toluene	µg/L	—	2	24	—	—	45	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—	
Xylene	µg/L	—	—	300	—	—	45	<0.71	<0.71	<0.71	<0.71	—	—	—	—	—	—	—	
Petroleum hydrocarbons - F1 (C6-C10)	mg/L	—	—	—	—	—	45	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—	
Petroleum hydrocarbons - F1 (C6-C10)-BTEX	mg/L	—	—	—	—	—	45	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—	
Petroleum hydrocarbons - F2 (C10-C16)	mg/L	—	—	—	—	—	45	<0.25	<0.25	<0.25	<0.25	—	—	—	—	—	—	—	
Total recoverable hydrocarbons	mg/L	—	—	—	—	—	44	<1.0	<1.0	0.54	1.2	0.16	0.025	—	—	—	—	—	
Fecal coliform	CFU/100 mL	—	—	—	—	—	45	<1	<1	<1	<1	—	—	—	—	—	—	—	
Total Metals																			
Aluminum	µg/L	—	5 or 100[j]	100	—	—	45	2.2	**7.1**[C]	**8.4**[C]	**40**[C]	5.9	0.87	—	62	—	—	—	
Antimony	µg/L	—	—	6	—	—	45	<0.02	<0.02	<0.02	<0.02	—	—	—	—	—	—	—	
Arsenic	µg/L	—	5	10	—	—	45	0.14	0.31	0.34	1.2	0.15	0.022	—	—	—	—	—	
Barium	µg/L	—	—	1,000	—	—	45	0.44	1.1	1.1	2.3	0.25	0.037	—	—	—	—	—	
Beryllium	µg/L	—	—	—	—	—	45	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—	
Bismuth	µg/L	—	—	—	—	—	45	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—	
Boron	µg/L	29,000	1,500	5,000	—	—	45	1.9	2.9	3.0	4.8	0.66	0.098	—	—	—	—	—	
Cadmium	µg/L	0.11[k]	0.04[k]	5	—	—	45	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—	
Cesium	µg/L	—	—	—	—	—	45	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—	
Chromium	µg/L	—	1	50	—	—	45	<0.06	<0.06	0.035	0.15	0.02	0.003	—	—	—	—	—	
Chromium VI	µg/L	—	1	—	—	—	45	<1.0	<1.0	<1.0	<1.0	—	—	—	—	—	—	—	
Cobalt	µg/L	—	—	—	—	—	45	<0.01	0.015	0.016	0.053	0.0068	0.001	—	—	—	—	—	
Copper	µg/L	—	2[j]	1,000	—	—	45	0.24	0.58	0.59	0.76	0.077	0.011	—	—	—	—	—	
Iron	µg/L	—	300	300	—	—	45	4.8	13	19	267	38	5.7	—	—	—	—	—	
Lead	µg/L	—	1[j]	10	—	—	45	<0.01	<0.01	0.0087	0.032	0.0072	0.0011	—	—	—	—	—	
Lithium	µg/L	—	—	—	—	—	45	<0.5	1.2	1.1	1.3	0.3	0.045	—	—	—	—	—	
Manganese	µg/L	—	—	50	—	—	45	0.99	3.6	4.1	15	2.5	0.37	—	—	—	—	—	
Mercury	µg/L	—	0.026	1	—	—	45	<0.0005	<0.0005	0.00071	0.005	0.0014	0.0002	—	—	—	—	—	
Molybdenum	µg/L	—	73	—	223,000	19,000	45	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—	
Nickel	µg/L	—	25[j]	—	—	—	45	0.12	0.30	0.30	0.36	0.04	0.006	—	—	—	—	—	

Table E-2 Laboratory Water Quality Data from Lac du Sauvage during the Open-Water Period, 2013
Part E

Location		Guidelines					Summary Statistics												
Sample Name		Aquatic Life												% Above Guideline					
Sampling Season																			
Sample Date																			
Easting (NAD 83, 12W)																			
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO [c,d,e,f,g,h]	Long-Term SSWQO [c,d,e,f,g,h]
Total Metals (Continued)																			
Selenium	µg/L	—	1	10	—	—	45	<0.04	<0.04	<0.04	<0.04	—	—	—	—	—	—	—	
Silver	µg/L	—	0.1	—	—	—	45	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—	
Strontium	µg/L	—	—	—	—	—	45	4.8	5.3	5.3	5.7	0.17	0.025	—	—	—	—	—	
Thallium	µg/L	—	0.8	—	—	—	45	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—	
Tin	µg/L	—	—	—	—	—	45	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—	
Titanium	µg/L	—	—	—	—	—	45	<0.1	0.32	0.40	3.20	0.47	0.07	—	—	—	—	—	
Uranium	µg/L	33	15	20	—	—	45	0.016	0.022	0.022	0.026	0.0029	0.00043	—	—	—	—	—	
Vanadium	µg/L	—	—	—	300	30	45	<0.05	<0.05	0.029	0.15	0.019	0.0028	—	—	—	—	—	
Zinc	µg/L	—	30	5,000	—	—	45	<0.8	<0.8	0.87	2.9	0.65	0.097	—	—	—	—	—	
Dissolved Metals																			
Aluminum	µg/L	—	—	—	—	—	43	<0.3	3.3	3.2	7.3	1.3	0.2	—	—	—	—	—	
Antimony	µg/L	—	—	—	—	—	43	<0.02	<0.02	0.011	0.043	0.005	0.00077	—	—	—	—	—	
Arsenic	µg/L	—	—	—	—	—	43	0.26	0.31	0.32	0.59	0.059	0.0091	—	—	—	—	—	
Barium	µg/L	—	—	—	—	—	43	0.79	1.1	1	1.5	0.15	0.022	—	—	—	—	—	
Beryllium	µg/L	—	—	—	—	—	43	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—	
Bismuth	µg/L	—	—	—	—	—	43	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—	
Boron	µg/L	—	—	—	—	—	43	2.0	3.0	3.2	5.9	0.83	0.13	—	—	—	—	—	
Cadmium	µg/L	—	—	—	—	—	43	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—	
Cesium	µg/L	—	—	—	—	—	43	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—	
Chromium	µg/L	—	—	—	—	—	43	<0.06	<0.06	0.035	0.12	0.019	0.0029	—	—	—	—	—	
Cobalt	µg/L	—	—	—	—	—	43	<0.01	<0.01	0.0065	0.014	0.0027	0.00041	—	—	—	—	—	
Copper	µg/L	—	—	—	—	—	43	0.48	0.57	0.57	0.91	0.068	0.01	—	—	—	—	—	
Iron	µg/L	—	—	—	—	—	43	<1.0	3.7	4.0	8.8	1.9	0.3	—	—	—	—	—	
Lead	µg/L	—	—	—	—	—	43	<0.01	<0.01	0.0068	0.041	0.0066	0.001	—	—	—	—	—	
Lithium	µg/L	—	—	—	—	—	43	<0.5	1.2	1.1	1.4	0.33	0.05	—	—	—	—	—	
Manganese	µg/L	—	—	—	—	—	43	0.23	0.80	0.87	3.3	0.45	0.069	—	—	—	—	—	
Mercury	µg/L	—	—	—	—	—	45	<0.0005	<0.0005	0.00070	0.0050	0.0014	0.0002	—	—	—	—	—	
Molybdenum	µg/L	—	—	—	—	—	43	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—	
Nickel	µg/L	—	—	—	—	—	43	0.20	0.28	0.28	0.36	0.032	0.0049	—	—	—	—	—	
Selenium	µg/L	—	—	—	—	—	43	<0.04	<0.04	<0.04	<0.04	—	—	—	—	—	—	—	
Silver	µg/L	—	—	—	—	—	43	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—	
Strontium	µg/L	—	—	—	—	—	43	4.9	5.3	5.4	6.2	0.26	0.04	—	—	—	—	—	
Thallium	µg/L	—	—	—	—	—	43	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—	
Tin	µg/L	—	—	—	—	—	43	<0.05	<0.05	0.043	0.38	0.068	0.01	—	—	—	—	—	

Table E-2 Laboratory Water Quality Data from Lac du Sauvage during the Open-Water Period, 2013
Part E

Location		Guidelines					Summary Statistics											
		Aquatic Life												% Above Guideline				
Sample Name																		
Sampling Season																		
Sample Date																		
Easting (NAD 83, 12W)																		
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Dissolved Metals (Continued)																		
Titanium	µg/L	—	—	—	—	—	43	<0.1	<0.1	0.11	0.61	0.11	0.017	—	—	—	—	—
Uranium	µg/L	—	—	—	—	—	43	0.012	0.021	0.020	0.026	0.0033	0.0005	—	—	—	—	—
Vanadium	µg/L	—	—	—	—	—	43	<0.05	<0.05	0.026	0.055	0.0046	0.0007	—	—	—	—	—
Zinc	µg/L	—	—	—	—	—	43	<0.8	<0.8	0.86	2.8	0.58	0.088	—	—	—	—	—

Note:
Bolded concentrations are higher than relevant water quality guidelines.
C) = concentration higher than the relevant chronic aquatic life guideline or outside the recommended pH or DO concentration range.
D) = concentration higher than the relevant drinking water guideline or outside the recommended pH or DO concentration range.
Guideline exceedances by median concentrations are based on guidelines calculated using median values of hardness, pH, and temperature, and are not included in the percent exceedance calculations.
Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision after comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Measured concentrations equal to the guideline values were not identified as exceedances.
a) Source: CCME (Canadian Council of Ministers of the Environment). (1999, with updates to 2014). Canadian Environmental Quality Guidelines. Winnipeg, MB, Canada.
b) Source: Health Canada. (2012). Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.
c) Source: Elphick JRF, Bergh KD, Bailey HC. (2011). Chronic toxicity of chloride to freshwater species: effects of hardness and implications for water quality guidelines. Environ Toxicol Chem 30: 230-246.
d) Source: Rescan (Rescan Environmental Services Ltd.). (2012a). Ekati Diamond Mine: Site-Specific Water Quality Objective for Potassium. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.
e) Source: Rescan. (2012b). Ekati Diamond Mine: Site-specific Water Quality Objective for Sulphate. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.
f) Source: Rescan. (2012c). Ekati Diamond Mine: Site-Specific Water Quality Objective for Nitrate, (2012). Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.
g) Source: Rescan. (2012d). Ekati Diamond Mine: Site Specific Water Quality Objective for Molybdenum, (2011). Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.
h) Source: Rescan. (2012e). Ekati Diamond Mine: Site-specific Water Quality Objective for Vanadium. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.
i) Guidelines based on hardness of 4.7 mg $CaCO_3$/L.
j) Guidelines based on pH of 6.0 to 7.2, temperature of 4.4°C to 20.4°C, and water hardness of 3.6 to 7.4 mg/L.
k) Acute guideline applies to all waters of hardness below 5.3 mg $CaCO_3$/L; chronic guideline applies to all waters of hardness below 17 mg $CaCO_3$/L.
— = no guideline or data; CWQG = Canadian Drinking Water Quality Guidelines; DWQG = Drinking Water Quality Guidelines; SSWQO = Site-Specific Water Quality Objective; min = minimum, max = maximum; NAD = North American Datum; H+ = hydrogen ions; $CaCO_3$ = calcium carbonate; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % = percent; meq/L = milliequivalents per litre; pH = potential of hydrogen, provides measure of the acidity or alkalinity of a solution on a scale of 0 to 14; DO = dissolved oxygen; NTU = nephelometric turbidity units; mg N/L = milligrams of nitrogen per litre; mg P/L = milligrams of phosphorus per litre; µg/L = micrograms per litre; CFU/100 mL = coliform forming units per 100 millilitres; BTEX = benzene, toluene, ethylbenzene, xylene; < = less than.

Table E-3 Field Profile Data From Duchess Lake During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
Af-1 (WQ)	22-Jul-13	13.3	4.1	Surface	12.1	13.7	99.8	12
				0.5	12.2	13.4	98.5	12
				1	12.2	13.5	98.5	12
				2	12.2	13.5	99.1	12
				3	12.2	13.5	97.9	12
				4	12.2	13.4	98.2	12
				5	12.2	13.5	98.6	—
				6	12.2	13.4	97.8	—
				7	12.2	13.3	97.5	—
				8	12.2	13.4	97.8	—
				9	12.1	13.4	97.4	—
				10	11.9	13.2	96.0	—
				11	11.2	12.8	91.5	—
				12	11.0	12.7	90.3	—
				12.5	10.9	12.7	90.2	—
Af-1 (WQ)	8-Aug-13	13.8	6	Surface	16.8	10.5	106.8	11
				0.5	16.8	10.5	106.7	10
				1	16.7	10.6	107.2	10
				2	16.7	10.6	107.0	10
				3	16.5	10.6	106.4	10
				4	16.2	10.6	105.7	10
				5	15.8	10.7	105.8	10
				6	14.2	10.7	102.4	10
				7	13.4	10.4	99.8	10
				8	13.2	10.0	94.6	10
				9	13.1	9.8	92.3	10
				10	12.9	9.3	87.0	10
				11	12.7	9.0	85.0	10
				12	14.5	8.4	79.7	—
				13	—	—	—	—
Af-1 (WQ)	7-Sep-13	12.5	3.6	Surface	9.7	9.4	82.7	20
				0.5	9.7	9.2	81.0	20
				1	9.7	8.7	75.9	20
				2	9.6	7.9	69.5	20
				3	9.7	7.6	67.5	20
				4	9.7	6.7	59.5	20
				5	9.6	6.2	56.0	20
				6	9.6	5.5	50.3	20
				6.25	9.6	5.5	50.0	20
				7	9.6	5.2	48.2	20
				8	9.6	4.9	43.2	20
				9	9.6	4.7	41.0	20
				10	9.6	4.2	39.4	20
				11	9.6	4.0	34.9	20

Table E-3 Field Profile Data From Duchess Lake During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
Af-2 (WQ)	22-Jul-13	4.5	4	0.5	12.2	13.4	97.9	—
				1	12.2	13.4	97.8	—
				2	12.2	13.3	97.5	—
				3	12.2	13.2	96.1	—
				4	12.2	13.1	95.9	—
Af-2 (WQ)	8-Aug-13	4.4	4.4	Surface	16.7	10.6	106.9	10
				0.5	16.7	10.5	106.6	10
				1	16.7	10.5	106.7	10
				2	16.7	10.5	106.4	10
				3	16.6	10.6	106.9	10
				4	16.3	10.5	106.9	10
Af-2 (WQ)	8-Aug-13	4.4	4.4	Surface	16.7	10.6	106.9	10
				0.5	16.7	10.5	106.6	10
				1	16.7	10.5	106.7	10
				2	16.7	10.5	106.4	10
				3	16.6	10.6	106.9	10
				4	16.3	10.5	106.1	10
Af-4 (WQ)	22-Jul-13	2.9	2.9	0.025	12.9	10.6	100.3	13
				0.5	12.5	11.0	103.7	12
				1	12.9	10.9	104.0	12
				2	12.9	11.0	104.4	12
				2.5	12.9	11.1	104.7	12
Af-4 (WQ)	9-Aug-13	2.9	2.9	Surface	18.3	9.8	102.1	11
				0.5	18.3	9.7	101.7	11
				1	18.0	9.8	101.2	11
				2	17.9	9.8	101.2	11
Af-7 (WQ)	26-Jul-13	12.5	4.5	Surface	14.5	10.2	99.2	10
				0.5	14.5	10.3	99.3	10
				1	14.5	10.2	99.3	10
				2	14.5	10.2	99.3	10
				3	14.4	10.2	99.2	10
				4	14.5	10.2	99.4	10
				5	14.4	10.2	99.4	10
				6	14.4	10.2	99.1	10
				7	14.4	10.2	99.2	10
				8	14.3	10.3	98.8	10
				9	13.8	10.1	97.0	10
				10	12.2	9.9	92.3	10
				11	11.5	9.5	87.0	10

Table E-3 Field Profile Data From Duchess Lake During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
Af-7 (WQ)	8-Aug-13	10.6	4.75	Surface	17.3	10.5	107.5	10
				0.5	17.3	10.5	107.7	10
				1	17.1	10.5	107.4	10
				2	17.1	10.5	107.6	10
				3	15.0	10.8	105.3	10
				4	14.7	10.8	104.8	10
				5	14.2	10.7	102.5	10
				6	13.9	10.6	101.4	10
				7	13.5	10.2	97.0	10
				8	13.1	9.8	91.7	10
				9	13.0	9.5	88.8	10
				10	12.9	9.3	86.6	10
Af-7 (WQ)	9-Aug-13	10.6	4.75	Surface	17.3	10.5	107.5	10
				0.5	17.3	10.5	107.7	10
				1	17.1	10.5	107.4	10
				2	17.1	10.5	107.6	10
				3	15.0	10.8	105.3	10
				4	14.7	10.8	104.8	10
				5	14.2	10.7	102.5	10
				6	13.9	10.6	101.4	10
				7	13.5	10.2	97.0	10
				8	13.1	9.8	91.7	10
				9	13.0	9.5	88.8	10
				10	12.9	9.3	86.6	10
Af-7 (WQ)	7-Sep-13	12.5	4.6	Surface	9.6	9.6	99.6	20
				0.5	9.6	9.6	91.0	20
				1	9.6	9.6	82.0	20
				2	9.6	9.6	66.9	20
				3	9.6	9.6	57.6	20
				4	9.6	9.6	49.9	20
				5	9.6	9.6	45.8	20
				6	9.6	9.6	48.7	20
				6.5	9.6	9.6	35.1	20
				7	9.6	9.6	32.8	20
				8	9.6	9.6	29.3	20
				9	9.6	9.6	26.6	20
				10	9.5	9.5	25.6	20
				11	9.5	9.5	25.1	20

— = no data; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % Sat = percent saturation; µS/cm = microsiemens per centimetre; WQ = water quality.

Table E-4 Laboratory Water Quality Data From Duchess Lake During the Open-Water Period, 2013
Part A

Location		Guidelines					Duchess Lake Sampling Stations										
		Aquatic Life					Af-1			Af-2		Af-4		Af-7			
Sample Name							Af-1-MID	Af-1-MID	Af-1-MID	Af-2-MID	Af-2-MID	Af-4-MID	Af-4-MID	Af-7-MID	Af-7-TOP	Af-7-BOTTOM	Af-7-MID
Sampling Season							Late Spring	Summer	Fall	Late Spring	Summer	Late Spring	Summer	Late Spring	Summer	Summer	Fall
Sample Date							22-Jul-13	8-Aug-13	7-Sep-13	22-Jul-13	8-Aug-13	22-Jul-13	9-Aug-13	26-Jul-13	9-Aug-13	9-Aug-13	7-Sep-13
Easting (NAD 83, 12W)							542155	542155	542155	542074	542074	544360	544360	541367	541367	541367	541367
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7173731	7173731	7173731	7173542	7173542	7173181	7173181	7174902	7174902	7174902	7174902
Field Measured																	
Total depth	m	—	—	—	—	—	13.0	14.0	13.0	4.5	4.4	2.9	2.9	13.0	11.0	11.0	13.0
Sample depth	m	—	—	—	—	—	7.0	7.0	6.3	2.0	2.0	1.0	1.0	6.0	1.0	9.5	6.5
Secchi depth	m	—	—	—	—	—	4.1	6.0	3.6	4.0	4.4	2.9	2.9	4.5	4.8	4.8	4.6
Water temperature	°C	—	—	—	—	—	12.2	13.4	9.6	12.2	16.7	12.9	18.0	14.4	17.1	12.9	9.6
Specific conductivity	µS/cm	—	—	—	—	—	—	10	20	—	10	12	11	10	10	10	20
Dissolved oxygen	mg/L	—	6.5	—	—	—	13.3	10.4	—	13.3	10.5	10.9	9.8	10.2	10.5	9.4	—
Dissolved oxygen saturation	%	—	—	—	—	—	98	100	—	98	106	104	101	99	107	88	—
Conventional Parameters																	
Alkalinity, gran (as H+)	meq/L	—	—	—	—	—	<0.1	<0.1	0.13	<0.1	0.12	<0.1	0.11	<0.1	<0.1	<0.1	<0.1
Alkalinity, total (as $CaCO_3$)	mg/L	—	—	—	—	—	3.6	3.1	4.1	3.3	3.3	3.3	3.5	3.2	4.1	3.3	3.5
Conductance	µS/cm	—	—	—	—	—	12	12	12	12	13	12	13	12	15	14	12
Hardness	mg/L	—	—	—	—	—	3.7	3.7	3.9	3.7	3.7	4.1	3.9	4.0	3.7	3.7	4.1
pH	pH units	—	6.5 – 9.0	6.5 – 8.5	—	—	6.8	**6.2**[C, D]	6.6	**6.4**[C, D]	**6.3**[C, D]	**6.4**[C, D]	**6.3**[C, D]	**6.4**[C, D]	**6.4**[C, D]	**6.2**[C, D]	6.6
Total dissolved solids	mg/L	—	—	500	—	—	20	19	18	21	17	19	15	25	11	13	25
Total suspended solids	mg/L	—	—	—	—	—	6.0	<3.0	<3.0	3.0	<3.0	3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity	NTU	—	—	—	—	—	0.81	0.7	1.0	0.93	0.73	0.85	0.62	0.73	0.98	0.71	0.79
Major Ions																	
Bicarbonate	mg/L	—	—	—	—	—	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.1	<5.0	<5.0
Calcium	mg/L	—	—	—	—	—	0.69	0.66	0.7	0.68	0.67	0.72	0.67	0.73	0.64	0.66	0.74
Chloride	mg/L	640	120	250	—	64.5[i]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride	mg/L	—	0.12	1.5	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Magnesium	mg/L	—	—	—	—	—	0.49	0.5	0.52	0.49	0.5	0.55	0.53	0.52	0.5	0.5	0.55
Potassium	mg/L	—	—	—	112	41	0.47	0.45	0.44	0.47	0.42	0.46	0.44	0.49	0.43	0.42	0.46
Sodium	mg/L	—	—	200	—	—	0.54	0.53	0.61	0.52	0.58	0.62	0.62	0.58	0.59	0.59	0.64
Sulphate	mg/L	—	—	500	250[i]	22.7[i]	0.91	0.82	0.81	0.86	0.93	1.0	1.0	0.34	0.83	0.87	0.78
Nutrients																	
Total organic carbon	mg/L	—	—	—	—	—	3.2	4.1	4.0	3.3	4.2	2.9	3.9	3.8	4.1	3.9	4.1
Dissolved organic carbon	mg/L	—	—	—	—	—	3.7	4.0	4.2	4.1	4.2	3.5	4.0	4.2	4.3	4.0	4.1
Total nitrogen (calculated)	mg N/L	—	—	—	—	—	0.21	0.25	0.22	0.08	0.13	0.15	0.24	0.2	0.091	0.15	0.2
Total Kjeldahl Nitrogen	mg N/L	—	—	—	—	—	0.21	0.25	0.22	0.08	0.13	0.15	0.24	0.2	0.091	0.15	0.2
Total ammonia	mg N/L	—	2.7 – 139[i]	—	—	—	0.014	0.014	0.015	0.0088	0.0096	0.014	0.0067	0.015	0.013	0.009	0.017
Nitrate	mg N/L	124	2.9	10		0.57[i]	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Nitrite	mg N/L	—	0.06	1	—	—	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002

Table E-4 Laboratory Water Quality Data From Duchess Lake During the Open-Water Period, 2013
Part A

Location		Guidelines					Duchess Lake Sampling Stations										
		Aquatic Life					Af-1			Af-2		Af-4		Af-7			
Sample Name							Af-1-MID	Af-1-MID	Af-1-MID	Af-2-MID	Af-2-MID	Af-4-MID	Af-4-MID	Af-7-MID	Af-7-TOP	Af-7-BOTTOM	Af-7-MID
Sampling Season							Late Spring	Summer	Fall	Late Spring	Summer	Late Spring	Summer	Late Spring	Summer	Summer	Fall
Sample Date							22-Jul-13	8-Aug-13	7-Sep-13	22-Jul-13	8-Aug-13	22-Jul-13	9-Aug-13	26-Jul-13	9-Aug-13	9-Aug-13	7-Sep-13
Easting (NAD 83, 12W)							542155	542155	542155	542074	542074	544360	544360	541367	541367	541367	541367
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7173731	7173731	7173731	7173542	7173542	7173181	7173181	7174902	7174902	7174902	7174902
Nutrients (Continued)																	
Total phosphorus	mg P/L	—	—	—	—	—	0.0088	0.0099	0.011	0.009	0.0065	0.0069	0.0079	0.013	0.0075	0.0084	0.011
Total dissolved phosphorus	mg P/L	—	—	—	—	—	0.0036	0.0031	0.004	0.0033	0.0017	0.0029	0.0021	0.002	<0.001	0.0025	0.0041
Dissolved orthophosphate	mg/L	—	—	—	—	—	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silica, reactive	mg/L	—	—	—	—	—	0.16	0.17	0.15	0.16	0.15	0.12	0.14	0.16	0.19	0.21	0.15
Other Parameters																	
Benzene	µg/L	—	370	5	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	—	90	2.4	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	—	2	24	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene	µg/L	—	—	300	—	—	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71
Petroleum hydrocarbons – F1 (C6-C10)	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Petroleum hydrocarbons – F1 (C6-C10)-BTEX	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Petroleum hydrocarbons – F2 (C10-C16)	mg/L	—	—	—	—	—	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total recoverable hydrocarbons	mg/L	—	—	—	—	—	—	1.2	1.4	<1.0	<1.0	1.2	<1.0	<1.0	<1.0	<1.0	<1.0
Fecal coliform	CFU/100 mL	—	—	—	—	—	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Metals																	
Aluminum	µg/L	—	5 or 100[j]	100	—	—	17	**10**[C]	7.5	**17**[C]	**10**[C]	**27**[C]	**10**[C]	**13**[C]	**10**[C]	**9.8**[C]	7.2
Antimony	µg/L	—	—	6	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	µg/L	—	5	10	—	—	0.49	0.56	0.5	0.51	0.49	0.34	0.36	0.51	0.5	0.54	0.5
Barium	µg/L	—	—	1,000	—	—	2.1	2.1	1.8	2.1	1.8	1.7	1.7	2.0	1.8	1.9	1.9
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	29,000	1,500	5,000	—	—	3.0	3.1	2.6	2.5	2.7	1.8	2.8	5.1	2.9	4.1	2.2
Cadmium	µg/L	0.11[k]	0.04[k]	5	—	—	0.0063	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	—	1	50	—	—	<0.06	0.075	<0.06	0.077	<0.06	0.13	<0.06	<0.06	<0.06	<0.06	<0.06
Chromium VI	µg/L	—	1	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	µg/L	—	—	—	—	—	0.032	0.027	0.029	0.031	0.025	0.037	0.032	0.03	0.034	0.031	0.027
Copper	µg/L	—	2[j]	1,000	—	—	0.78	0.68	0.65	1.2	0.61	0.61	0.54	0.66	0.64	0.57	0.67
Iron	µg/L	—	300	300	—	—	61	41	37	61	33	43	38	55	39	41	36
Lead	µg/L	—	1[j]	10	—	—	0.022	<0.01	<0.01	0.016	<0.01	0.011	<0.01	0.017	<0.01	<0.01	0.011
Lithium	µg/L	—	—	—	—	—	0.96	<0.5	0.72	1.3	1.2	0.92	1.0	1.1	1.2	1.2	1.2
Manganese	µg/L	—	—	50	—	—	5.1	4.1	3.6	5.1	2.9	3.3	4.6	4.5	3.8	3.9	3.7
Mercury	µg/L	—	0.026	1	—	—	0.00065	<0.0005	0.00056	0.00062	<0.0005	0.00062	<0.0005	0.00053	<0.0005	<0.0005	0.005
Molybdenum	µg/L	—	73	—	223,000	19,000	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Table E-4 Laboratory Water Quality Data From Duchess Lake During the Open-Water Period, 2013
Part A

Location		Guidelines					Duchess Lake Sampling Stations										
		Aquatic Life					Af-1			Af-2		Af-4		Af-7			
Sample Name							Af-1-MID	Af-1-MID	Af-1-MID	Af-2-MID	Af-2-MID	Af-4-MID	Af-4-MID	Af-7-MID	Af-7-TOP	Af-7-BOTTOM	Af-7-MID
Sampling Season							Late Spring	Summer	Fall	Late Spring	Summer	Late Spring	Summer	Late Spring	Summer	Summer	Fall
Sample Date							22-Jul-13	8-Aug-13	7-Sep-13	22-Jul-13	8-Aug-13	22-Jul-13	9-Aug-13	26-Jul-13	9-Aug-13	9-Aug-13	7-Sep-13
Easting (NAD 83, 12W)							542155	542155	542155	542074	542074	544360	544360	541367	541367	541367	541367
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7173731	7173731	7173731	7173542	7173542	7173181	7173181	7174902	7174902	7174902	7174902
Total Metals (Continued)																	
Nickel	µg/L	—	25[i]	—	—	—	0.35	0.32	0.3	0.35	0.29	0.25	0.25	0.34	0.33	0.3	0.29
Selenium	µg/L	—	1	10	—	—	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	—	0.1	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	—	—	—	—	—	4.5	4.6	4.7	4.8	4.5	4.6	4.6	4.8	4.6	4.6	4.7
Thallium	µg/L	—	0.8	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	µg/L	—	—	—	—	—	0.81	0.33	0.45	0.78	0.61	1.0	<0.1	0.52	0.35	0.24	0.21
Uranium	µg/L	33	15	20	—	—	0.032	0.035	0.034	0.037	0.034	0.028	0.025	0.036	0.038	0.033	0.036
Vanadium	µg/L	—	—	—	300	30	0.065	<0.05	<0.05	0.075	<0.05	0.064	<0.05	0.056	<0.05	<0.05	0.05
Zinc	µg/L	—	30	5,000	—	—	<0.8	2.4	1.5	1.1	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	4.1
Dissolved Metals																	
Aluminum	µg/L	—	—	—	—	—	5.3	4.7	2.6	4.8	3.8	7.1	4.4	5.8	5.1	3.7	1.4
Antimony	µg/L	—	—	—	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	µg/L	—	—	—	—	—	0.46	0.53	0.46	0.45	0.47	0.31	0.37	0.42	0.47	0.51	0.44
Barium	µg/L	—	—	—	—	—	2.0	1.9	1.7	1.8	1.6	1.6	1.6	1.9	1.6	1.8	1.7
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	—	—	—	—	—	2.1	4.1	2.5	4.8	2.7	2.5	2.7	3.2	3.9	4.1	2.4
Cadmium	µg/L	—	—	—	—	—	<0.005	<0.005	0.0075	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	—	—	—	—	—	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Cobalt	µg/L	—	—	—	—	—	0.015	0.014	0.015	0.017	0.011	0.014	0.011	0.018	0.013	0.012	0.016
Copper	µg/L	—	—	—	—	—	0.67	0.63	0.66	1.1	0.58	0.55	0.52	0.61	0.62	0.54	0.62
Iron	µg/L	—	—	—	—	—	19	11	12	13	8.8	12	9.5	17	8.4	8.3	9.1
Lead	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	—	—	—	—	—	1.1	0.54	<0.5	1.2	1.3	1.3	1.2	1.3	1.3	1.2	1.3
Manganese	µg/L	—	—	—	—	—	0.99	0.51	1.0	0.64	0.43	1.1	0.88	1.1	0.45	0.42	1.0
Mercury	µg/L	—	—	—	—	—	0.0006	<0.0005	<0.0005	0.00054	<0.0005	<0.0005	0.00055	0.00053	<0.0005	<0.0005	0.005
Molybdenum	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	—	—	—	—	—	0.33	0.27	0.29	0.3	0.26	0.22	0.22	0.32	0.29	0.24	0.28
Selenium	µg/L	—	—	—	—	—	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	—	—	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	—	—	—	—	—	4.6	4.6	4.6	4.7	4.5	5.1	4.7	4.9	4.7	4.6	4.8
Thallium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	µg/L	—	—	—	—	—	0.065	0.26	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	<0.05	<0.05	<0.05
Titanium	µg/L	—	—	—	—	—	0.18	<0.1	0.17	0.18	<0.1	0.19	<0.1	0.72	<0.1	<0.1	0.14

Table E-4 Laboratory Water Quality Data From Duchess Lake During the Open-Water Period, 2013
Part A

Location		Guidelines					Duchess Lake Sampling Stations										
		Aquatic Life					Af-1			Af-2		Af-4		Af-7			
Sample Name							Af-1-MID	Af-1-MID	Af-1-MID	Af-2-MID	Af-2-MID	Af-4-MID	Af-4-MID	Af-7-MID	Af-7-TOP	Af-7-BOTTOM	Af-7-MID
Sampling Season							Late Spring	Summer	Fall	Late Spring	Summer	Late Spring	Summer	Late Spring	Summer	Summer	Fall
Sample Date							22-Jul-13	8-Aug-13	7-Sep-13	22-Jul-13	8-Aug-13	22-Jul-13	9-Aug-13	26-Jul-13	9-Aug-13	9-Aug-13	7-Sep-13
Easting (NAD 83, 12W)							542155	542155	542155	542074	542074	544360	544360	541367	541367	541367	541367
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7173731	7173731	7173731	7173542	7173542	7173181	7173181	7174902	7174902	7174902	7174902
Dissolved Metals (Continued)																	
Uranium	µg/L	—	—	—	—	—	0.029	0.031	0.032	0.032	0.032	0.023	0.024	0.033	0.034	0.028	0.031
Vanadium	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	—	—	—	—	—	<0.8	1.5	2.5	<0.8	<0.8	0.91	0.93	1.4	<0.8	<0.8	<0.8

Note:

Bolded concentrations are higher than relevant water quality guidelines.

C) = concentration higher than the relevant chronic aquatic life guideline or outside the recommended pH or DO concentration range.

D) = concentration higher than the relevant drinking water guideline or outside the recommended pH or DO concentration range.

Guideline exceedances by median concentrations are based on guidelines calculated using median values of hardness, pH, and temperature, and are not included in the percent exceedance calculations.

Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision after comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Measured concentrations equal to the guideline values were not identified as exceedances.

a) Source: CCME (Canadian Council of Ministers of the Environment). (1999, with updates to 2014). Canadian Environmental Quality Guidelines. Winnipeg, MB, Canada.

b) Source: Health Canada. (2012). Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.

c) See Part B.

d) See Part B.

e) See Part B.

f) See Part B.

g) See Part B.

h) See Part B.

i) Guidelines based on hardness of 4.7 mg CaCO3/L.

j) Guidelines based on pH of 6.0 to 7.2, temperature of 4.4°C to 20.4°C, and water hardness of 3.6 to 7.4 mg/L.

k) Acute guideline applies to all waters of hardness below 5.3 mg $CaCO_3$/L; chronic guideline applies to all waters of hardness below 17 mg $CaCO_3$/L.

— = no guideline or data; CWQG = Canadian Drinking Water Quality Guidelines; DWQG = Drinking Water Quality Guidelines; SSWQO = Site-Specific Water Quality Objective; NAD = North American Datum; H+ = hydrogen ions; $CaCO_3$ = calcium carbonate; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % = percent; meq/L = milliequivalents per litre; pH = potential of hydrogen, provides measure of the acidity or alkalinity of a solution on a scale of 0 to 14; DO = dissolved oxygen; NTU = nephelometric turbidity units; mg N/L = milligrams of nitrogen per litre; mg P/L = milligrams of phosphorus per litre; µg/L = micrograms per litre; CFU/100 mL = coliform forming units per 100 millilitres; BTEX = benzene, toluene, ethylbenzene, xylene; < = less than.

Table E-4 Laboratory Water Quality Data From Duchess Lake During the Open-Water Period, 2013
Part B

Location		Guidelines					Summary Statistics											
Sample Name		Aquatic Life												% Above Guideline				
Sampling Season																		
Sample Date																		
Easting (NAD 83, 12W)																		
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Field Measured																		
Total depth	m	—	—	—	—	—	11	2.9	11	9.3	14	4.6	1.4	—	—	—	—	—
Sample depth	m	—	—	—	—	—	11	1.0	6.0	4.5	9.5	3.1	0.94	—	—	—	—	—
Secchi depth	m	—	—	—	—	—	11	2.9	4.4	4.2	6.0	0.9	0.27	—	—	—	—	—
Water temperature	°C	—	—	—	—	—	11	9.6	13	14	18	2.8	0.85	—	—	—	—	—
Specific conductivity	µS/cm	—	—	—	—	—	9	10	10	13	20	4.3	1.4	—	—	—	—	—
Dissolved oxygen	mg/L	—	6.5	—	—	—	9	9.4	11	11	13	1.4	0.47	—	8	—	—	—
Dissolved oxygen saturation	%	—	—	—	—	—	9	88	100	100	107	5.6	1.9	—	—	—	—	—
Conventional Parameters																		
Alkalinity, gran (as H+)	meq/L	—	—	—	—	—	11	<0.01	<0.01	0.036	0.13	0.054	0.016	—	—	—	—	—
Alkalinity, total (as $CaCO_3$)	mg/L	—	—	—	—	—	11	3.1	3.3	3.5	4.1	0.34	0.1	—	—	—	—	—
Conductance	µS/cm	—	—	—	—	—	11	12	12	13	15	1.0	0.31	—	—	—	—	—
Hardness	mg/L	—	—	—	—	—	11	3.7	3.7	3.8	4.1	0.17	0.051	—	—	—	—	—
pH	pH units	—	6.5 – 9.0	6.5 – 8.5	—	—	11	**6.2**[C, D]	**6.4**[C, D]	**6.4**[C, D]	6.8	0.18	0.055	—	73	73	—	—
Total dissolved solids	mg/L	—	—	500	—	—	11	11	19	18	25	4.4	1.3	—	—	—	—	—
Total suspended solids	mg/L	—	—	—	—	—	11	<3.0	<3.0	2.2	6.0	1.4	0.42	—	—	—	—	—
Turbidity	NTU	—	—	—	—	—	11	0.62	0.79	0.8	1.0	0.12	0.037	—	—	—	—	—
Major Ions																		
Bicarbonate	mg/L	—	—	—	—	—	11	<5.0	<5.0	2.7	5.1	0.78	0.24	—	—	—	—	—
Calcium	mg/L	—	—	—	—	—	11	0.64	0.68	0.69	0.74	0.032	0.0096	—	—	—	—	—
Chloride	mg/L	640	120	250	—	64.5[i]	11	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Fluoride	mg/L	—	0.12	1.5	—	—	11	<0.02	<0.02	<0.02	<0.02	—	—	—	—	—	—	—
Magnesium	mg/L	—	—	—	—	—	11	0.49	0.5	0.51	0.55	0.022	0.0066	—	—	—	—	—
Potassium	mg/L	—	—	—	112	41	11	0.42	0.45	0.45	0.49	0.022	0.0067	—	—	—	—	—
Sodium	mg/L	—	—	200	—	—	11	0.52	0.59	0.58	0.64	0.039	0.012	—	—	—	—	—
Sulphate	mg/L	—	—	500	250[i]	22.7[i]	11	0.34	0.86	0.83	1.0	0.18	0.054	—	—	—	—	—
Nutrients																		
Total organic carbon	mg/L	—	—	—	—	—	11	2.9	3.9	3.8	4.2	0.44	0.13	—	—	—	—	—
Dissolved organic carbon	mg/L	—	—	—	—	—	11	3.5	4.1	4.0	4.3	0.24	0.071	—	—	—	—	—
Total nitrogen (calculated)	mg N/L	—	—	—	—	—	11	0.08	0.2	0.17	0.25	0.058	0.018	—	—	—	—	—
Total Kjeldahl Nitrogen	mg N/L	—	—	—	—	—	11	0.08	0.2	0.17	0.25	0.058	0.018	—	—	—	—	—
Total ammonia	mg N/L	—	2.7 – 139[i]	—	—	—	11	0.0067	0.014	0.012	0.017	0.0033	0.00099	—	—	—	—	—
Nitrate	mg N/L	124	2.9	10	—	0.57[i]	11	<0.006	<0.006	<0.006	<0.006	—	—	—	—	—	—	—
Nitrite	mg N/L	—	0.06	1	—	—	11	<0.002	<0.002	<0.002	<0.002	—	—	—	—	—	—	—

Table E-4 Laboratory Water Quality Data From Duchess Lake During the Open-Water Period, 2013
Part B

Location		Guidelines					Summary Statistics											
Sample Name		Aquatic Life												% Above Guideline				
Sampling Season																		
Sample Date																		
Easting (NAD 83, 12W)																		
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Nutrients (Continued)																		
Total phosphorus	mg P/L	—	—	—	—	—	11	0.0065	0.0088	0.0091	0.013	0.002	0.0006	—	—	—	—	—
Total dissolved phosphorus	mg P/L	—	—	—	—	—	11	<0.001	0.0029	0.0027	0.0041	0.0011	0.00033	—	—	—	—	—
Dissolved orthophosphate	mg/L	—	—	—	—	—	11	<0.001	<0.001	<0.001	<0.001	—	—	—	—	—	—	—
Silica, reactive	mg/L	—	—	—	—	—	11	0.12	0.16	0.16	0.21	0.024	0.0073	—	—	—	—	—
Other Parameters																		
Benzene	µg/L	—	370	5	—	—	11	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Ethylbenzene	µg/L	—	90	2.4	—	—	11	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Toluene	µg/L	—	2	24	—	—	11	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Xylene	µg/L	—	—	300	—	—	11	<0.71	<0.71	<0.71	<0.71	—	—	—	—	—	—	—
Petroleum hydrocarbons – F1 (C6-C10)	mg/L	—	—	—	—	—	11	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Petroleum hydrocarbons – F1 (C6-C10)-BTEX	mg/L	—	—	—	—	—	11	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Petroleum hydrocarbons – F2 (C10-C16)	mg/L	—	—	—	—	—	11	<0.25	<0.25	<0.25	0.13	0	0	—	—	—	—	—
Total recoverable hydrocarbons	mg/L	—	—	—	—	—	10	<0.1	<0.1	0.73	1.4	0.37	0.12	—	—	—	—	—
Fecal coliform	CFU/100 mL	—	—	—	—	—	11	<0.1	<0.1	0.55	1.0	0.15	0.045	—	—	—	—	—
Total Metals																		
Aluminum	µg/L	—	5 or 100[j]	100	—	—	11	7.2	**10[C]**	**13[C]**	**27[C]**	5.8	1.7	—	73	—	—	—
Antimony	µg/L	—	—	6	—	—	11	<0.02	<0.02	<0.02	<0.02	—	—	—	—	—	—	—
Arsenic	µg/L	—	5	10	—	—	11	0.34	0.5	0.48	0.56	0.069	0.021	—	—	—	—	—
Barium	µg/L	—	—	1,000	—	—	11	1.7	1.9	1.9	2.1	0.15	0.047	—	—	—	—	—
Beryllium	µg/L	—	—	—	—	—	11	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Bismuth	µg/L	—	—	—	—	—	11	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Boron	µg/L	29,000	1,500	5,000	—	—	11	1.8	2.8	3.0	5.1	0.91	0.27	—	—	—	—	—
Cadmium	µg/L	0.11[k]	0.04[k]	5	—	—	11	<0.005	<0.005	0.0028	0.0063	0.0011	0.00035	—	—	—	—	—
Cesium	µg/L	—	—	—	—	—	11	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Chromium	µg/L	—	1	50	—	—	11	<0.06	<0.06	0.047	0.13	0.033	0.0099	—	—	—	—	—
Chromium VI	µg/L	—	1	—	—	—	11	<1.0	<1.0	<1.0	<1.0	—	—	—	—	—	—	—
Cobalt	µg/L	—	—	—	—	—	11	0.025	0.031	0.03	0.037	0.0034	0.001	—	—	—	—	—
Copper	µg/L	—	2[j]	1,000	—	—	11	0.54	0.65	0.69	1.2	0.18	0.054	—	—	—	—	—
Iron	µg/L	—	300	300	—	—	11	33	41	44	61	10	3.0	—	—	—	—	—
Lead	µg/L	—	1[j]	10	—	—	11	<0.01	<0.01	0.0097	0.022	0.0062	0.0019	—	—	—	—	—
Lithium	µg/L	—	—	—	—	—	11	0.25	1.1	1.0	1.3	0.3	0.091	—	—	—	—	—
Manganese	µg/L	—	—	50	—	—	11	2.9	3.9	4.1	5.1	0.71	0.21	—	—	—	—	—
Mercury	µg/L	—	0.026	1	—	—	11	<0.0005	0.00053	0.00084	0.005	0.0014	0.00042	—	—	—	—	—
Molybdenum	µg/L	—	73	—	223,000	19,000	11	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—

Table E-4 Laboratory Water Quality Data From Duchess Lake During the Open-Water Period, 2013
Part B

Location		Guidelines					Summary Statistics											
Sample Name		Aquatic Life												% Above Guideline				
Sampling Season																		
Sample Date																		
Easting (NAD 83, 12W)																		
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Total Metals (Continued)																		
Nickel	µg/L	—	25[i]	—	—	—	11	0.25	0.3	0.31	0.35	0.036	0.011	—	—	—	—	—
Selenium	µg/L	—	1	10	—	—	11	<0.04	<0.04	<0.04	<0.04	—	—	—	—	—	—	—
Silver	µg/L	—	0.1	—	—	—	11	0.0025	0.0025	0.0025	0.0025	4.5E-19	1.4E-19	—	—	—	—	—
Strontium	µg/L	—	—	—	—	—	11	4.5	4.6	4.6	4.8	0.1	0.031	—	—	—	—	—
Thallium	µg/L	—	0.8	—	—	—	11	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Tin	µg/L	—	—	—	—	—	11	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—
Titanium	µg/L	—	—	—	—	—	11	<0.1	0.45	0.49	1.0	0.29	0.088	—	—	—	—	—
Uranium	µg/L	33	15	20	—	—	11	0.025	0.034	0.033	0.038	0.0039	0.0012	—	—	—	—	—
Vanadium	µg/L	—	—	—	300	30	11	<0.05	<0.05	0.042	0.075	0.02	0.0061	—	—	—	—	—
Zinc	µg/L	—	30	5,000	—	—	11	<0.8	<0.8	1.1	4.1	1.2	0.36	—	—	—	—	—
Dissolved Metals																		
Aluminum	µg/L	—	—	—	—	—	11	1.4	4.7	4.4	7.1	1.5	0.47	—	—	—	—	—
Antimony	µg/L	—	—	—	—	—	11	<0.02	<0.02	0.010	<0.02	1.8E-18	5.5E-19	—	—	—	—	—
Arsenic	µg/L	—	—	—	—	—	11	0.31	0.46	0.44	0.53	0.061	0.019	—	—	—	—	—
Barium	µg/L	—	—	—	—	—	11	1.6	1.7	1.7	2.0	0.14	0.043	—	—	—	—	—
Beryllium	µg/L	—	—	—	—	—	11	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Bismuth	µg/L	—	—	—	—	—	11	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Boron	µg/L	—	—	—	—	—	11	2.1	2.7	3.2	4.8	0.89	0.27	—	—	—	—	—
Cadmium	µg/L	—	—	—	—	—	11	<0.005	<0.005	0.0029	0.007	0.0014	0.00041	—	—	—	—	—
Cesium	µg/L	—	—	—	—	—	11	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Chromium	µg/L	—	—	—	—	—	11	<0.06	<0.06	<0.06	<0.06	—	—	—	—	—	—	—
Cobalt	µg/L	—	—	—	—	—	11	0.011	0.014	0.014	0.018	0.0023	0.0007	—	—	—	—	—
Copper	µg/L	—	—	—	—	—	11	0.52	0.62	0.65	1.1	0.16	0.048	—	—	—	—	—
Iron	µg/L	—	—	—	—	—	11	8.3	11	12	19	3.6	1.1	—	—	—	—	—
Lead	µg/L	—	—	—	—	—	11	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Lithium	µg/L	—	—	—	—	—	11	<0.5	1.2	1.1	1.3	0.36	0.11	—	—	—	—	—
Manganese	µg/L	—	—	—	—	—	11	0.42	0.88	0.77	1.1	0.28	0.086	—	—	—	—	—
Mercury	µg/L	—	—	—	—	—	11	<0.0005	0.00025	0.00079	0.005	0.0014	0.00042	—	—	—	—	—
Molybdenum	µg/L	—	—	—	—	—	11	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—
Nickel	µg/L	—	—	—	—	—	11	0.22	0.28	0.27	0.33	0.037	0.011	—	—	—	—	—
Selenium	µg/L	—	—	—	—	—	11	<0.04	<0.04	<0.04	<0.04	—	—	—	—	—	—	—
Silver	µg/L	—	—	—	—	—	11	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—
Strontium	µg/L	—	—	—	—	—	11	4.5	4.7	4.7	5.1	0.17	0.051	—	—	—	—	—
Thallium	µg/L	—	—	—	—	—	11	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Tin	µg/L	—	—	—	—	—	11	<0.05	<0.05	0.057	0.26	0.072	0.022	—	—	—	—	—
Titanium	µg/L	—	—	—	—	—	11	<0.1	0.14	0.17	0.72	0.19	0.058	—	—	—	—	—

Table E-4 Laboratory Water Quality Data From Duchess Lake During the Open-Water Period, 2013
Part B

Location		Guidelines					Summary Statistics											
Sample Name		Aquatic Life												% Above Guideline				
Sampling Season																		
Sample Date																		
Easting (NAD 83, 12W)																		
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Dissolved Metals (Continued)																		
Uranium	µg/L	—	—	—	—	—	11	0.023	0.031	0.03	0.034	0.0036	0.0011	—	—	—	—	—
Vanadium	µg/L	—	—	—	—	—	11	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—
Zinc	µg/L	—	—	—	—	—	11	<0.8	<0.8	0.88	2.5	0.68	0.21	—	—	—	—	—

Note:

Bolded concentrations are higher than relevant water quality guidelines.

C) = concentration higher than the relevant chronic aquatic life guideline or outside the recommended pH or DO concentration range.

D) = concentration higher than the relevant drinking water guideline or outside the recommended pH or DO concentration range.

Guideline exceedances by median concentrations are based on guidelines calculated using median values of hardness, pH, and temperature, and are not included in the percent exceedance calculations.

Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision after comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Measured concentrations equal to the guideline values were not identified as exceedances.

a) CCME (Canadian Council of Ministers of the Environment). (1999, with updates to 2014). Canadian Environmental Quality Guidelines. Winnipeg, MB, Canada.

b) Health Canada. (2012). Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.

c) Elphick JRF, Bergh KD, Bailey HC. (2011). Chronic toxicity of chloride to freshwater species: effects of hardness and implications for water quality guidelines. Environ Toxicol Chem 30: 230-246.

d) Rescan (Rescan Environmental Services Ltd.). (2012a). Ekati Diamond Mine: Site-Specific Water Quality Objective for Potassium. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

e) Rescan. (2012b). Ekati Diamond Mine: Site-specific Water Quality Objective for Sulphate. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

f) Rescan. (2012c). Ekati Diamond Mine: Site-Specific Water Quality Objective for Nitrate, (2012). Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

g) Rescan. (2012d). Ekati Diamond Mine: Site Specific Water Quality Objective for Molybdenum, (2011). Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

h) Rescan. (2012e). Ekati Diamond Mine: Site-specific Water Quality Objective for Vanadium. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

i) Guidelines based on hardness of 4.7 mg $CaCO_3$/L.

j) Guidelines based on pH of 6.0 to 7.2, temperature of 4.4°C to 20.4°C, and water hardness of 3.6 to 7.4 mg/L.

k) Acute guideline applies to all waters of hardness below 5.3 mg $CaCO_3$/L; chronic guideline applies to all waters of hardness below 17 mg $CaCO_3$/L.

— = no guideline or data; CWQG = Canadian Drinking Water Quality Guidelines; DWQG = Drinking Water Quality Guidelines; SSWQO = Site-Specific Water Quality Objective; min = minimum, max = maximum; NAD = North American Datum; H+ = hydrogen ions; $CaCO_3$ = calcium carbonate; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % = percent; meq/L = milliequivalents per litre; pH = potential of hydrogen, provides measure of the acidity or alkalinity of a solution on a scale of 0 to 14; DO = dissolved oxygen; NTU = nephelometric turbidity units; mg N/L = milligrams of nitrogen per litre; mg P/L = milligrams of phosphorus per litre; µg/L = micrograms per litre; CFU/100 mL = coliform forming units per 100 millilitres; BTEX = benzene, toluene, ethylbenzene, xylene; < = less than.

Table E-5 Field Profile Data From Lake Af1 During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
Af-10 (WQ)	26-Jul-13	8.4	2.6	Surface	15.2	10.3	101.7	10
				0.5	15.2	10.4	102.5	10
				1	15.2	10.4	101.7	10
				2	14.9	10.5	102.9	10
				3	14.8	10.6	103.5	10
				4	14.8	10.7	104.2	10
				5	14.8	10.6	103.1	10
				6	14.8	10.5	102.4	10
				7	14.7	10.4	101.2	10
				8	14.6	10.2	100.1	10
Af-10 (WQ)	17-Aug-13	8.5	1.8	Surface	17.7	9.8	99.5	10
				0.5	17.7	9.8	100.4	10
				1	17.7	9.8	101.5	10
				2	17.7	9.8	100.2	10
				3	17.7	9.8	100.4	10
				4	17.6	9.7	101.0	10
				5	17.6	9.7	100.5	10
				6	13.4	6.3	60.1	11
				7	12.7	3.6	38.3	11
				8	12.2	1.1	6.0	13
Af-10 (WQ)	12-Sep-13	8.2	2	Surface	7.0	11.2	92.1	9
				0.5	7.0	11.2	92.0	8
				1	7.0	11.2	91.8	8
				2	7.0	11.2	91.9	8
				3	7.0	11.2	91.8	8
				4	6.9	11.2	91.5	9
				5	6.9	11.1	91.1	8
				6	7.0	11.1	90.9	9
				7	7.0	11.1	90.5	8
				8	7.0	11.0	90.2	8

m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % Sat = percent saturation; µS/cm = microsiemens per centimetre; WQ = water quality.

Table E-6 Laboratory Water Quality Data From Lake Af1 During the Open-Water Period, 2013

Location		Guidelines					Lake Af1 Sampling Stations				Summary Statistics												
		Aquatic Life					Af-10											% Above Guideline				
Sample Name							Af-10-MID	Af-10-TOP	Af-10-BOTTOM	Af-10-MID													
Sampling Season							Late Spring	Summer	Summer	Fall													
Sample Date							26-Jul-13	17-Aug-13	17-Aug-13	12-Sep-13													
Easting (NAD 83, 12W)							538299	538299	538299	538299													
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7176361	7176361	7176361	7176361	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Field Measured																							
Total depth	m	—	—	—	—	—	8.4	8.5	8.5	8.2	4	8.2	8.5	8.4	8.5	0.14	0.071	—	—	—	—	—	
Sample depth	m	—	—	—	—	—	4.0	1.0	7.5	4.0	4	1.0	4.0	4.1	7.5	2.7	1.3	—	—	—	—	—	
Secchi depth	m	—	—	—	—	—	2.6	1.8	1.8	2.0	4	1.8	1.9	2.1	2.6	0.38	0.19	—	—	—	—	—	
Water temperature	°C	—	—	—	—	—	14.8	17.7	12.4	6.9	4	6.9	14	13	18	4.6	2.3	—	—	—	—	—	
Specific conductivity	µS/cm	—	—	—	—	—	10	10	12	8.5	4	8.5	10	10	12	1.4	0.72	—	—	—	—	—	
Dissolved oxygen	mg/L	—	6.5	—	—	—	10.7	9.8	**2.4**[C]	11.2	4	**2.4**[C]	10	8.5	11	4.1	2.1	—	25	—	—	—	
Dissolved oxygen saturation	%	—	—	—	—	—	104	102	22	92	4	22	97	80	104	39	20	—	—	—	—	—	
Conventional Parameters																							
Alkalinity, gran (as H+)	meq/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	4	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—	
Alkalinity, total (as $CaCO_3$)	mg/L	—	—	—	—	—	3.1	3.1	3.5	3.0	4	3.0	3.1	3.2	3.5	0.22	0.11	—	—	—	—	—	
Conductance	µS/cm	—	—	—	—	—	12	12	13	11	4	11	12	12	13	0.82	0.41	—	—	—	—	—	
Hardness	mg/L	—	—	—	—	—	3.8	3.8	3.8	3.7	4	3.7	3.8	3.8	3.8	0.05	0.025	—	—	—	—	—	
pH	pH units	—	6.5 – 9.0	6.5 – 8.5	—	—	**6.3**[C, D]	**6.4**[C, D]	**6.0**[C, D]	**6.3**[C, D]	4	**6.0**[C, D]	**6.3**[C, D]	**6.3**[C, D]	6.4	0.17	0.087	—	100	100	—	—	
Total dissolved solids	mg/L	—	—	500	—	—	26	18	12	11	4	11	15	17	26	6.9	3.4	—	—	—	—	—	
Total suspended solids	mg/L	—	—	—	—	—	3.0	4.0	<3.0	<3.0	4	<3.0	2.3	2.5	4.0	1.2	0.61	—	—	—	—	—	
Turbidity	NTU	—	—	—	—	—	1.5	2.0	1.3	2.7	4	1.3	1.8	1.9	2.7	0.62	0.31	—	—	—	—	—	
Major Ions																							
Bicarbonate	mg/L	—	—	—	—	—	<5.0	<5.0	<5.0	<5.0	4	<5.0	<5.0	<5.0	<5.0	—	—	—	—	—	—	—	
Calcium	mg/L	—	—	—	—	—	0.68	0.67	0.68	0.65	4	0.65	0.68	0.67	0.68	0.014	0.0071	—	—	—	—	—	
Chloride	mg/L	640	120	250	—	64.5[i]	<0.5	<0.5	<0.5	<0.5	4	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—	
Fluoride	mg/L	—	0.12	1.5	—	—	<0.02	<0.02	<0.02	<0.02	4	<0.02	<0.02	<0.02	<0.02	—	—	—	—	—	—	—	
Magnesium	mg/L	—	—	—	—	—	0.52	0.52	0.52	0.51	4	0.51	0.52	0.52	0.52	0.005	0.0025	—	—	—	—	—	
Potassium	mg/L	—	—	—	112	41	0.47	0.43	0.44	0.43	4	0.43	0.44	0.44	0.47	0.019	0.0095	—	—	—	—	—	
Sodium	mg/L	—	—	200	—	—	0.61	0.94	0.83	0.58	4	0.58	0.72	0.74	0.94	0.17	0.086	—	—	—	—	—	
Sulphate	mg/L	—	—	500	250[i]	22.7[i]	0.98	0.85	0.92	1.0	4	0.85	0.95	0.94	1.0	0.068	0.034	—	—	—	—	—	
Nutrients																							
Total organic carbon	mg/L	—	—	—	—	—	4.2	6.3	4.8	5.5	4	4.2	5.2	5.2	6.3	0.91	0.45	—	—	—	—	—	
Dissolved organic carbon	mg/L	—	—	—	—	—	4.9	5.8	4.6	5.4	4	4.6	5.2	5.2	5.8	0.53	0.27	—	—	—	—	—	
Total nitrogen (calculated)	mg N/L	—	—	—	—	—	0.32	0.48	0.31	0.25	4	0.25	0.32	0.34	0.48	0.098	0.049	—	—	—	—	—	
Total Kjeldahl Nitrogen	mg N/L	—	—	—	—	—	0.32	0.48	0.31	0.25	4	0.25	0.32	0.34	0.48	0.098	0.049	—	—	—	—	—	
Total ammonia	mg N/L	—	2.7 – 139[j]	—	—	—	0.013	0.0077	0.0078	<0.005	4	<0.005	0.0078	0.0078	0.013	0.0043	0.0021	—	—	—	—	—	

Table E-6 Laboratory Water Quality Data From Lake Af1 During the Open-Water Period, 2013

Location		Guidelines					Lake Af1 Sampling Stations				Summary Statistics												
		Aquatic Life					Af-10											% Above Guideline				
Sample Name							Af-10-MID	Af-10-TOP	Af-10-BOTTOM	Af-10-MID													
Sampling Season							Late Spring	Summer	Summer	Fall													
Sample Date							26-Jul-13	17-Aug-13	17-Aug-13	12-Sep-13													
Easting (NAD 83, 12W)							538299	538299	538299	538299													
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7176361	7176361	7176361	7176361	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Nutrients (Continued)																							
Nitrate	mg N/L	124	2.9	10	—	0.57[i]	<0.006	<0.006	<0.006	<0.006	4	<0.006	<0.006	<0.006	<0.006	—	—	—	—	—	—	—	
Nitrite	mg N/L	—	0.06	1	—	—	<0.002	<0.002	<0.002	<0.002	4	<0.002	<0.002	<0.002	<0.002	—	—	—	—	—	—	—	
Total phosphorus	mg P/L	—	—	—	—	—	0.016	0.024	0.021	0.019	4	0.016	0.02	0.02	0.024	0.0034	0.0017	—	—	—	—	—	
Total dissolved phosphorus	mg P/L	—	—	—	—	—	0.0028	0.0027	0.0017	0.0048	4	0.0017	0.0028	0.003	0.0048	0.0013	0.00065	—	—	—	—	—	
Dissolved orthophosphate	mg/L	—	—	—	—	—	<0.001	<0.001	<0.001	<0.001	4	<0.001	<0.001	<0.001	<0.001	—	—	—	—	—	—	—	
Silica, reactive	mg/L	—	—	—	—	—	0.21	0.12	0.31	0.17	4	0.12	0.19	0.2	0.31	0.081	0.04	—	—	—	—	—	
Other Parameters																							
Benzene	µg/L	—	370	5	—	—	<0.5	<0.5	<0.5	<0.5	4	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—	
Ethylbenzene	µg/L	—	90	2.4	—	—	<0.5	<0.5	<0.5	<0.5	4	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—	
Toluene	µg/L	—	2	24	—	—	<0.5	<0.5	<0.5	<0.5	4	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—	
Xylene	µg/L	—	—	300	—	—	<0.71	<0.71	<0.71	<0.71	4	<0.71	<0.71	<0.71	<0.71	—	—	—	—	—	—	—	
Petroleum hydrocarbons - F1 (C6-C10)	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	4	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—	
Petroleum hydrocarbons - F1 (C6-C10)-BTEX	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	4	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—	
Petroleum hydrocarbons - F2 (C10-C16)	mg/L	—	—	—	—	—	<0.25	<0.25	<0.25	<0.25	4	<0.25	<0.25	<0.25	<0.25	—	—	—	—	—	—	—	
Total recoverable hydrocarbons	mg/L	—	—	—	—	—	—	<1.0	<1.0	<1.0	3	<1.0	<1.0	<1.0	<1.0	—	—	—	—	—	—	—	
Fecal coliform	CFU/ 100 mL	—	—	—	—	—	<1.0	<1.0	<1.0	<1.0	4	<1.0	<1.0	<1.0	<1.0	—	—	—	—	—	—	—	
Total Metals																							
Aluminum	µg/L	—	5 or 100[j]	100	—	—	**22**[C]	**31**[C]	**30**[C]	**60**[C]	4	**22**[C]	**31**[C]	**30**[C]	**60**[C]	17	8.3	—	100	—	—	—	
Antimony	µg/L	—	—	6	—	—	<0.02	0.13	0.14	<0.1	4	<0.02	0.09	0.083	0.14	0.063	0.031	—	—	—	—	—	
Arsenic	µg/L	—	5	10	—	—	0.53	0.64	0.67	0.48	4	0.48	0.59	0.58	0.67	0.09	0.045	—	—	—	—	—	
Barium	µg/L	—	—	1,000	—	—	2.5	2.3	2.3	2.9	4	2.3	2.4	2.5	2.9	0.28	0.14	—	—	—	—	—	
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.5	<0.5	<0.5	4	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—	
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.05	<0.05	<0.05	4	<0.01	<0.05	0.02	<0.05	0.010	0.005	—	—	—	—	—	
Boron	µg/L	29,000	1,500	5,000	—	—	2.6	<10	<10	<10	4	2.6	<10	4.4	<10	1.2	0.6	—	—	—	—	—	
Cadmium	µg/L	0.11[k]	0.04[k]	5	—	—	<0.005	<0.01	0.013	<0.01	4	<0.005	<0.01	0.0064	0.013	0.0046	0.0023	—	—	—	—	—	
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	—	3	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—	
Chromium	µg/L	—	1	50	—	—	0.084	0.14	0.15	0.26	4	0.084	0.15	0.16	0.26	0.074	0.037	—	—	—	—	—	
Chromium VI	µg/L	—	1	—	—	—	<1.0	<1.0	<1.0	<1.0	4	<1.0	<1.0	<1.0	<1.0	—	—	—	—	—	—	—	
Cobalt	µg/L	—	—	—	—	—	0.072	0.14	0.14	<0.1	3	0.072	0.14	0.12	0.14	0.039	0.023	—	—	—	—	—	
Copper	µg/L	—	2[j]	1,000	—	—	1.0	1.3	1.4	1.4	4	1.0	1.4	1.3	1.4	0.19	0.095	—	—	—	—	—	
Iron	µg/L	—	300	300	—	—	113	165	174	241	4	113	170	173	241	53	26	—	—	—	—	—	

Table E-6 Laboratory Water Quality Data From Lake Af1 During the Open-Water Period, 2013

Location		Guidelines					Lake Af1 Sampling Stations				Summary Statistics												
		Aquatic Life					Af-10											% Above Guideline				
Sample Name							Af-10-MID	Af-10-TOP	Af-10-BOTTOM	Af-10-MID													
Sampling Season							Late Spring	Summer	Summer	Fall													
Sample Date							26-Jul-13	17-Aug-13	17-Aug-13	12-Sep-13													
Easting (NAD 83, 12W)							538299	538299	538299	538299													
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7176361	7176361	7176361	7176361	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Total Metals (Continued)																						
Lead	µg/L	—	1[j]	10	—	—	0.02	<0.05	<0.05	0.053	4	0.02	<0.05	0.031	0.053	0.015	0.0075	—	—	—	—	—
Lithium	µg/L	—	—	—	—	—	1.4	<5.0	<5.0	<5.0	4	1.4	2.5	2.2	2.5	0.55	0.28	—	—	—	—	—
Manganese	µg/L	—	—	50	—	—	7.6	19	19	6.3	4	6.3	13	13	19	7.0	3.5	—	—	—	—	—
Mercury	µg/L	—	0.026	1	—	—	0.00065	0.00064	0.0006	0.01	4	0.0006	0.00065	0.003	0.01	0.0047	0.0023	—	—	—	—	—
Molybdenum	µg/L	—	73	—	223,000	19,000	<0.05	0.063	0.063	0.053	4	<0.05	0.058	0.051	0.063	0.018	0.009	—	—	—	—	—
Nickel	µg/L	—	25[j]	—	—	—	0.58	0.76	0.74	0.67	4	0.58	0.71	0.69	0.76	0.081	0.041	—	—	—	—	—
Selenium	µg/L	—	1	10	—	—	<0.04	<0.1	<0.1	<0.1	4	<0.04	<0.1	0.043	<0.1	0.015	0.0075	—	—	—	—	—
Silver	µg/L	—	0.1	—	—	—	<0.005	<0.01	<0.01	<0.01	4	<0.005	<0.01	0.0044	<0.01	0.0013	0.00063	—	—	—	—	—
Strontium	µg/L	—	—	—	—	—	5.0	5.7	5.5	4.6	4	4.6	5.3	5.2	5.7	0.5	0.25	—	—	—	—	—
Thallium	µg/L	—	0.8	—	—	—	<0.01	<0.05	<0.05	<0.05	4	<0.01	<0.05	0.02	<0.05	0.010	0.005	—	—	—	—	—
Tin	µg/L	—	—	—	—	—	<0.05	<0.1	<0.1	<0.1	4	<0.05	<0.1	0.044	<0.1	0.013	0.0063	—	—	—	—	—
Titanium	µg/L	—	—	—	—	—	1.1	0.89	0.94	2.5	4	0.89	1.0	1.4	2.5	0.77	0.38	—	—	—	—	—
Uranium	µg/L	33	15	20	—	—	0.074	0.079	0.085	0.085	4	0.074	0.082	0.081	0.085	0.0053	0.0027	—	—	—	—	—
Vanadium	µg/L	—	—	—	300	30	0.16	0.24	0.22	0.31	4	0.16	0.23	0.23	0.31	0.062	0.031	—	—	—	—	—
Zinc	µg/L	—	30	5,000	—	—	1.2	<3.0	<3.0	3.0	4	1.2	<3.0	1.8	3.0	0.81	0.41	—	—	—	—	—
Dissolved Metals																						
Aluminum	µg/L	—	—	—	—	—	6.6	9.7	8.0	13	4	6.6	8.9	9.3	13	2.8	1.4	—	—	—	—	—
Antimony	µg/L	—	—	—	—	—	<0.02	<0.02	<0.02	<0.02	4	<0.02	<0.02	<0.02	<0.02	—	—	—	—	—	—	—
Arsenic	µg/L	—	—	—	—	—	0.44	0.58	0.56	0.38	4	0.38	0.5	0.49	0.58	0.096	0.048	—	—	—	—	—
Barium	µg/L	—	—	—	—	—	2.1	58	49	2.1	4	2.1	26	28	58	30	15	—	—	—	—	—
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	4	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	4	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Boron	µg/L	—	—	—	—	—	2.8	14	13	3.0	4	2.8	8.0	8.2	14	6.1	3.1	—	—	—	—	—
Cadmium	µg/L	—	—	—	—	—	<0.005	<0.005	<0.005	<0.005	4	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	4	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Chromium	µg/L	—	—	—	—	—	0.097	0.12	0.16	0.079	4	0.079	0.11	0.11	0.16	0.035	0.017	—	—	—	—	—
Cobalt	µg/L	—	—	—	—	—	0.026	0.053	0.038	0.036	4	0.026	0.037	0.038	0.053	0.011	0.0056	—	—	—	—	—
Copper	µg/L	—	—	—	—	—	0.91	1.0	1.2	1.2	4	0.91	1.1	1.1	1.2	0.15	0.073	—	—	—	—	—
Iron	µg/L	—	—	—	—	—	17	32	32	23	4	17	28	26	32	7.3	3.7	—	—	—	—	—
Lead	µg/L	—	—	—	—	—	<0.01	0.011	0.012	0.011	4	0.005	0.011	0.0098	0.012	0.0032	0.0016	—	—	—	—	—
Lithium	µg/L	—	—	—	—	—	1.3	0.81	0.84	1.4	4	0.81	1.1	1.1	1.4	0.31	0.15	—	—	—	—	—
Manganese	µg/L	—	—	—	—	—	0.58	5.8	1.7	0.98	4	0.58	1.3	2.3	5.8	2.4	1.2	—	—	—	—	—
Mercury	µg/L	—	—	—	—	—	<0.0005	<0.0005	<0.0005	0.0014	4	<0.0005	<0.0005	0.00054	0.0014	0.00058	0.00029	—	—	—	—	—
Molybdenum	µg/L	—	—	—	—	—	0.052	0.064	0.068	<0.05	4	<0.05	0.058	0.052	0.068	0.019	0.0097	—	—	—	—	—
Nickel	µg/L	—	—	—	—	—	0.56	0.63	0.66	0.55	4	0.55	0.6	0.6	0.66	0.054	0.027	—	—	—	—	—
Selenium	µg/L	—	—	—	—	—	<0.04	<0.04	<0.04	<0.04	4	<0.04	<0.04	<0.04	<0.04	—	—	—	—	—	—	—
Silver	µg/L	—	—	—	—	—	<0.005	<0.005	<0.005	<0.005	4	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—
Strontium	µg/L	—	—	—	—	—	4.8	4.9	4.9	4.8	4	4.8	4.9	4.9	4.9	0.058	0.029	—	—	—	—	—
Thallium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	4	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—

Table E-6 Laboratory Water Quality Data From Lake Af1 During the Open-Water Period, 2013

Location		Guidelines					Lake Af1 Sampling Stations				Summary Statistics												
		Aquatic Life					Af-10											% Above Guideline				
Sample Name							Af-10-MID	Af-10-TOP	Af-10-BOTTOM	Af-10-MID													
Sampling Season							Late Spring	Summer	Summer	Fall													
Sample Date							26-Jul-13	17-Aug-13	17-Aug-13	12-Sep-13													
Easting (NAD 83, 12W)							538299	538299	538299	538299													
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7176361	7176361	7176361	7176361	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Dissolved Metals (Continued)																							
Tin	µg/L	—	—	—	—	—	0.076	<0.05	<0.05	<0.05	4	<0.05	<0.05	0.038	0.076	0.026	0.013	—	—	—	—	—
Titanium	µg/L	—	—	—	—	—	0.16	0.53	0.47	0.36	4	0.16	0.42	0.38	0.53	0.16	0.081	—	—	—	—	—
Uranium	µg/L	—	—	—	—	—	0.059	0.065	0.066	0.066	4	0.059	0.066	0.064	0.066	0.0034	0.0017	—	—	—	—	—
Vanadium	µg/L	—	—	—	—	—	<0.05	0.073	0.076	0.096	4	<0.05	0.075	0.068	0.096	0.03	0.015	—	—	—	—	—
Zinc	µg/L	—	—	—	—	—	<0.8	26	22	4.2	4	<0.8	13	13	26	13	6.4	—	—	—	—	—

Note:

Bolded concentrations are higher than relevant water quality guidelines.

C) = concentration higher than the relevant chronic aquatic life guideline or outside the recommended pH or DO concentration range.

D) = concentration higher than the relevant drinking water guideline or outside the recommended pH or DO concentration range.

Guideline exceedances by median concentrations are based on guidelines calculated using median values of hardness, pH, and temperature, and are not included in the percent exceedance calculations.

Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision after comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Measured concentrations equal to the guideline values were not identified as exceedances.

a) Source: CCME (Canadian Council of Ministers of the Environment). (1999, with updates to 2014). Canadian Environmental Quality Guidelines. Winnipeg, MB, Canada.

b) Source: Health Canada. (2012). Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.

c) Source: Elphick JRF, Bergh KD, Bailey HC. (2011). Chronic toxicity of chloride to freshwater species: effects of hardness and implications for water quality guidelines. Environ Toxicol Chem 30: 230-246.

d) Source: Rescan (Rescan Environmental Services Ltd.). (2012a). Ekati Diamond Mine: Site-Specific Water Quality Objective for Potassium. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

e) Source: Rescan. (2012b). Ekati Diamond Mine: Site-specific Water Quality Objective for Sulphate. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

f) Source: Rescan. (2012c). Ekati Diamond Mine: Site-Specific Water Quality Objective for Nitrate, 2012. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

g) Source: Rescan. (2012d). Ekati Diamond Mine: Site Specific Water Quality Objective for Molybdenum, 2011. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

h) Source: Rescan. (2012e). Ekati Diamond Mine: Site-specific Water Quality Objective for Vanadium. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

i) Guidelines based on hardness of 4.7 mg $CaCO_3$/L.

j) Guidelines based on pH of 6.0 to 7.2, temperature of 4.4°C to 20.4°C, and water hardness of 3.6 to 7.4 mg/L.

k) Acute guideline applies to all waters of hardness below 5.3 mg $CaCO_3$/L; chronic guideline applies to all waters of hardness below 17 mg $CaCO_3$/L.

— = no guideline or data; CWQG = Canadian Drinking Water Quality Guidelines; DWQG = Drinking Water Quality Guidelines; SSWQO = Site-Specific Water Quality Objective; min = minimum, max = maximum; NAD = North American Datum; H+ = hydrogen ions; $CaCO_3$ = calcium carbonate; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % = percent; meq/L = milliequivalents per litre; pH = potential of hydrogen, provides measure of the acidity or alkalinity of a solution on a scale of 0 to 14; DO = dissolved oxygen; NTU = nephelometric turbidity units; mg N/L = milligrams of nitrogen per litre; mg P/L = milligrams of phosphorus per litre; µg/L = micrograms per litre; CFU/100 mL = coliform forming units per 100 millilitres; BTEX = benzene, toluene, ethylbenzene, xylene; < = less than.

Table E-7 Field Profile Data From Sub-Basin Lakes During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
C-L1 (WQ)	20-Aug-13	19.8	3.5	Surface	16.1	9.1	94.6	16
				0.5	16.1	9.1	94.6	16
				1	16.1	9.1	94.5	16
				2	16.1	9.1	94.6	16
				3	16.1	9.1	94.4	16
				4	16.0	9.1	94.7	16
				5	16.1	9.1	94.0	16
				6	16.0	9.1	94.9	16
				7	16.0	9.1	94.5	16
				8	15.6	9.3	94.3	16
				9	12.7	9.4	91.3	16
				10	12.6	9.2	89.3	16
				11	12.4	9.0	86.3	16
				12	12.2	8.6	81.3	16
				13	12.1	8.4	80.2	16
				14	12.1	8.2	78.6	16
				15	11.9	7.9	75.7	16
				16	11.8	8.0	75.7	16
				17	11.6	7.8	73.8	16
				18	11.0	7.4	68.8	16
				19	10.2	7.2	66.4	16
D-L3 (Counts; WQ)	20-Aug-13	10.1	4.5	Surface	16.2	9.1	94.6	12
				0.5	16.2	9.1	94.8	12
				1	16.2	9.1	94.6	12
				2	16.2	9.1	94.7	12
				3	16.2	9.0	94.1	12
				4	16.2	9.0	94.3	12
				5	16.2	9.1	94.6	12
				6	15.5	9.3	94.1	12
				7	14.7	9.8	96.8	11
				8	13.4	9.0	89.3	12
				9	13.9	9.1	91.2	12
GL-2 (WQ)	10-Sep-13	11.3	4.3	Surface	6.7	—	—	20
				0.5	6.7	—	—	20
				1	6.7	—	—	20
				2	6.7	—	—	19
				3	6.7	—	—	19
				4	6.7	—	—	19
				5	6.7	—	—	19
				6	6.7	—	—	19
				7	6.7	—	—	19
				8	6.7	—	—	19
				9	6.7	—	—	19
				10	6.7	—	—	19
				11	6.7	—	—	19

Table E-7 Field Profile Data From Sub-Basin Lakes During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
H-L1	13-Sep-13	10.8	3.6	Surface	7.0	12.9	105.7	14
				0.5	7.0	12.9	105.5	14
				1	7.0	12.9	105.5	14
				2	6.9	—	105.1	14
				3	6.8	12.9	104.8	14
				4	6.8	12.8	104.6	14
				5	6.8	12.8	104.3	14
				6	6.8	12.8	104.1	14
				7	6.6	12.8	103.9	14
				8	6.6	12.8	103.9	14
				9	6.3	12.9	103.9	14
				10	6.3	12.9	103.7	14

— = no data; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % Sat = percent saturation; µS/cm = microsiemens per centimetre; WQ = water quality.

Table E-8 Laboratory Water Quality Data From Sub-Basin Lakes During the Open-Water Period, 2013

Location		Guidelines					Sub-Basin Lake Sampling Stations						Summary Statistics												
		Aquatic Life					C-L1		D-L3 (Counts)		G-L2	H-L1													
Sample Name							C-L1 TOP	C-L1 BOTTOM	Counts TOP	Counts BOTTOM	G-L2-MID	H-L1-MID								% Above Guideline				
Sampling Season							Summer	Summer	Summer	Summer	Fall	Fall													
Sample Date							20-Aug-13	20-Aug-13	20-Aug-13	20-Aug-13	15-Sep-13	13-Sep-13													
Easting (NAD 83, 12W)							537612	537612	534303	534303	546706	552899													
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7167085	7167085	7169862	7169862	7174698	7169950	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Field Measured																									
Total depth	m	—	—	—	—	—	20.0	20.0	10.0	10.0	11.0	11.0	6	10.0	11.0	14.0	20.0	4.9	2.0	—	—	—	—	—	
Sample Depth	m	—	—	—	—	—	1.0	18.5	1.0	9.0	5.0	5.0	6	1.0	5.0	6.6	18.5	6.6	2.7	—	—	—	—	—	
Secchi depth	m	—	—	—	—	—	3.5	3.5	4.5	4.5	4.3	—	5	3.5	4.3	4.1	4.5	0.52	0.23	—	—	—	—	—	
Water temperature	°C	—	—	—	—	—	16.1	10.4	16.2	13.9	6.7	6.8	6	6.7	12.1	11.7	16.2	4.4	1.8	—	—	—	—	—	
Specific conductivity	µS/cm	—	—	—	—	—	16	16	12	12	19	14	6	12	15	15	19	2.7	1.1	—	—	—	—	—	
Dissolved oxygen	mg/L	—	6.5	—	—	—	9.1	7.3	9.1	9.1	—	12.8	5	7.3	9.1	9.5	12.8	2.0	0.9	—	—	—	—	—	
Dissolved oxygen saturation	%	—	—	—	—	—	95	67	95	91	—	104	5	67	95	90	104	14	6.2	—	—	—	—	—	
Conventional Parameters																									
Alkalinity, gran (as H+)	meq/L	—	—	—	—	—	<0.1	<0.1	0.11	<0.1	<0.1	<0.1	6	<0.1	<0.1	0.06	0.11	0.024	0.01	—	—	—	—	—	
Alkalinity, total (as $CaCO_3$)	mg/L	—	—	—	—	—	6.2	6.5	4.1	4.3	3.9	5.7	6	3.9	5.0	5.1	6.5	1.1	0.47	—	—	—	—	—	
Conductance	µS/cm	—	—	—	—	—	20	20	14	14	12	17	6	12	15	16	20	3.4	1.4	—	—	—	—	—	
Hardness	mg/L	—	—	—	—	—	5.8	6.1	4.2	4.2	3.8	5.7	6	3.8	5.0	5.0	6.1	1.0	0.41	—	—	—	—	—	
pH	pH units	—	6.5 – 9.0	6.5 – 8.5	—	—	6.8	6.9	6.5	6.6	6.5	6.8	6	6.5	6.7	6.7	6.9	0.19	0.078	—	—	—	—	—	
Total dissolved solids	mg/L	—	—	500	—	—	21	21	<10	16	14	15	6	<10	16	15	21	5.9	2.4	—	—	—	—	—	
Total suspended solids	mg/L	—	—	—	—	—	<3.0	<3.0	<3.0	5.0	<3.0	<3.0	6	<3.0	<3.0	2.1	5.0	1.4	0.58	—	—	—	—	—	
Turbidity	NTU	—	—	—	—	—	0.55	0.46	0.53	0.54	0.47	0.78	6	0.46	0.54	0.56	0.78	0.12	0.048	—	—	—	—	—	
Major Ions																									
Bicarbonate	mg/L	—	—	—	—	—	7.6	8.0	<5.0	5.3	<5.0	6.9	6	<5.0	6.1	5.5	8.0	2.5	1.0	—	—	—	—	—	
Calcium	mg/L	—	—	—	—	—	0.83	0.91	0.66	0.66	0.6	0.92	6	0.6	0.75	0.76	0.92	0.14	0.057	—	—	—	—	—	
Chloride	mg/L	640	120	250	—	64.5[i]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—	
Fluoride	mg/L	—	0.12	1.5	—	—	0.029	0.032	0.021	0.023	<0.02	0.022	6	<0.02	0.023	0.022	0.032	0.0076	0.0031	—	—	—	—	—	
Magnesium	mg/L	—	—	—	—	—	0.91	0.93	0.61	0.61	0.56	0.83	6	0.56	0.72	0.74	0.93	0.17	0.068	—	—	—	—	—	
Potassium	mg/L	—	—	—	112	41	0.69	0.7	0.53	0.54	0.45	0.8	6	0.45	0.62	0.62	0.80	0.13	0.054	—	—	—	—	—	
Sodium	mg/L	—	—	200	—	—	0.68	0.67	0.63	0.63	0.66	0.90	6	0.63	0.67	0.70	0.90	0.10	0.041	—	—	—	—	—	
Sulphate	mg/L	—	—	500	250[i]	22.7[i]	1.9	2.1	1.2	1.2	0.93	1.4	6	0.93	1.3	1.4	2.1	0.46	0.19	—	—	—	—	—	
Nutrients																									
Total organic carbon	mg/L	—	—	—	—	—	4.4	4.1	3.1	3.0	3.0	5.0	6	3.0	3.6	3.8	5.0	0.85	0.35	—	—	—	—	—	
Dissolved organic carbon	mg/L	—	—	—	—	—	4.6	4.1	3.1	2.9	2.9	4.8	6	2.9	3.6	3.7	4.8	0.87	0.36	—	—	—	—	—	
Total nitrogen (calculated)	mg N/L	—	—	—	—	—	0.22	0.21	0.16	0.13	0.16	0.38	6	0.13	0.18	0.21	0.38	0.09	0.037	—	—	—	—	—	

Table E-8 Laboratory Water Quality Data From Sub-Basin Lakes During the Open-Water Period, 2013

Location		Guidelines					Sub-Basin Lake Sampling Stations						Summary Statistics												
		Aquatic Life					C-L1		D-L3 (Counts)		G-L2	H-L1													
Sample Name							C-L1 TOP	C-L1 BOTTOM	Counts TOP	Counts BOTTOM	G-L2-MID	H-L1-MID								% Above Guideline				
Sampling Season							Summer	Summer	Summer	Summer	Fall	Fall													
Sample Date							20-Aug-13	20-Aug-13	20-Aug-13	20-Aug-13	15-Sep-13	13-Sep-13													
Easting (NAD 83, 12W)							537612	537612	534303	534303	546706	552899													
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7167085	7167085	7169862	7169862	7174698	7169950	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Nutrients (Continued)																									
Total Kjeldahl Nitrogen	mg N/L	—	—	—	—	—	0.22	0.21	0.16	0.13	0.16	0.38	6	0.13	0.18	0.21	0.38	0.09	0.037	—	—	—	—	—
Total ammonia	mg N/L	—	2.7 – 139[j]	—	—	—	0.011	0.032	0.0091	0.0064	0.013	0.028	6	0.0064	0.012	0.016	0.032	0.011	0.0044	—	—	—	—	—
Nitrate	mg N/L	124	2.9	10		0.57[i]	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	6	<0.006	<0.006	<0.006	<0.006	—	—	—	—	—	—	—
Nitrite	mg N/L	—	0.06	1	—	—	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	6	<0.002	<0.002	<0.002	<0.002	—	—	—	—	—	—	—
Total phosphorus	mg P/L	—	—	—	—	—	0.0067	0.008	0.0052	0.0065	0.0057	0.011	6	0.0052	0.0066	0.0072	0.011	0.0021	0.00087	—	—	—	—	—
Total dissolved phosphorus	mg P/L	—	—	—	—	—	0.0021	<0.001	<0.001	<0.001	0.0026	0.0034	6	<0.001	0.0016	0.0016	0.0034	0.0013	0.00052	—	—	—	—	—
Dissolved orthophosphate	mg/L	—	—	—	—	—	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	6	<0.001	<0.001	<0.001	<0.001	—	—	—	—	—	—	—
Silica, reactive	mg/L	—	—	—	—	—	0.094	0.22	0.26	0.25	0.17	0.11	6	0.094	0.20	0.18	0.26	0.071	0.029	—	—	—	—	—
Other Parameters																									
Benzene	µg/L	—	370	5	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Ethylbenzene	µg/L	—	90	2.4	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Toluene	µg/L	—	2	24	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Xylene	µg/L	—	—	300	—	—	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	6	<0.71	<0.71	<0.71	<0.71	—	—	—	—	—	—	—
Petroleum hydrocarbons – F1 (C6-C10)	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Petroleum hydrocarbons – F1 (C6-C10)-BTEX	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Petroleum hydrocarbons – F2 (C10-C16)	mg/L	—	—	—	—	—	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	6	<0.25	<0.25	<0.25	<0.25	—	—	—	—	—	—	—
Total recoverable hydrocarbons	mg/L	—	—	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6	<1.0	<1.0	<1.0	<1.0	—	—	—	—	—	—	—
Fecal coliform	CFU/100 mL	—	—	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6	<1.0	<1.0	0.58	1.0	0.2	0.083	—	—	—	—	—
Total Metals																									
Aluminum	µg/L	—	5 or 100[j]	100	—	—	21	9.4	7.0	7.8	10	5.6	6	5.6	8.6	10	21	5.6	2.3	—	—	—	—	—
Antimony	µg/L	—	—	6	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	6	<0.02	<0.02	<0.02	<0.02	—	—	—	—	—	—	—
Arsenic	µg/L	—	5	10	—	—	0.44	0.43	0.52	0.27	0.34	0.6	6	0.27	0.44	0.43	0.6	0.12	0.048	—	—	—	—	—
Barium	µg/L	—	—	1,000	—	—	3.1	1.9	2.7	1.4	1.8	2.1	6	1.4	2.0	2.1	3.1	0.63	0.26	—	—	—	—	—
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Boron	µg/L	29,000	1,500	5,000	—	—	3.5	3.6	4.5	5.7	2.2	3.3	6	2.2	3.6	3.8	5.7	1.2	0.48	—	—	—	—	—
Cadmium	µg/L	0.11[k]	0.04[k]	5	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	6	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—

Table E-8 Laboratory Water Quality Data From Sub-Basin Lakes During the Open-Water Period, 2013

Location		Guidelines					Sub-Basin Lake Sampling Stations						Summary Statistics												
		Aquatic Life					C-L1		D-L3 (Counts)		G-L2	H-L1								% Above Guideline				
Sample Name							C-L1 TOP	C-L1 BOTTOM	Counts TOP	Counts BOTTOM	G-L2-MID	H-L1-MID												
Sampling Season							Summer	Summer	Summer	Summer	Fall	Fall												
Sample Date							20-Aug-13	20-Aug-13	20-Aug-13	20-Aug-13	15-Sep-13	13-Sep-13												
Easting (NAD 83, 12W)							537612	537612	534303	534303	546706	552899												
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7167085	7167085	7169862	7169862	7174698	7169950	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Total Metals (Continued)																								
Chromium	µg/L	—	1	50	—	—	0.12	<0.06	0.06	<0.06	<0.06	<0.06	6	<0.06	<0.06	0.050	0.12	0.034	0.014	—	—	—	—	—
Chromium VI	µg/L	—	1	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6	<1.0	<1.0	<1.0	<1.0	—	—	—	—	—	—	—
Cobalt	µg/L	—	—	—	—	—	0.057	0.019	0.084	0.024	0.026	0.039	6	0.019	0.033	0.042	0.084	0.025	0.01	—	—	—	—	—
Copper	µg/L	—	2[j]	1,000	—	—	1.5	0.69	0.76	0.51	0.44	0.85	6	0.44	0.73	0.79	1.5	0.37	0.15	—	—	—	—	—
Iron	µg/L	—	300	300	—	—	229	20	93	38	32	34	6	20	36	74	229	80	33	—	—	—	—	—
Lead	µg/L	—	1[j]	10	—	—	0.014	<0.01	<0.01	<0.01	0.012	0.012	6	<0.01	0.011	0.0088	0.014	0.0043	0.0017	—	—	—	—	—
Lithium	µg/L	—	—	—	—	—	1.6	0.94	0.95	0.81	1.2	1.3	6	0.81	1.1	1.1	1.6	0.28	0.11	—	—	—	—	—
Manganese	µg/L	—	—	50	—	—	5.2	5.9	46	4.3	2.6	6.9	6	2.6	5.6	12	46	17	6.9	—	—	—	—	—
Mercury	µg/L	—	0.026	1	—	—	<0.0005	<0.0005	<0.0005	<0.0005	0.00051	0.00061	6	<0.0005	<0.0005	0.00035	0.00061	0.00016	0.000067	—	—	—	—	—
Molybdenum	µg/L	—	73	—	223,000	19,000	0.063	0.054	<0.05	<0.05	<0.05	<0.05	6	<0.05	<0.05	0.037	0.063	0.018	0.0072	—	—	—	—	—
Nickel	µg/L	—	25[j]	—	—	—	0.98	0.51	0.58	0.29	0.17	0.32	6	0.17	0.41	0.47	0.98	0.29	0.12	—	—	—	—	—
Selenium	µg/L	—	1	10	—	—	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	6	<0.04	<0.04	<0.04	<0.04	—	—	—	—	—	—	—
Silver	µg/L	—	0.1	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	6	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—
Strontium	µg/L	—	—	—	—	—	7.4	5.8	6.1	4.8	4.3	5.6	6	4.3	5.7	5.7	7.4	1.1	0.43	—	—	—	—	—
Thallium	µg/L	—	0.8	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Tin	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—
Titanium	µg/L	—	—	—	—	—	0.32	<0.1	<0.1	0.14	0.25	0.3	6	<0.1	0.20	0.19	0.32	0.12	0.05	—	—	—	—	—
Uranium	µg/L	33	15	20	—	—	0.039	0.012	0.014	0.012	0.02	<0.01	6	<0.01	0.013	0.017	0.039	0.012	0.0048	—	—	—	—	—
Vanadium	µg/L	—	—	—	300	30	0.098	<0.05	<0.05	<0.05	<0.05	<0.05	6	<0.05	<0.05	0.038	0.098	0.03	0.012	—	—	—	—	—
Zinc	µg/L	—	30	5,000	—	—	1.7	1.6	0.82	1.1	1.0	3.2	6	0.82	1.4	1.6	3.2	0.88	0.36	—	—	—	—	—
Dissolved Metals																								
Aluminum	µg/L	—	—	—	—	—	5.6	4.6	2.5	2.6	4.4	1.4	6	1.4	3.5	3.5	5.6	1.6	0.65	—	—	—	—	—
Antimony	µg/L	—	—	—	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	6	<0.02	<0.02	<0.02	<0.02	—	—	—	—	—	—	—
Arsenic	µg/L	—	—	—	—	—	0.38	0.45	0.24	0.27	0.3	0.53	6	0.24	0.34	0.36	0.53	0.11	0.045	—	—	—	—	—
Barium	µg/L	—	—	—	—	—	1.7	2.8	1.2	1.2	13	1.9	6	1.2	1.8	3.6	13	4.5	1.9	—	—	—	—	—
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Boron	µg/L	—	—	—	—	—	4.6	4.0	7.6	3.7	6.1	3.1	6	3.1	4.3	4.9	7.6	1.7	0.69	—	—	—	—	—
Cadmium	µg/L	—	—	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	6	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Chromium	µg/L	—	—	—	—	—	<0.06	<0.06	<0.06	<0.06	<0.06	0.064	6	<0.06	<0.06	0.036	0.064	0.014	0.0057	—	—	—	—	—
Cobalt	µg/L	—	—	—	—	—	0.01	0.026	<0.01	<0.01	0.014	0.02	6	<0.01	0.012	0.013	0.026	0.0084	0.0034	—	—	—	—	—
Copper	µg/L	—	—	—	—	—	0.68	0.7	0.48	0.47	0.44	0.82	6	0.44	0.58	0.60	0.82	0.16	0.064	—	—	—	—	—
Iron	µg/L	—	—	—	—	—	5.7	19	6.9	7.6	10	7.2	6	5.7	7.4	9.5	19	5.0	2.0	—	—	—	—	—
Lead	µg/L	—	—	—	—	—	0.016	<0.01	<0.01	<0.01	<0.01	0.012	6	<0.01	<0.01	0.0080	0.016	0.0048	0.002	—	—	—	—	—
Lithium	µg/L	—	—	—	—	—	1.1	1.1	0.73	0.75	1.2	1.5	6	0.73	1.1	1.1	1.5	0.3	0.12	—	—	—	—	—
Manganese	µg/L	—	—	—	—	—	0.5	22	0.45	0.48	0.69	0.66	6	0.45	0.58	4.1	22	8.7	3.6	—	—	—	—	—
Mercury	µg/L	—	—	—	—	—	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	6	<0.0005	<0.0005	<0.0005	<0.0005	—	—	—	—	—	—	—

Table E-8 Laboratory Water Quality Data From Sub-Basin Lakes During the Open-Water Period, 2013

Location		Guidelines					Sub-Basin Lake Sampling Stations						Summary Statistics												
		Aquatic Life					C-L1		D-L3 (Counts)		G-L2	H-L1								% Above Guideline				
Sample Name							C-L1 TOP	C-L1 BOTTOM	Counts TOP	Counts BOTTOM	G-L2-MID	H-L1-MID												
Sampling Season							Summer	Summer	Summer	Summer	Fall	Fall												
Sample Date							20-Aug-13	20-Aug-13	20-Aug-13	20-Aug-13	15-Sep-13	13-Sep-13												
Easting (NAD 83, 12W)							537612	537612	534303	534303	546706	552899												
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7167085	7167085	7169862	7169862	7174698	7169950	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Dissolved Metals (Continued)																								
Molybdenum	µg/L	—	—	—	—	—	<0.05	0.055	<0.05	<0.05	<0.05	<0.05	6	<0.05	<0.05	0.03	0.055	0.012	0.005	—	—	—	—	—
Nickel	µg/L	—	—	—	—	—	0.46	0.63	0.25	0.25	0.15	0.33	6	0.15	0.29	0.34	0.63	0.17	0.07	—	—	—	—	—
Selenium	µg/L	—	—	—	—	—	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	6	<0.04	<0.04	<0.04	<0.04	—	—	—	—	—	—	—
Silver	µg/L	—	—	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	6	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—
Strontium	µg/L	—	—	—	—	—	5.9	6.2	4.6	4.7	4.3	5.6	6	4.3	5.1	5.2	6.2	0.79	0.32	—	—	—	—	—
Thallium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Tin	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—
Titanium	µg/L	—	—	—	—	—	<0.1	0.13	<0.1	<0.1	0.18	0.21	6	<0.1	0.12	0.11	0.21	0.072	0.029	—	—	—	—	—
Uranium	µg/L	—	—	—	—	—	0.012	0.012	<0.01	<0.01	0.017	<0.01	6	<0.01	0.011	0.0093	0.017	0.0051	0.0021	—	—	—	—	—
Vanadium	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—
Zinc	µg/L	—	—	—	—	—	2.0	4.1	<0.8	<0.8	13	1.2	6	<0.8	1.6	3.5	13	4.7	1.9	—	—	—	—	—

Note:

a) CCME (Canadian Council of Ministers of the Environment). (1999, with updates to 2014). Canadian Environmental Quality Guidelines. Winnipeg, MB, Canada.

b) Health Canada. 2012. Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.

c) Elphick JRF, Bergh KD, Bailey HC. (2011). Chronic toxicity of chloride to freshwater species: effects of hardness and implications for water quality guidelines. Environ Toxicol Chem 30: 230-246.

d) Rescan (Rescan Environmental Services Ltd.). (2012a). Ekati Diamond Mine: Site-Specific Water Quality Objective for Potassium. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

e) Rescan. (2012b). Ekati Diamond Mine: Site-specific Water Quality Objective for Sulphate. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

f) Rescan. (2012c). Ekati Diamond Mine: Site-Specific Water Quality Objective for Nitrate, 2012. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

g) Rescan. (2012d). Ekati Diamond Mine: Site Specific Water Quality Objective for Molybdenum, 2011. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

h) Rescan. (2012e). Ekati Diamond Mine: Site-specific Water Quality Objective for Vanadium. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

i) Guidelines based on hardness of 4.7 mg $CaCO_3$/L.

j) Guidelines based on pH of 6.0 to 7.2, temperature of 4.4°C to 20.4°C, and water hardness of 3.6 to 7.4 mg/L.

k) Acute guideline applies to all waters of hardness below 5.3 mg $CaCO_3$/L; chronic guideline applies to all waters of hardness below 17 mg $CaCO_3$/L.

— = no guideline or data; CWQG = Canadian Drinking Water Quality Guidelines; DWQG = Drinking Water Quality Guidelines; SSWQO = Site-Specific Water Quality Objective; min = minimum, max = maximum; NAD = North American Datum; H+ = hydrogen ions; $CaCO_3$ = calcium carbonate; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % = percent; meq/L = milliequivalents per litre; pH = potential of hydrogen, provides measure of the acidity or alkalinity of a solution on a scale of 0 to 14; DO = dissolved oxygen; NTU = nephelometric turbidity units; mg N/L = milligrams of nitrogen per litre; mg P/L = milligrams of phosphorus per litre; µg/L = micrograms per litre; CFU/100 mL = coliform forming units per 100 millilitres; BTEX = benzene, toluene, ethylbenzene, xylene; < = less than.

Table E-9 Field Profile Data From Lake E1 During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
E-L1-1 (WQ)	16-Aug-13	12	4	Surface	18.2	95.0	9.0	12
				0.5	18.2	94.8	9.0	12
				1	18.2	95.4	9.0	12
				2	18.2	95.4	9.0	12
				3	18.0	95.4	9.1	12
				4	18.0	94.5	9.0	12
				5	14.0	103.1	10.6	12
				6	13.1	95.6	10.3	12
				7	12.6	86.0	9.2	12
				8	12.0	76.2	8.4	13
				9	10.9	50.3	5.7	13
				10	10.7	42.8	4.8	13
				11	9.5	16.7	1.8	15
E-L1-1 (WQ)	12-Sep-13	7.3	3.5	Surface	7.0	11.3	92.5	9
				0.5	6.9	11.3	92.7	8
				1	6.9	11.3	92.8	8
				1.5	—	—	—	—
				2	6.9	11.3	92.9	8
				3	6.9	11.3	92.7	8
				4	6.9	11.3	92.6	8
				5	6.9	11.3	92.5	8
				6	6.9	11.3	92.3	8
				7	6.9	11.2	91.9	8
E-L1-2 (WQ)	16-Aug-13	3	3	Surface	18.1	8.9	94.5	12
				0.5	18.1	8.6	90.7	12
				1	18.1	8.6	91.0	12
				1.5	18.1	8.6	91.0	12
				2	18.0	8.5	91.1	12
E-L1-2 (WQ)	12-Sep-13	2.3	2.3	Surface	7.1	11.4	93.5	8
				0.5	7.1	11.4	93.7	8
				1	7.1	11.3	93.3	8
				1.5	7.1	11.3	93.3	8
				2	7.1	11.3	93.2	8

— = no data; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % Sat = percent saturation; µS/cm = microsiemens per centimetre; WQ = water quality.

Table E-10 Laboratory Water Quality Data From Lake E1 During the Open-Water Period, 2013

Location		Guidelines					Lake E1 Sampling Stations					Summary Statistics												
		Aquatic Life					E-L1-1			E-L1-2														
Sample Name							E-L1-1 TOP	E-L1-1 BOTTOM	E-L1-1	E-L1-2 MID	E-L1-2								% Above Guideline				
Sampling Season							Summer	Summer	Fall	Summer	Fall													
Sample Date							16-Aug-13	16-Aug-13	12-Sep-13	16-Aug-13	12-Sep-13													
Easting (NAD 83, 12W)							535065	535065	535065	535292	535292													
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7174657	7174657	7174657	7174406	7174406	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Field Measured																								
Total depth	m	—	—	—	—	—	12.0	12.0	7.3	3.0	2.3	5	2.3	7.3	7.3	12.0	4.7	2.1	—	—	—	—	—
Sample depth	m	—	—	—	—	—	1.0	11.0	3.0	2.0	1.0	5	1.0	2.0	3.6	11.0	4.2	1.9	—	—	—	—	—
Secchi depth	m	—	—	—	—	—	4.0	4.0	3.5	3.0	2.3	5	2.3	3.5	3.4	4.0	0.72	0.32	—	—	—	—	—
Water temperature	°C	—	—	—	—	—	18.2	9.5	6.9	18.0	7.1	5	6.9	9.5	11.9	18.2	5.7	2.6	—	—	—	—	—
Specific conductivity	µS/cm	—	—	—	—	—	12	15	8	12	8	5	8	12	11	15	2.9	1.3	—	—	—	—	—
Dissolved oxygen	mg/L	—	6.5	—	—	—	9.0	**1.8**[(C)]	11.3	8.5	11.3	5	**1.8**[(C)]	9.0	8.4	11.3	1.5	0.74	—	20	—	—	—
Dissolved oxygen saturation	%	—	—	—	—	—	95	17	93	91	93	5	17	93	78	95	34	15	—	—	—	—	—
Conventional Parameters																								
Alkalinity, gran (as H+)	meq/L	—	—	—	—	—	<0.1	0.12	<0.1	<0.1	<0.1	5	<0.1	<0.1	0.064	0.12	0.031	0.014	—	—	—	—	—
Alkalinity, total (as $CaCO_3$)	mg/L	—	—	—	—	—	2.7	3.1	2.8	2.6	2.8	5	2.6	2.8	2.8	3.1	0.19	0.084	—	—	—	—	—
Conductance	µS/cm	—	—	—	—	—	11	13	11	11	11	5	11	11	12	13	0.68	0.3	—	—	—	—	—
Hardness	mg/L	—	—	—	—	—	3.6	4	3.8	3.6	3.6	5	3.6	3.6	3.7	4.0	0.18	0.08	—	—	—	—	—
pH	pH units	—	6.5 – 9.0	6.5 – 8.5	—	—	**6.2**[(C, D)]	**6.0**[(C, D)]	**6.3**[(C, D)]	**6.3**[(C, D)]	**6.3**[(C, D)]	5	**6.0**[(C, D)]	**6.3**[(C, D)]	**6.2**[(C, D)]	**6.3**[(C, D)]	0.14	0.063	—	100	100	—	—
Total dissolved solids	mg/L	—	—	500	—	—	13	10	<10	13	<10	5	<10	10	9.2	13	4.0	1.8	—	—	—	—	—
Total suspended solids	mg/L	—	—	—	—	—	<3.0	<3.0	<3.0	<3.0	<3.0	5	<3.0	<3.0	<3.0	<3.0	—	—	—	—	—	—	—
Turbidity	NTU	—	—	—	—	—	0.59	1.2	1	0.62	0.89	5	0.59	0.89	0.85	1.2	0.25	0.11	—	—	—	—	—
Major Ions																								
Bicarbonate	mg/L	—	—	—	—	—	<5.0	<5.0	<5.0	<5.0	<5.0	5	<5.0	<5.0	<5.0	<5.0	—	—	—	—	—	—	—
Calcium	mg/L	—	—	—	—	—	0.65	0.75	0.66	0.62	0.62	5	0.62	0.65	0.66	0.75	0.053	0.024	—	—	—	—	—
Chloride	mg/L	640	120	250	—	64.5[(I)]	<0.5	<0.5	<0.5	<0.5	<0.5	5	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Fluoride	mg/L	—	0.12	1.5	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	5	<0.02	<0.02	<0.02	<0.02	—	—	—	—	—	—	—
Magnesium	mg/L	—	—	—	—	—	0.49	0.52	0.52	0.49	0.5	5	0.49	0.50	0.50	0.52	0.015	0.0068	—	—	—	—	—

Table E-10 Laboratory Water Quality Data From Lake E1 During the Open-Water Period, 2013

Location		Guidelines					Lake E1 Sampling Stations					Summary Statistics												
		Aquatic Life					E-L1-1			E-L1-2														
Sample Name							E-L1-1 TOP	E-L1-1 BOTTOM	E-L1-1	E-L1-2 MID	E-L1-2								% Above Guideline				
Sampling Season							Summer	Summer	Fall	Summer	Fall													
Sample Date							16-Aug-13	16-Aug-13	12-Sep-13	16-Aug-13	12-Sep-13													
Easting (NAD 83, 12W)							535065	535065	535065	535292	535292													
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7174657	7174657	7174657	7174406	7174406	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Major Ions (Continued)																								
Potassium	mg/L	—	—	—	112	41	0.38	0.44	0.35	0.36	0.36	5	0.35	0.36	0.38	0.44	0.036	0.016	—	—	—	—	—
Sodium	mg/L	—	—	200	—	—	0.56	0.52	0.54	0.52	0.54	5	0.52	0.54	0.54	0.56	0.018	0.0081	—	—	—	—	—
Sulphate	mg/L	—	—	500	250[i]	22.7[i]	1.0	1	1.3	1.1	1.3	5	1.0	1.1	1.1	1.3	0.13	0.057	—	—	—	—	—
Nutrients																								
Total organic carbon	mg/L	—	—	—	—	—	4.1	4.1	3.6	4	4	5	3.6	4.0	4.0	4.1	0.21	0.093	—	—	—	—	—
Dissolved organic carbon	mg/L	—	—	—	—	—	4.5	4.2	3.9	4.4	3.8	5	3.8	4.2	4.2	4.5	0.3	0.14	—	—	—	—	—
Total nitrogen (calculated)	mg N/L	—	—	—	—	—	0.41	0.31	0.24	0.24	0.33	5	0.24	0.31	0.31	0.41	0.072	0.032	—	—	—	—	—
Total Kjeldahl Nitrogen	mg N/L	—	—	—	—	—	0.41	0.3	0.24	0.24	0.33	5	0.24	0.30	0.30	0.41	0.072	0.032	—	—	—	—	—
Total ammonia	mg N/L	—	2.7 – 139[i]	—	—	—	<0.005	0.034	<0.005	<0.005	<0.005	5	<0.005	<0.005	0.0088	0.034	0.014	0.0063	—	—	—	—	—
Nitrate	mg N/L	124	2.9	10		0.57[i]	<0.006	0.013	<0.006	<0.006	<0.006	5	<0.006	<0.006	0.0051	0.013	0.0047	0.0021	—	—	—	—	—
Nitrite	mg N/L	—	0.06	1	—	—	<0.002	<0.002	<0.002	<0.002	<0.002	5	<0.002	<0.002	<0.002	<0.002	—	—	—	—	—	—	—
Total phosphorus	mg P/L	—	—	—	—	—	0.01	0.021	0.0084	0.0074	0.0091	5	0.0074	0.0091	0.011	0.021	0.0056	0.0025	—	—	—	—	—
Total dissolved phosphorus	mg P/L	—	—	—	—	—	0.0036	0.0066	0.0028	0.0014	0.0023	5	0.0014	0.0028	0.0033	0.0066	0.002	0.00089	—	—	—	—	—
Dissolved orthophosphate	mg/L	—	—	—	—	—	<0.001	0.0027	<0.001	<0.001	<0.001	5	<0.001	<0.001	0.00094	0.0027	0.00098	0.00044	—	—	—	—	—
Silica, reactive	mg/L	—	—	—	—	—	0.15	0.44	0.15	0.15	0.16	5	0.15	0.15	0.21	0.44	0.13	0.058	—	—	—	—	—
Other Parameters																								
Benzene	µg/L	—	370	5	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	5	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Ethylbenzene	µg/L	—	90	2.4	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	5	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Toluene	µg/L	—	2	24	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	5	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Xylene	µg/L	—	—	300	—	—	<0.71	<0.71	<0.71	<0.71	<0.71	5	<0.71	<0.71	<0.71	<0.71	—	—	—	—	—	—	—
Petroleum hydrocarbons – F1 (C6-C10)	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	5	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Petroleum hydrocarbons – F1 (C6-C10)-BTEX	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	5	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—

Table E-10 Laboratory Water Quality Data From Lake E1 During the Open-Water Period, 2013

Location		Guidelines					Lake E1 Sampling Stations					Summary Statistics												
		Aquatic Life					E-L1-1			E-L1-2									% Above Guideline				
Sample Name							E-L1-1 TOP	E-L1-1 BOTTOM	E-L1-1	E-L1-2 MID	E-L1-2												
Sampling Season							Summer	Summer	Fall	Summer	Fall												
Sample Date							16-Aug-13	16-Aug-13	12-Sep-13	16-Aug-13	12-Sep-13												
Easting (NAD 83, 12W)							535065	535065	535065	535292	535292												
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7174657	7174657	7174657	7174406	7174406	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Other Parameters (Continued)																							
Petroleum hydrocarbons - F2 (C10-C16)	mg/L	—	—	—	—	—	<0.25	<0.25	<0.25	<0.25	<0.25	5	<0.25	<0.25	<0.25	<0.25	—	—	—	—	—	—	—
Total recoverable hydrocarbons	mg/L	—	—	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	5	<1.0	<1.0	<1.0	<1.0	—	—	—	—	—	—	—
Fecal coliform	CFU/100 mL	—	—	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	5	<1.0	<1.0	<1.0	<1.0	—	—	—	—	—	—	—
Total Metals																							
Aluminum	µg/L	—	5 or 100[j]	100	—	—	**17[C]**	**48[C]**	**18[C]**	**15[C]**	**183[C, D]**	5	**15[C]**	**18[C]**	**56[C]**	**183[C, D]**	72	32	—	100	20	—	—
Antimony	µg/L	—	—	6	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	5	<0.02	<0.02	<0.02	<0.02	—	—	—	—	—	—	—
Arsenic	µg/L	—	5	10	—	—	0.4	1.1	0.29	0.37	0.3	5	0.29	0.37	0.5	1.1	0.35	0.16	—	—	—	—	—
Barium	µg/L	—	—	1,000	—	—	1.9	3.5	1.9	1.8	1.9	5	1.8	1.9	2.2	3.5	0.73	0.33	—	—	—	—	—
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	5	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	5	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Boron	µg/L	29,000	1,500	5,000	—	—	2.5	3	2.4	3	3.3	5	2.4	3.0	2.8	3.3	0.38	0.17	—	—	—	—	—
Cadmium	µg/L	0.11[k]	0.04[k]	5	—	—	<0.005	0.0069	<0.005	<0.005	<0.005	5	<0.005	<0.005	<0.005	0.0069	0.002	0.00088	—	—	—	—	—
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	5	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Chromium	µg/L	—	1	50	—	—	<0.06	0.11	0.097	0.073	0.1	5	<0.06	0.097	0.083	0.11	0.033	0.015	—	—	—	—	—
Chromium VI	µg/L	—	1	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	5	<1.0	<1.0	<1.0	<1.0	—	—	—	—	—	—	—
Cobalt	µg/L	—	—	—	—	—	0.057	0.41	0.04	0.053	0.045	5	0.040	0.053	0.12	0.41	0.16	0.072	—	—	—	—	—
Copper	µg/L	—	2[j]	1,000	—	—	0.78	1.2	0.74	0.77	0.86	5	0.74	0.78	0.87	1.2	0.19	0.087	—	—	—	—	—
Iron	µg/L	—	300	300	—	—	75	**695[C, D]**	61	67	60	5	60	67	192	**695[C, D]**	281	126	—	20	20	—	—
Lead	µg/L	—	1[j]	10	—	—	<0.01	0.067	<0.01	0.011	0.011	5	<0.01	0.011	0.020	0.067	0.027	0.012	—	—	—	—	—
Lithium	µg/L	—	—	—	—	—	0.81	1.3	1.5	0.81	1.5	5	0.81	1.3	1.2	1.5	0.35	0.16	—	—	—	—	—
Manganese	µg/L	—	—	50	—	—	2.4	27	1.6	2.3	1.6	5	1.6	2.3	7.0	27	11	5.0	—	—	—	—	—
Mercury	µg/L	—	0.026	1	—	—	0.00054	0.00095	0.00058	<0.0005	0.00059	5	<0.0005	0.00058	0.00058	0.00095	0.00025	0.00011	—	—	—	—	—
Molybdenum	µg/L	—	73	—	223,000	19,000	<0.05	<0.05	<0.05	<0.05	<0.05	5	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—
Nickel	µg/L	—	25[j]	—	—	—	0.38	0.64	0.37	0.36	0.39	5	0.36	0.38	0.43	0.64	0.12	0.053	—	—	—	—	—
Selenium	µg/L	—	1	10	—	—	<0.04	<0.04	<0.04	<0.04	<0.04	5	<0.04	<0.04	<0.04	<0.04	—	—	—	—	—	—	—
Silver	µg/L	—	0.1	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	5	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—
Strontium	µg/L	—	—	—	—	—	5.0	5.7	4.9	4.9	5.1	5	4.9	5.0	5.1	5.7	0.34	0.15	—	—	—	—	—
Thallium	µg/L	—	0.8	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	5	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—

Table E-10 Laboratory Water Quality Data From Lake E1 During the Open-Water Period, 2013

Location		Guidelines					Lake E1 Sampling Stations					Summary Statistics												
		Aquatic Life					E-L1-1			E-L1-2														
Sample Name							E-L1-1 TOP	E-L1-1 BOTTOM	E-L1-1	E-L1-2 MID	E-L1-2								% Above Guideline				
Sampling Season							Summer	Summer	Fall	Summer	Fall													
Sample Date							16-Aug-13	16-Aug-13	12-Sep-13	16-Aug-13	12-Sep-13													
Easting (NAD 83, 12W)							535065	535065	535065	535292	535292													
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7174657	7174657	7174657	7174406	7174406	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Total Metals (Continued)																								
Tin	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	5	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—	
Titanium	µg/L	—	—	—	—	—	0.24	1.3	0.8	0.27	0.53	5	0.24	0.53	0.62	1.3	0.43	0.19	—	—	—	—	—	
Uranium	µg/L	33	15	20	—	—	0.047	0.098	0.039	0.046	0.038	5	0.038	0.046	0.054	0.098	0.025	0.011	—	—	—	—	—	
Vanadium	µg/L	—	—	—	300	30	0.098	0.47	0.11	0.11	0.1	5	0.098	0.11	0.18	0.47	0.16	0.073	—	—	—	—	—	
Zinc	µg/L	—	30	5,000	—	—	1.5	2.3	1.4	1.4	4.1	5	1.4	1.5	2.1	4.1	1.1	0.51	—	—	—	—	—	
Dissolved Metals																								
Aluminum	µg/L	—	—	—	—	—	10	20	11	7.5	7.6	5	7.5	10	11	20	4.9	2.2	—	—	—	—	—	
Antimony	µg/L	—	—	—	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	5	<0.02	<0.02	<0.02	<0.02	—	—	—	—	—	—	—	
Arsenic	µg/L	—	—	—	—	—	0.35	0.56	0.28	0.34	0.28	5	0.28	0.34	0.36	0.56	0.12	0.052	—	—	—	—	—	
Barium	µg/L	—	—	—	—	—	1.8	3.6	2.3	1.7	2.1	5	1.7	2.1	2.3	3.6	0.76	0.34	—	—	—	—	—	
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	5	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—	
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	5	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—	
Boron	µg/L	—	—	—	—	—	4.3	2.5	5.6	2.7	2	5	2.0	2.7	3.4	5.6	1.5	0.67	—	—	—	—	—	
Cadmium	µg/L	—	—	—	—	—	<0.005	0.0053	<0.005	<0.005	<0.005	5	<0.005	<0.005	0.0031	0.0053	0.0013	0.00056	—	—	—	—	—	
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	5	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—	
Chromium	µg/L	—	—	—	—	—	0.062	0.14	0.12	<0.06	0.14	5	<0.06	0.12	0.098	0.14	0.05	0.022	—	—	—	—	—	
Cobalt	µg/L	—	—	—	—	—	0.025	0.36	0.041	0.022	0.028	5	0.022	0.028	0.095	0.36	0.15	0.066	—	—	—	—	—	
Copper	µg/L	—	—	—	—	—	0.72	0.94	0.78	0.71	0.79	5	0.71	0.78	0.79	0.94	0.092	0.041	—	—	—	—	—	
Iron	µg/L	—	—	—	—	—	22	117	22	19	16	5	16	22	39	117	44	19	—	—	—	—	—	
Lead	µg/L	—	—	—	—	—	<0.01	0.025	0.034	<0.01	0.029	5	<0.01	0.025	0.020	0.034	0.014	0.0061	—	—	—	—	—	
Lithium	µg/L	—	—	—	—	—	0.85	1.2	1.6	0.65	1.3	5	0.65	1.2	1.1	1.6	0.36	0.16	—	—	—	—	—	
Manganese	µg/L	—	—	—	—	—	0.83	24	0.76	0.6	0.32	5	0.32	0.76	5.4	24	11	4.7	—	—	—	—	—	
Mercury	µg/L	—	—	—	—	—	<0.0005	0.00051	0.00061	<0.0005	0.0005	5	<0.0005	0.00050	0.00042	0.00061	0.00016	0.000074	—	—	—	—	—	
Molybdenum	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	5	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—	
Nickel	µg/L	—	—	—	—	—	0.38	0.61	0.4	0.34	0.36	5	0.34	0.38	0.42	0.61	0.11	0.049	—	—	—	—	—	
Selenium	µg/L	—	—	—	—	—	<0.04	<0.04	<0.04	<0.04	<0.04	5	<0.04	<0.04	<0.04	<0.04	—	—	—	—	—	—	—	
Silver	µg/L	—	—	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	5	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—	
Strontium	µg/L	—	—	—	—	—	4.9	5.4	5	4.7	4.8	5	4.7	4.9	5.0	5.4	0.28	0.12	—	—	—	—	—	
Thallium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	5	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—	

Table E-10 Laboratory Water Quality Data From Lake E1 During the Open-Water Period, 2013

Location		Guidelines					Lake E1 Sampling Stations					Summary Statistics												
		Aquatic Life					E-L1-1			E-L1-2														
Sample Name							E-L1-1 TOP	E-L1-1 BOTTOM	E-L1-1	E-L1-2 MID	E-L1-2								% Above Guideline				
Sampling Season							Summer	Summer	Fall	Summer	Fall													
Sample Date							16-Aug-13	16-Aug-13	12-Sep-13	16-Aug-13	12-Sep-13													
Easting (NAD 83, 12W)							535065	535065	535065	535292	535292													
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7174657	7174657	7174657	7174406	7174406	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Dissolved Metals (Continued)																								
Tin	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	5	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—	
Titanium	µg/L	—	—	—	—	—	0.4	0.63	0.23	<0.1	0.17	5	<0.1	0.23	0.30	0.63	0.23	0.1	—	—	—	—	—	
Uranium	µg/L	—	—	—	—	—	0.04	0.062	0.035	0.04	0.035	5	0.035	0.040	0.042	0.062	0.011	0.005	—	—	—	—	—	
Vanadium	µg/L	—	—	—	—	—	0.062	0.12	0.057	0.056	0.05	5	0.05	0.057	0.069	0.12	0.028	0.013	—	—	—	—	—	
Zinc	µg/L	—	—	—	—	—	0.98	2.4	2.6	2.2	1.4	5	0.98	2.2	1.9	2.6	0.7	0.31	—	—	—	—	—	

Note:
Bolded concentrations are higher than relevant water quality guidelines.
C) = concentration higher than the relevant chronic aquatic life guideline or outside the recommended pH or DO concentration range.
D) = concentration higher than the relevant drinking water guideline or outside the recommended pH or DO concentration range.
Guideline exceedances by median concentrations are based on guidelines calculated using median values of hardness, pH, and temperature, and are not included in the percent exceedance calculations.
Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision after comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Measured concentrations equal to the guideline values were not identified as exceedances.
a) Source: CCME (Canadian Council of Ministers of the Environment). (1999, with updates to 2014). Canadian Environmental Quality Guidelines. Winnipeg, MB, Canada.
b) Source: Health Canada. (2012). Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.
c) Source: Elphick JRF, Bergh KD, Bailey HC. 2011. Chronic toxicity of chloride to freshwater species: effects of hardness and implications for water quality guidelines. Environ Toxicol Chem 30: 230-246.
d) Source: Rescan (Rescan Environmental Services Ltd.). (2012a). Ekati Diamond Mine: Site-Specific Water Quality Objective for Potassium. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.
e) Source: Rescan. (2012b). Ekati Diamond Mine: Site-specific Water Quality Objective for Sulphate. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.
f) Source: Rescan. (2012c). Ekati Diamond Mine: Site-Specific Water Quality Objective for Nitrate, 2012. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.
g) Source: Rescan. (2012d). Ekati Diamond Mine: Site Specific Water Quality Objective for Molybdenum, 2011. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.
h) Source: Rescan. (2012e). Ekati Diamond Mine: Site-specific Water Quality Objective for Vanadium. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.
i) Guidelines based on hardness of 4.7 mg $CaCO_3$/L.
j) Guidelines based on pH of 6.0 to 7.2, temperature of 4.4°C to 20.4°C, and water hardness of 3.6 to 7.4 mg/L.
k) Acute guideline applies to all waters of hardness below 5.3 mg $CaCO_3$/L; chronic guideline applies to all waters of hardness below 17 mg $CaCO_3$/L.
— = no guideline or data; CWQG = Canadian Drinking Water Quality Guidelines; DWQG = Drinking Water Quality Guidelines; SSWQO = Site-Specific Water Quality Objective; min = minimum, max = maximum; NAD = North American Datum; H+ = hydrogen ions; $CaCO_3$ = calcium carbonate; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % = percent; meq/L = milliequivalents per litre; pH = potential of hydrogen, provides measure of the acidity or alkalinity of a solution on a scale of 0 to 14; DO = dissolved oxygen; NTU = nephelometric turbidity units; mg N/L = milligrams of nitrogen per litre; mg P/L = milligrams of phosphorus per litre; µg/L = micrograms per litre; CFU/100 mL = coliform forming units per 100 millilitres; BTEX = benzene, toluene, ethylbenzene, xylene; < = less than.

Table E-11 Field Profile Data From Paul Lake During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
PL-1 (WQ)	28-Jul-13	9.5	3.75	Surface	13.2	10.1	95.5	14
				0.5	13.2	10.2	95.5	14
				1	13.2	10.1	95.4	14
				2	13.2	10.2	95.5	14
				3	13.1	10.1	95.4	14
				4	13.1	10.2	95.6	14
				5	13.1	10.2	96.0	14
				6	13.1	10.2	95.8	14
				7	13.1	10.2	95.6	14
				8	13.1	10.2	96.4	14
				9	13.0	10.3	94.4	14
PL-1 (WQ)	14-Aug-13	10.5	3.5	Surface	20.4	9.3	100.8	15
				0.5	20.4	9.3	101.4	15
				1	20.4	9.3	101.4	15
				2	20.3	9.3	101.2	15
				3	19.4	9.8	102.4	15
				4	17.8	9.8	101.7	15
				5	14.6	10.0	97.1	15
				6	13.4	9.6	90.4	14
				7	12.9	9.0	84.4	14
				8	12.6	8.1	76.0	15
				9	12.3	7.0	64.6	15
PL-2 (WQ)	28-Jul-13	7.5	3.8	Surface	13.2	10.1	95.7	14
				0.5	13.2	10.2	95.8	14
				1	13.1	10.2	96.0	14
				2	13.1	10.2	96.0	14
				3	13.1	10.2	95.9	14
				4	13.1	10.2	96.2	14
				5	13.1	10.2	96.2	14
				6	13.1	10.2	96.1	14
				7	13.1	10.2	96.1	14

Table E-11 Field Profile Data From Paul Lake During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
PL-2 (WQ)	14-Aug-13	8	3.5	Surface	20.3	9.5	103.1	15
				0.5	20.3	9.5	102.8	15
				1	20.2	9.5	103.0	15
				2	20.1	9.5	103.1	15
				3	19.1	9.7	102.4	15
				4	17.9	9.5	99.2	15
				5	15.5	9.0	89.1	15
				6	14.3	7.9	77.0	15
				7	13.8	6.8	64.9	15
PL-2 (WQ)	15-Sep-13	7.6	3	Surface	7.9	11.3	94.4	14
				0.5	7.9	11.3	94.4	14
				1	7.8	11.3	94.3	13
				2	7.8	11.3	94.2	13
				3	7.8	11.3	94.0	13
				4	7.7	11.2	93.7	13
				5	7.7	11.2	93.4	13
				6	7.6	11.2	93.2	13
				7	7.6	11.2	93.1	13
PL-3 (WQ)	29-Jul-13	12	5.4	Surface	13.0	10.2	95.6	15
				0.5	13.0	10.2	96.0	15
				1	12.9	10.2	95.6	15
				2	12.9	10.2	96.0	15
				3	12.9	10.3	96.1	15
				4	12.9	10.2	95.8	15
				5	12.9	10.2	95.9	15
				6	12.9	10.2	95.8	15
				7	12.9	10.3	96.2	15
				8	12.9	10.2	96.0	15
				9	12.9	10.2	95.7	15
				10	12.8	10.2	95.3	15
				11	12.8	10.2	95.4	15

Table E-11 Field Profile Data From Paul Lake During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
PL-3 (WQ)	15-Aug-13	13.4	3.9	Surface	20.1	9.4	101.7	16
				0.5	20.1	9.4	101.6	16
				1	20.1	9.4	101.6	16
				2	20.1	9.4	101.7	16
				3	17.9	10.1	104.8	16
				4	17.3	10.3	105.6	16
				5	15.8	10.8	107.6	16
				6	14.8	11.2	109.1	16
				7	14.1	11.5	110.2	15
				8	13.6	11.7	110.9	16
				9	13.3	11.9	111.4	16
				10	13.1	12.0	111.8	16
				11	12.9	12.0	112.2	16
				12	13.3	11.8	111.1	16
				13	13.2	11.7	110.8	16
PL-3 (WQ)	15-Sep-13	12	3.5	Surface	8.6	13.0	111.2	14
				0.5	8.5	13.1	111.4	14
				1	8.5	13.1	111.5	14
				2	8.3	13.2	111.7	14
				3	8.2	13.2	111.9	14
				4	8.2	13.2	112.0	14
				5	8.2	13.2	112.0	14
				6	8.2	13.2	112.0	14
				7	8.2	13.2	112.0	14
				8	8.2	13.2	112.0	14
				9	8.2	—	—	14
				10	8.2	13.3	112.0	14
				11	8.2	13.3	112.0	14

Table E-11 Field Profile Data From Paul Lake During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
PL-4 (WQ)	28-Jul-13	13.8	5.9	Surface	13.2	10.3	96.9	15
				0.5	13.1	10.3	96.6	15
				1	13.0	10.3	97.1	15
				2	13.0	10.3	96.0	15
				3	12.9	10.3	96.6	15
				4	12.9	10.3	96.6	15
				5	12.8	10.3	96.0	15
				6	12.8	10.2	95.7	15
				7	12.8	10.2	96.0	15
				8	12.7	10.2	95.2	15
				9	12.7	10.2	95.3	15
				10	12.7	10.2	95.6	15
				11	12.7	10.2	95.6	15
				12	12.6	10.2	95.3	15
PL-4 (Benthic)	15-Sep-13	12	3.6	Surface	8.2	11.5	94.3	14
				0.5	8.1	11.2	94.9	14
				1	8.1	11.2	94.8	14
				2	8.1	11.2	94.4	14
				3	8.0	11.2	94.8	14
				4	7.9	11.2	94.6	14
				5	7.9	11.2	94.1	14
				6	7.9	11.2	93.9	14
				7	7.8	11.2	93.9	14
				8	7.8	—	—	14
				9	7.8	—	—	14
				10	7.7	—	—	14
				11	7.7	—	—	14
PL-5 (WQ)	15-Aug-13	6	3.9	Surface	19.7	9.5	102.2	16
				0.5	19.7	9.5	102.2	16
				1	19.7	9.5	102.1	16
				2	—	—	—	—
				3	—	—	—	—
				4	—	—	—	—
				5	—	—	—	—
				5.5	—	—	—	—

Table E-11 Field Profile Data From Paul Lake During the Open-Water Period, 2013

Station Code	Date	Maximum Depth (m)	Secchi Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	Specific Conductivity (µS/cm)
PL-5 (WQ)	15-Sep-13	7.6	3.25	Surface	7.8	12.6	105.9	14
				0.5	7.8	12.6	105.9	14
				1	7.8	12.6	105.9	14
				2	7.8	12.6	105.9	14
				3	7.8	12.6	105.9	14
				4	7.8	12.6	105.9	14
				5	7.3	12.6	105.9	14
				6	7.8	12.6	105.9	14
				7	7.8	12.6	105.9	14

— = no data; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % Sat = percent saturation; µS/cm = microsiemens per centimetre; WQ = water quality.

Table E-12 Laboratory Water Quality Data From Paul Lake During the Open-Water Period, 2013
Part A

Location		Guidelines					Paul Lake Sampling Stations														
		Aquatic Life					PL-1			PL-2				PL-3				PL-4		PL-5		
Sample Name							PL-1-MID	PL-1 TOP	PL-1 BOTTOM	PL-2-MID	PL-2 TOP	PL-2 BOTTOM	PL-2	PL-3-MID	PL-3 TOP	PL-3 BOTTOM	PL-3	PL-4-MID	PL-4	PL-5 TOP	PL-5 BOTTOM	PL-5
Sampling Season							Late Spring	Summer	Summer	Late Spring	Summer	Summer	Fall	Late Spring	Summer	Summer	Fall	Late Spring	Fall	Summer	Summer	Fall
Sample Date							28-Jul-13	14-Aug-13	14-Aug-13	28-Jul-13	14-Aug-13	14-Aug-13	15-Sep-13	29-Jul-13	15-Aug-13	15-Aug-13	15-Sep-13	28-Jul-13	15-Sep-13	15-Aug-13	15-Aug-13	15-Sep-13
Easting (NAD 83, 12W)							533179	533179	533179	531655	531655	531655	531655	528681	528681	528681	528681	527145	527145	525859	525859	525859
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7173835	7173835	7173835	7174122	7174122	7174122	7174122	7172550	7172550	7172550	7172550	7171895	7171895	7171047	7171047	7171047
Field Measured																						
Total depth	m	—	—	—	—	—	9.5	10.0	10.0	7.5	8.0	8.0	7.6	12.0	13.0	13.0	12.0	14.0	12.0	6.0	6.0	7.6
Sample depth	m	—	—	—	—	—	4.0	1.0	9.0	3.0	1.0	7.0	4.0	6.0	1.0	11.0	6.0	6.0	6.0	1.0	5.0	4.0
Secchi depth	m	—	—	—	—	—	3.8	3.5	3.5	3.8	3.5	3.5	3.0	5.4	3.9	3.9	3.5	5.9	3.6	3.9	3.9	3.3
Water temperature	°C	—	—	—	—	—	13.1	20.4	12.3	13.1	20.2	13.8	7.7	12.9	20.1	12.9	8.2	12.8	7.9	19.7	—	7.8
Specific conductivity	µS/cm	—	—	—	—	—	14	15	15	14	15	15	13	15	16	16	14	15	14	16	—	14
Dissolved oxygen	mg/L	—	6.5	—	—	—	10.2	9.3	7.0	10.2	9.5	6.8	—	10.2	9.4	12.0	13.2	10.2	11.2	9.5	—	12.6
Dissolved oxygen saturation	%	—	—	—	—	—	96	101	65	96	103	65	—	96	102	112	112	96	94	102	—	106
Conventional Parameters																						
Alkalinity, gran (as H+)	meq/L	—	—	—	—	—	0.11	0.1	<0.1	0.12	<0.1	0.14	0.13	0.14	<0.1	0.12	<0.1	<0.1	<0.1	0.1	<0.1	<0.1
Alkalinity, total as $CaCO_3$	mg/L	—	—	—	—	—	4.8	6.3	6.0	5.0	5.6	6.5	4.8	5.3	6.3	5.6	4.4	4.8	5.8	5.2	5.1	4.4
Conductance	µS/cm	—	—	—	—	—	16	26	27	18	28	32	16	18	20	19	17	17	18	18	19	17
Hardness	mg/L	—	—	—	—	—	5.7	5.8	5.8	5.8	5.9	6.0	6.0	6.1	6.1	6.0	6.0	6.1	5.9	6.0	6.1	5.9
pH	pH units	—	6.5 – 9.0	6.5 – 8.5	—	—	**6.5**[C, D]	6.8	6.7	**6.5**[C, D]	6.8	6.8	6.7	**6.4**[C, D]	7.2	6.8	6.6	**6.4**[C, D]	6.6	6.8	6.7	6.6
Total dissolved solids	mg/L	—	—	500	—	—	28	11	<10	27	12	<10	21	10	17	13	13	15	19	14	13	19
Total suspended solids	mg/L	—	—	—	—	—	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity	NTU	—	—	—	—	—	0.73	0.74	0.76	0.72	0.74	0.97	1.5	0.71	0.73	0.66	0.77	0.67	0.87	0.71	0.69	0.92
Major Ions																						
Bicarbonate	mg/L	—	—	—	—	—	5.9	7.7	7.3	6.1	6.8	7.9	5.9	6.4	7.6	6.8	5.4	5.9	7.0	6.3	6.2	5.4
Calcium	mg/L	—	—	—	—	—	0.94	0.92	0.95	0.94	0.97	1.0	0.96	0.92	0.99	0.98	0.95	0.9	0.94	0.99	1.0	0.97
Chloride	mg/L	640	120	250	—	64.5[i]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride	mg/L	—	0.12	1.5	—	—	0.027	<0.02	<0.02	0.029	<0.02	<0.02	<0.02	0.027	<0.02	<0.02	<0.02	0.027	<0.02	<0.02	<0.02	<0.02
Magnesium	mg/L	—	—	—	—	—	0.82	0.84	0.83	0.84	0.84	0.85	0.87	0.86	0.88	0.87	0.88	0.85	0.86	0.86	0.88	0.85
Potassium	mg/L	—	—	—	112	41	0.63	0.58	0.58	0.64	0.58	0.57	0.61	0.62	0.62	0.62	0.63	0.62	0.62	0.63	0.62	0.64
Sodium	mg/L	—	—	200	—	—	0.67	0.68	0.67	0.68	0.68	0.68	0.71	0.70	0.68	0.67	0.70	0.71	0.69	0.73	0.71	0.70
Sulphate	mg/L	—	—	500	250[i]	22.7[i]	1.2	1.1	1.1	1.3	1.1	1.1	1.5	1.6	1.9	1.7	1.7	1.7	1.8	1.9	2.0	1.8
Nutrients																						
Total organic carbon	mg/L	—	—	—	—	—	3.8	4.7	4.7	3.7	5.2	4.5	4.7	4.6	4.6	4.6	4.6	4.2	4.5	4.6	4.6	5.0
Dissolved organic carbon	mg/L	—	—	—	—	—	4.2	4.9	4.5	4.3	5.0	4.6	4.6	4.6	4.5	4.3	5.1	4.6	4.5	4.6	4.6	4.6
Total nitrogen (calculated)	mg N/L	—	—	—	—	—	0.23	0.13	0.15	0.2	0.14	0.29	0.3	0.15	0.12	0.14	0.24	0.17	0.24	0.16	0.19	0.21
Total Kjeldahl Nitrogen	mg N/L	—	—	—	—	—	0.23	0.13	0.15	0.2	0.14	0.29	0.3	0.15	0.12	0.14	0.24	0.17	0.24	0.16	0.19	0.21

Table E-12 Laboratory Water Quality Data From Paul Lake During the Open-Water Period, 2013
Part A

Location		Guidelines					Paul Lake Sampling Stations														
		Aquatic Life					PL-1			PL-2				PL-3				PL-4		PL-5		
Sample Name							PL-1-MID	PL-1 TOP	PL-1 BOTTOM	PL-2-MID	PL-2 TOP	PL-2 BOTTOM	PL-2	PL-3-MID	PL-3 TOP	PL-3 BOTTOM	PL-3	PL-4-MID	PL-4	PL-5 TOP	PL-5 BOTTOM	PL-5
Sampling Season							Late Spring	Summer	Summer	Late Spring	Summer	Summer	Fall	Late Spring	Summer	Summer	Fall	Late Spring	Fall	Summer	Summer	Fall
Sample Date							28-Jul-13	14-Aug-13	14-Aug-13	28-Jul-13	14-Aug-13	14-Aug-13	15-Sep-13	29-Jul-13	15-Aug-13	15-Aug-13	15-Sep-13	28-Jul-13	15-Sep-13	15-Aug-13	15-Aug-13	15-Sep-13
Easting (NAD 83, 12W)							533179	533179	533179	531655	531655	531655	531655	528681	528681	528681	528681	527145	527145	525859	525859	525859
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7173835	7173835	7173835	7174122	7174122	7174122	7174122	7172550	7172550	7172550	7172550	7171895	7171895	7171047	7171047	7171047
Total ammonia	mg N/L	—	2.7 – 139[j]	—	—	—	0.013	0.0089	0.013	0.011	0.014	0.0088	<0.005	0.013	0.0082	0.0084	<0.005	0.015	<0.005	<0.005	0.0091	<0.005
Nutrients (Continued)																						
Nitrate	mg N/L	124	2.9	10	—	0.57[i]	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Nitrite	mg N/L	—	0.06	1	—	—	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Total phosphorus	mg P/L	—	—	—	—	—	0.0088	0.0086	0.012	0.0091	0.0093	0.017	0.012	0.0084	0.0067	0.007	0.008	0.0073	0.012	0.013	0.0082	0.016
Total dissolved phosphorus	mg P/L	—	—	—	—	—	0.0038	0.0026	0.0033	0.0036	0.0027	0.0037	0.0044	0.0025	0.0022	0.0024	0.0027	0.0021	0.004	0.0025	0.0029	0.0041
Dissolved orthophosphate	mg/L	—	—	—	—	—	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	—	<0.001	<0.001	<0.001	<0.001
Silica, reactive	mg/L	—	—	—	—	—	0.13	0.16	0.2	0.12	0.17	0.15	0.14	0.17	0.18	0.19	0.18	0.17	0.19	0.17	0.16	0.17
Other Parameters																						
Benzene	µg/L	—	370	5	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	—	90	2.4	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	—	2	24	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene	µg/L	—	—	300	—	—	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71
Petroleum hydrocarbons – F1 (C6-C10)	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Petroleum hydrocarbons – F1 (C6-C10)-BTEX	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Petroleum hydrocarbons – F2 (C10-C16)	mg/L	—	—	—	—	—	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total recoverable hydrocarbons	mg/L	—	—	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fecal coliform	CFU/ 100 mL	—	—	—	—	—	1.0	<1.0	<1.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5.0	<1.0	<1.0	<1.0	<1.0
Total Metals																						
Aluminum	µg/L	—	5 or 100[j]	100	—	—	12	12	11	**22**[c]	14	12	39	**15**[c]	9.3	14	13	**13**[c]	15	15	12	11
Antimony	µg/L	—	—	6	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.047	<0.02	<0.02
Arsenic	µg/L	—	5	10	—	—	0.66	0.81	0.81	0.61	0.82	1.0	0.71	0.56	0.6	0.59	0.51	0.51	0.51	0.59	0.57	0.43
Barium	µg/L	—	—	1,000	—	—	1.5	1.4	1.9	1.6	1.4	1.9	1.8	1.6	1.4	1.6	1.7	1.7	1.7	1.7	1.8	1.7
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	29,000	1,500	5,000	—	—	3.9	3.4	4.3	3.8	3.3	3.2	<10	3.3	4.3	5.3	2.6	3.5	2.7	4.0	4.9	4.6
Cadmium	µg/L	0.11[k]	0.04[k]	5	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	—	1	50	—	—	0.074	0.068	0.073	0.09	0.067	<0.06	0.17	0.07	<0.06	0.078	0.11	0.088	0.096	0.1	0.081	0.079
Chromium VI	µg/L	—	1	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Table E-12 Laboratory Water Quality Data From Paul Lake During the Open-Water Period, 2013
Part A

Location		Guidelines					Paul Lake Sampling Stations														
		Aquatic Life					PL-1			PL-2				PL-3				PL-4		PL-5		
Sample Name							PL-1-MID	PL-1 TOP	PL-1 BOTTOM	PL-2-MID	PL-2 TOP	PL-2 BOTTOM	PL-2	PL-3-MID	PL-3 TOP	PL-3 BOTTOM	PL-3	PL-4-MID	PL-4	PL-5 TOP	PL-5 BOTTOM	PL-5
Sampling Season							Late Spring	Summer	Summer	Late Spring	Summer	Summer	Fall	Late Spring	Summer	Summer	Fall	Late Spring	Fall	Summer	Summer	Fall
Sample Date							28-Jul-13	14-Aug-13	14-Aug-13	28-Jul-13	14-Aug-13	14-Aug-13	15-Sep-13	29-Jul-13	15-Aug-13	15-Aug-13	15-Sep-13	28-Jul-13	15-Sep-13	15-Aug-13	15-Aug-13	15-Sep-13
Easting (NAD 83, 12W)							533179	533179	533179	531655	531655	531655	531655	528681	528681	528681	528681	527145	527145	525859	525859	525859
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7173835	7173835	7173835	7174122	7174122	7174122	7174122	7172550	7172550	7172550	7172550	7171895	7171895	7171047	7171047	7171047
Cobalt	µg/L	—	—	—	—	—	0.032	0.054	0.038	0.041	0.06	0.072	<0.1	0.029	0.038	0.03	0.04	0.027	0.039	0.055	0.04	0.042
Total Metals (Continued)																						
Copper	µg/L	—	2[j]	1,000	—	—	1.1	1.2	1.1	0.97	1.2	1.2	1.5	0.99	1.0	0.98	1.1	0.96	1.1	1.1	1.3	0.98
Iron	µg/L	—	300	300	—	—	41	41	45	54	54	77	79	54	44	48	36	51	40	62	51	39
Lead	µg/L	—	1[j]	10	—	—	0.023	0.01	<0.01	0.016	0.014	0.015	<0.05	0.027	<0.01	<0.01	<0.01	0.017	0.01	0.044	0.014	0.01
Lithium	µg/L	—	—	—	—	—	1.4	1.5	1.6	1.4	1.6	1.4	<5.0	1.7	1.3	1.1	1.5	1.8	1.6	1.3	1.5	1.7
Manganese	µg/L	—	—	50	—	—	3.4	7.5	7.5	3.9	9.3	12	4.5	5.2	8.9	6.8	5.8	4.6	5.4	8.3	7.2	4.9
Mercury	µg/L	—	0.026	1	—	—	<0.0005	0.00057	0.00057	<0.0005	<0.0005	0.00088	0.01	<0.0005	0.00053	<0.0005	0.00065	<0.0005	0.00075	0.00055	<0.0005	0.00058
Molybdenum	µg/L	—	73	—	223,000	19,000	<0.05	0.053	0.05	<0.05	0.051	<0.05	0.059	<0.05	0.066	0.059	<0.05	<0.05	<0.05	0.095	0.075	<0.05
Nickel	µg/L	—	25[j]	—	—	—	0.59	0.63	0.54	0.56	0.64	0.62	0.77	0.49	0.56	0.58	0.55	0.49	0.54	0.89	0.6	0.51
Selenium	µg/L	—	1	10	—	—	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.1	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	—	0.1	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	—	—	—	—	—	6.0	6.8	6.7	6.2	6.8	6.8	6.1	6.9	6.7	6.4	6.2	6.9	6.3	6.7	6.9	6.7
Thallium	µg/L	—	0.8	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	µg/L	—	—	—	—	—	0.33	0.17	0.36	0.62	0.21	0.45	1.2	0.69	0.15	0.38	0.62	0.52	0.68	0.56	0.43	0.57
Uranium	µg/L	33	15	20	—	—	0.041	0.039	0.036	0.039	0.038	0.039	0.052	0.033	0.036	0.035	0.034	0.034	0.036	0.039	0.038	0.037
Vanadium	µg/L	—	—	—	300	30	0.08	0.08	0.067	0.095	0.078	0.081	0.23	0.076	0.066	0.066	0.065	0.068	0.076	0.075	0.067	0.064
Zinc	µg/L	—	30	5,000	—	—	1.5	1.3	2.8	1.6	1.6	<0.8	<3.0	1.9	<0.8	<0.8	2.5	0.95	<0.8	4.4	1.3	0.82
Dissolved Metals																						
Aluminum	µg/L	—	—	—	—	—	6.4	6.5	4.5	6.0	8.3	4.7	9.6	4.8	4.4	4.4	3.1	5.8	5.1	6.0	3.7	5.8
Antimony	µg/L	—	—	—	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.029	<0.02	<0.02
Arsenic	µg/L	—	—	—	—	—	0.62	0.77	0.72	0.62	0.74	0.81	0.6	0.49	0.53	0.51	0.45	0.5	0.45	0.53	0.54	0.42
Barium	µg/L	—	—	—	—	—	1.4	1.3	1.6	1.5	1.3	1.8	1.6	1.6	1.2	1.5	1.5	1.6	1.5	1.5	1.5	1.7
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	—	—	—	—	—	3.3	5.2	3.3	2.8	4.7	6.3	2.7	4.9	5.0	3.6	4.0	3.1	4.2	4.2	4.1	3.0
Cadmium	µg/L	—	—	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0055	<0.005	<0.005
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	—	—	—	—	—	<0.06	0.065	<0.06	<0.06	0.062	0.063	0.09	0.064	<0.06	<0.06	0.073	<0.06	0.08	0.064	<0.06	0.068
Cobalt	µg/L	—	—	—	—	—	0.017	0.017	0.016	0.017	0.019	0.022	0.032	0.014	0.013	0.01	0.018	0.016	0.025	0.016	0.015	0.024
Copper	µg/L	—	—	—	—	—	1.0	1.1	1.1	1.0	1.1	1.1	1.3	0.94	0.9	0.87	1.0	0.88	1.1	1.0	1.2	1.1
Iron	µg/L	—	—	—	—	—	19	9.3	7.8	24	15	14	25	21	7.9	6.7	8.2	24	12	13	8.0	13
Lead	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	0.018	<0.01	0.013	0.015	<0.01	<0.01	<0.01	0.026	<0.01	0.016	<0.01	<0.01
Lithium	µg/L	—	—	—	—	—	1.4	1.2	1.3	1.4	1.5	1.5	1.6	1.8	1.1	0.97	1.6	1.7	1.5	1.1	1.1	1.5
Manganese	µg/L	—	—	—	—	—	0.46	0.33	1.7	0.55	0.35	2.1	0.8	0.55	0.36	0.52	0.64	0.46	0.71	0.99	0.34	0.84
Mercury	µg/L	—	—	—	—	—	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00056	0.00061	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	0.00062
Molybdenum	µg/L	—	—	—	—	—	<0.05	0.053	<0.05	<0.05	0.053	<0.05	0.051	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.079	<0.05	<0.05

Table E-12 Laboratory Water Quality Data From Paul Lake During the Open-Water Period, 2013
Part A

Location		Guidelines					Paul Lake Sampling Stations														
		Aquatic Life					PL-1			PL-2				PL-3				PL-4		PL-5		
Sample Name							PL-1-MID	PL-1 TOP	PL-1 BOTTOM	PL-2-MID	PL-2 TOP	PL-2 BOTTOM	PL-2	PL-3-MID	PL-3 TOP	PL-3 BOTTOM	PL-3	PL-4-MID	PL-4	PL-5 TOP	PL-5 BOTTOM	PL-5
Sampling Season							Late Spring	Summer	Summer	Late Spring	Summer	Summer	Fall	Late Spring	Summer	Summer	Fall	Late Spring	Fall	Summer	Summer	Fall
Sample Date							28-Jul-13	14-Aug-13	14-Aug-13	28-Jul-13	14-Aug-13	14-Aug-13	15-Sep-13	29-Jul-13	15-Aug-13	15-Aug-13	15-Sep-13	28-Jul-13	15-Sep-13	15-Aug-13	15-Aug-13	15-Sep-13
Easting (NAD 83, 12W)							533179	533179	533179	531655	531655	531655	531655	528681	528681	528681	528681	527145	527145	525859	525859	525859
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7173835	7173835	7173835	7174122	7174122	7174122	7174122	7172550	7172550	7172550	7172550	7171895	7171895	7171047	7171047	7171047
Nickel	µg/L	—	—	—	—	—	0.58	0.62	0.58	0.54	0.61	0.6	0.67	0.49	0.5	0.51	0.5	0.5	0.49	0.75	0.55	0.56
Dissolved Metals (Continued)																						
Selenium	µg/L	—	—	—	—	—	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	—	—	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	—	—	—	—	—	6.1	6.4	6.5	6.2	6.7	6.7	6.1	6.8	6.9	6.7	6.3	6.7	6.4	6.9	6.9	6.6
Thallium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	µg/L	—	—	—	—	—	0.09	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	µg/L	—	—	—	—	—	0.46	0.11	<0.1	<0.1	0.27	0.1	0.37	<0.1	<0.1	<0.1	0.11	0.12	0.23	0.14	0.12	0.23
Uranium	µg/L	—	—	—	—	—	0.039	0.035	0.035	0.035	0.036	0.032	0.045	0.032	0.03	0.029	0.032	0.033	0.036	0.033	0.032	0.036
Vanadium	µg/L	—	—	—	—	—	<0.05	0.06	<0.05	<0.05	0.053	<0.05	0.065	0.063	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	—	—	—	—	—	1.0	0.99	0.86	<0.8	<0.8	1.9	3.1	<0.8	<0.8	1.2	2.6	<0.8	1.4	4.7	0.94	2.1

Note:

Bolded concentrations are higher than relevant water quality guidelines.

C) = concentration higher than the relevant chronic aquatic life guideline or outside the recommended pH or DO concentration range.

D) = concentration higher than the relevant drinking water guideline or outside the recommended pH or DO concentration range.

Guideline exceedances by median concentrations are based on guidelines calculated using median values of hardness, pH, and temperature, and are not included in the percent exceedance calculations.

Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision after comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Measured concentrations equal to the guideline values were not identified as exceedances.

a) Source: CCME (Canadian Council of Ministers of the Environment). (1999, with updates to 2014). Canadian Environmental Quality Guidelines. Winnipeg, MB, Canada.

b) Source: Health Canada. (2012). Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.

c) Elphick JRF, Bergh KD, Bailey HC. (2011). Chronic toxicity of chloride to freshwater species: effects of hardness and implications for water quality guidelines. Environ Toxicol Chem 30: 230-246.

d) See Part B.

e) See Part B.

f) See Part B.

g) See Part B.

h) See Part B.

i) Guidelines based on hardness of 4.7 mg $CaCO_3$/L.

j) Guidelines based on pH of 6.0 to 7.2, temperature of 4.4°C to 20.4°C, and water hardness of 3.6 to 7.4 mg/L.

k) Acute guideline applies to all waters of hardness below 5.3 mg $CaCO_3$/L; chronic guideline applies to all waters of hardness below 17 mg $CaCO_3$/L.

— = no guideline or data; CWQG = Canadian Drinking Water Quality Guidelines; DWQG = Drinking Water Quality Guidelines; SSWQO = Site-Specific Water Quality Objective; NAD = North American Datum; H+ = hydrogen ions; $CaCO_3$ = calcium carbonate; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % = percent; meq/L = milliequivalents per litre; pH = potential of hydrogen, provides measure of the acidity or alkalinity of a solution on a scale of 0 to 14; DO = dissolved oxygen; NTU = nephelometric turbidity units; mg N/L = milligrams of nitrogen per litre; mg P/L = milligrams of phosphorus per litre; µg/L = micrograms per litre; CFU/100 mL = coliform forming units per 100 millilitres; BTEX = benzene, toluene, ethylbenzene, xylene; < = less than.

Table E-12 Laboratory Water Quality Data From Paul Lake During the Open-Water Period, 2013
Part B

Location		Guidelines					Summary Statistics							% Above Guideline				
Sample Name		Aquatic Life																
Sampling Season																		
Sample Date																		
Easting (NAD 83, 12W)																		
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Field Measured																		
Total depth	m	—	—	—	—	—	16	6.0	9.8	9.8	14.0	2.6	0.66	—	—	—	—	—
Sample depth	m	—	—	—	—	—	16	1.0	4.5	4.7	11.0	2.9	0.73	—	—	—	—	—
Secchi depth	m	—	—	—	—	—	16	3.0	3.7	3.9	5.9	0.74	0.19	—	—	—	—	—
Water temperature	°C	—	—	—	—	—	15	7.7	12.9	13.5	20.4	4.7	1.2	—	—	—	—	—
Specific conductivity	µS/cm	—	—	—	—	—	15	13	15	15	16	0.88	0.23	—	—	—	—	—
Dissolved oxygen	mg/L	—	6.5	—	—	—	14	6.8	10.2	10.1	13.2	1.8	0.49	—	—	—	—	—
Dissolved oxygen saturation	%	—	—	—	—	—	14	65	99	96	112	14	3.8	—	—	—	—	—
Conventional Parameters																		
Alkalinity, gran (as H+)	meq/L	—	—	—	—	—	16	<0.1	0.10	0.085	0.14	0.038	0.0094	—	—	—	—	—
Alkalinity, total as $CaCO_3$	mg/L	—	—	—	—	—	16	4.4	5.3	5.4	6.5	0.67	0.17	—	—	—	—	—
Conductance	µS/cm	—	—	—	—	—	16	16	18	20	32	5.0	1.2	—	—	—	—	—
Hardness	mg/L	—	—	—	—	—	16	5.7	6.0	6.0	6.1	0.13	0.032	—	—	—	—	—
pH	pH units	—	6.5 – 9.0	6.5 – 8.5	—	—	16	**6.4**[C, D]	6.7	6.7	7.2	0.2	0.049	—	25	25	—	—
Total dissolved solids	mg/L	—	—	500	—	—	16	<10	14	15	28	6.6	1.6	—	—	—	—	—
Total suspended solids	mg/L	—	—	—	—	—	16	<3.0	<3.0	<3.0	<3.0	—	—	—	—	—	—	—
Turbidity	NTU	—	—	—	—	—	16	0.66	0.74	0.80	1.5	0.2	0.05	—	—	—	—	—
Major Ions																		
Bicarbonate	mg/L	—	—	—	—	—	16	5.4	6.4	6.5	7.9	0.03	0.0076	—	—	—	—	—
Calcium	mg/L	—	—	—	—	—	16	0.9	0.96	0.96	1.0	0.79	0.2	—	—	—	—	—
Chloride	mg/L	640	120	250	—	64.5[i]	16	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Fluoride	mg/L	—	0.12	1.5	—	—	16	<0.02	<0.02	0.014	0.029	0.0078	0.002	—	—	—	—	—
Magnesium	mg/L	—	—	—	—	—	16	0.82	0.86	0.86	0.88	0.018	0.0046	—	—	—	—	—
Potassium	mg/L	—	—	—	112	41	16	0.57	0.62	0.61	0.64	0.023	0.0057	—	—	—	—	—
Sodium	mg/L	—	—	200	—	—	16	0.67	0.69	0.69	0.73	0.018	0.0044	—	—	—	—	—
Sulphate	mg/L	—	—	500	250[i]	22.7[i]	16	1.1	1.7	1.5	2.0	0.32	0.08	—	—	—	—	—
Nutrients																		
Total organic carbon	mg/L	—	—	—	—	—	16	3.7	4.6	4.5	5.2	0.38	0.094	—	—	—	—	—
Dissolved organic carbon	mg/L	—	—	—	—	—	16	4.2	4.6	4.6	5.1	0.24	0.06	—	—	—	—	—
Total nitrogen (calculated)	mg N/L	—	—	—	—	—	16	0.12	0.18	0.19	0.30	0.056	0.014	—	—	—	—	—

Table E-12 Laboratory Water Quality Data From Paul Lake During the Open-Water Period, 2013
Part B

Location		Guidelines					Summary Statistics											
Sample Name		Aquatic Life												% Above Guideline				
Sampling Season																		
Sample Date																		
Easting (NAD 83, 12W)																		
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Nutrients (Continued)																		
Total Kjeldahl Nitrogen	mg N/L	—	—	—	—	—	16	0.12	0.18	0.19	0.30	0.056	0.014	—	—	—	—	—
Total ammonia	mg N/L	—	2.7 – 139[i]	—	—	—	16	<0.005	0.0089	0.0084	0.015	0.0046	0.0012	—	—	—	—	—
Nitrate	mg N/L	124	2.9	10		0.57[i]	16	<0.006	<0.006	<0.006	<0.006	—	—	—	—	—	—	—
Nitrite	mg N/L	—	0.06	1	—	—	16	<0.002	<0.002	<0.002	<0.002	—	—	—	—	—	—	—
Total phosphorus	mg P/L	—	—	—	—	—	16	0.0067	0.0090	0.010	0.017	0.0032	0.00079	—	—	—	—	—
Total dissolved phosphorus	mg P/L	—	—	—	—	—	16	0.0021	0.0028	0.0031	0.0044	0.00074	0.00019	—	—	—	—	—
Dissolved orthophosphate	mg/L	—	—	—	—	—	15	<0.001	<0.001	<0.01	<0.01	—	—	—	—	—	—	—
Silica, reactive	mg/L	—	—	—	—	—	16	0.12	0.17	0.17	0.20	0.022	0.0056	—	—	—	—	—
Other Parameters																		
Benzene	µg/L	—	370	5	—	—	16	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Ethylbenzene	µg/L	—	90	2.4	—	—	16	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Toluene	µg/L	—	2	24	—	—	16	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Xylene	µg/L	—	—	300	—	—	16	<0.71	<0.71	<0.71	<0.71	—	—	—	—	—	—	—
Petroleum hydrocarbons – F1 (C6-C10)	mg/L	—	—	—	—	—	16	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Petroleum hydrocarbons – F1 (C6-C10)-BTEX	mg/L	—	—	—	—	—	16	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Petroleum hydrocarbons – F2 (C10-C16)	mg/L	—	—	—	—	—	16	<0.25	<0.25	<0.25	<0.25	—	—	—	—	—	—	—
Total recoverable hydrocarbons	mg/L	—	—	—	—	—	15	<1.0	<1.0	<1.0	<1.0	—	—	—	—	—	—	—
Fecal coliform	CFU/100 mL	—	—	—	—	—	16	<1.0	<1.0	0.91	5.0	1.2	0.29	—	—	—	—	—
Total Metals																		
Aluminum	µg/L	—	5 or 100[i]	100	—	—	16	9.3	**13**[C]	**15**[C]	39	7.0	1.8	—	19	—	—	—
Antimony	µg/L	—	—	6	—	—	16	<0.02	<0.02	<0.1	<0.1	—	—	—	—	—	—	—
Arsenic	µg/L	—	5	10	—	—	16	0.43	0.6	0.64	1.0	0.15	0.038	—	—	—	—	—
Barium	µg/L	—	—	1,000	—	—	16	1.4	1.7	1.7	1.9	0.16	0.04	—	—	—	—	—
Beryllium	µg/L	—	—	—	—	—	16	<0.01	<0.01	<0.5	<0.5	—	—	—	—	—	—	—
Bismuth	µg/L	—	—	—	—	—	16	<0.01	<0.01	<0.05	<0.05	—	—	—	—	—	—	—
Boron	µg/L	29,000	1,500	5,000	—	—	16	2.6	3.9	<10	<10	0.81	0.2	—	—	—	—	—
Cadmium	µg/L	0.11[k]	0.04[k]	5	—	—	16	<0.005	<0.005	0.0032	0.011	0.0022	0.00055	—	—	—	—	—
Cesium	µg/L	—	—	—	—	—	15	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—

Table E-12 Laboratory Water Quality Data From Paul Lake During the Open-Water Period, 2013
Part B

Location		Guidelines					Summary Statistics											
Sample Name		Aquatic Life												% Above Guideline				
Sampling Season																		
Sample Date																		
Easting (NAD 83, 12W)																		
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Total Metals (Continued)																		
Chromium	µg/L	—	1	50	—	—	16	<0.06	0.079	0.082	0.17	0.032	0.008	—	—	—	—	—
Chromium VI	µg/L	—	1	—	—	—	16	<1.0	<1.0	<1.0	<1.0	—	—	—	—	—	—	—
Cobalt	µg/L	—	—	—	—	—	16	0.027	0.040	<0.1	<0.1	0.012	0.0031	—	—	—	—	—
Copper	µg/L	—	2[(j)]	1,000	—	—	16	0.96	1.1	1.1	1.5	0.14	0.035	—	—	—	—	—
Iron	µg/L	—	300	300	—	—	16	36	50	51	79	13	3.1	—	—	—	—	—
Lead	µg/L	—	1[(j)]	10	—	—	16	<0.01	0.014	<0.05	<0.05	0.01	0.0026	—	—	—	—	—
Lithium	µg/L	—	—	—	—	—	16	1.1	1.5	<5.0	<5.0	0.31	0.077	—	—	—	—	—
Manganese	µg/L	—	—	50	—	—	16	3.4	6.3	6.6	12	2.3	0.57	—	—	—	—	—
Mercury	µg/L	—	0.026	1	—	—	16	<0.0005	0.00054	0.0011	0.010	0.0024	0.0006	—	—	—	—	—
Molybdenum	µg/L	—	73	—	223,000	19,000	16	<0.05	0.050	0.044	0.095	0.022	0.0056	—	—	—	—	—
Nickel	µg/L	—	25[(j)]	—	—	—	16	0.49	0.57	0.60	0.89	0.1	0.026	—	—	—	—	—
Selenium	µg/L	—	1	10	—	—	16	<0.04	<0.04	<0.1	<0.1	—	—	—	—	—	—	—
Silver	µg/L	—	0.1	—	—	—	16	<0.005	<0.005	<0.01	<0.01	—	—	—	—	—	—	—
Strontium	µg/L	—	—	—	—	—	16	6.0	6.7	6.6	6.9	0.31	0.078	—	—	—	—	—
Thallium	µg/L	—	0.8	—	—	—	16	<0.01	<0.01	<0.05	<0.05	—	—	—	—	—	—	—
Tin	µg/L	—	—	—	—	—	16	<0.05	<0.05	<0.1	<0.1	—	—	—	—	—	—	—
Titanium	µg/L	—	—	—	—	—	16	0.15	0.49	0.49	1.2	0.25	0.063	—	—	—	—	—
Uranium	µg/L	33	15	20	—	—	16	0.033	0.038	0.038	0.052	0.0044	0.0011	—	—	—	—	—
Vanadium	µg/L	—	—	—	300	30	16	0.064	0.076	0.083	0.23	0.04	0.010	—	—	—	—	—
Zinc	µg/L	—	30	5,000	—	—	16	<0.8	1.4	1.5	4.4	1.1	0.27	—	—	—	—	—
Dissolved Metals																		
Aluminum	µg/L	—	—	—	—	—	16	3.1	5.4	5.6	9.6	1.6	0.41	—	—	—	—	—
Antimony	µg/L	—	—	—	—	—	16	<0.02	<0.02	0.011	0.029	0.0048	0.0012	—	—	—	—	—
Arsenic	µg/L	—	—	—	—	—	16	0.42	0.53	0.58	0.81	0.12	0.031	—	—	—	—	—
Barium	µg/L	—	—	—	—	—	16	1.2	1.5	1.5	1.8	0.16	0.039	—	—	—	—	—
Beryllium	µg/L	—	—	—	—	—	16	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Bismuth	µg/L	—	—	—	—	—	16	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Boron	µg/L	—	—	—	—	—	16	2.7	4.1	4.0	6.3	1.0	0.25	—	—	—	—	—
Cadmium	µg/L	—	—	—	—	—	16	<0.005	<0.005	0.0027	0.0055	0.00075	0.00019	—	—	—	—	—
Cesium	µg/L	—	—	—	—	—	16	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Chromium	µg/L	—	—	—	—	—	16	<0.06	0.063	0.052	0.090	0.022	0.0054	—	—	—	—	—
Cobalt	µg/L	—	—	—	—	—	16	0.010	0.017	0.018	0.032	0.0053	0.0013	—	—	—	—	—
Copper	µg/L	—	—	—	—	—	16	0.87	1.0	1.0	1.3	0.12	0.03	—	—	—	—	—
Iron	µg/L	—	—	—	—	—	16	6.7	13	14	25	6.5	1.6	—	—	—	—	—
Lead	µg/L	—	—	—	—	—	16	<0.01	<0.01	0.0089	0.026	0.0066	0.0016	—	—	—	—	—
Lithium	µg/L	—	—	—	—	—	16	0.97	1.4	1.4	1.8	0.24	0.061	—	—	—	—	—
Manganese	µg/L	—	—	—	—	—	16	0.33	0.55	0.73	2.1	0.5	0.12	—	—	—	—	—

Table E-12 Laboratory Water Quality Data From Paul Lake During the Open-Water Period, 2013
Part B

Location		Guidelines					Summary Statistics											
		Aquatic Life												% Above Guideline				
Sample Name																		
Sampling Season																		
Sample Date																		
Easting (NAD 83, 12W)																		
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Mercury	µg/L	—	—	—	—	—	16	<0.0005	<0.0005	0.00033	0.00062	0.00015	0.000037	—	—	—	—	—
Dissolved Metals (Continued)																		
Molybdenum	µg/L	—	—	—	—	—	16	<0.05	<0.05	0.034	0.079	0.016	0.0041	—	—	—	—	—
Nickel	µg/L	—	—	—	—	—	16	0.49	0.55	0.56	0.75	0.072	0.018	—	—	—	—	—
Selenium	µg/L	—	—	—	—	—	16	<0.04	<0.04	<0.04	<0.04	—	—	—	—	—	—	—
Silver	µg/L	—	—	—	—	—	16	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—
Strontium	µg/L	—	—	—	—	—	16	6.1	6.6	6.6	6.9	0.28	0.07	—	—	—	—	—
Thallium	µg/L	—	—	—	—	—	16	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Tin	µg/L	—	—	—	—	—	16	<0.05	<0.05	0.029	0.090	0.016	0.0041	—	—	—	—	—
Titanium	µg/L	—	—	—	—	—	16	<0.1	0.12	0.16	0.46	0.12	0.031	—	—	—	—	—
Uranium	µg/L	—	—	—	—	—	16	0.029	0.034	0.034	0.045	0.0038	0.00095	—	—	—	—	—
Vanadium	µg/L	—	—	—	—	—	16	<0.05	<0.05	0.034	0.065	0.016	0.004	—	—	—	—	—
Zinc	µg/L	—	—	—	—	—	16	<0.8	1.0	1.4	4.7	1.2	0.3	—	—	—	—	—

Note:

Bolded concentrations are higher than relevant water quality guidelines.

C) = concentration higher than the relevant chronic aquatic life guideline or outside the recommended pH or DO concentration range.

D) = concentration higher than the relevant drinking water guideline or outside the recommended pH or DO concentration range.

Guideline exceedances by median concentrations are based on guidelines calculated using median values of hardness, pH, and temperature, and are not included in the percent exceedance calculations.

Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision after comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Measured concentrations equal to the guideline values were not identified as exceedances.

a) Source: CCME (Canadian Council of Ministers of the Environment). (1999, with updates to 2014). Canadian Environmental Quality Guidelines. Winnipeg, MB, Canada.

b) Source: Health Canada. (2012). Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.

c) Source: Elphick JRF, Bergh KD, Bailey HC. 2011. Chronic toxicity of chloride to freshwater species: effects of hardness and implications for water quality guidelines. Environ Toxicol Chem 30: 230-246.

d) Source: Rescan (Rescan Environmental Services Ltd.). (2012a). Ekati Diamond Mine: Site-Specific Water Quality Objective for Potassium. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

e) Source: Rescan. (2012b). Ekati Diamond Mine: Site-specific Water Quality Objective for Sulphate. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

f) Source: Rescan. (2012c). Ekati Diamond Mine: Site-Specific Water Quality Objective for Nitrate, 2012. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

g) Source: Rescan. (2012d). Ekati Diamond Mine: Site Specific Water Quality Objective for Molybdenum, 2011. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

h) Source: Rescan. (2012e). Ekati Diamond Mine: Site-specific Water Quality Objective for Vanadium. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

i) Guidelines based on hardness of 4.7 mg $CaCO_3$/L.

j) Guidelines based on pH of 6.0 to 7.2, temperature of 4.4°C to 20.4°C, and water hardness of 3.6 to 7.4 mg/L.

k) Acute guideline applies to all waters of hardness below 5.3 mg $CaCO_3$/L; chronic guideline applies to all waters of hardness below 17 mg $CaCO_3$/L.

— = no guideline or data; CWQG = Canadian Drinking Water Quality Guidelines; DWQG = Drinking Water Quality Guidelines; SSWQO = Site-Specific Water Quality Objective; min = minimum, max = maximum; NAD = North American Datum; H+ = hydrogen ions; $CaCO_3$ = calcium carbonate; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % = percent; meq/L = milliequivalents per litre; pH = potential of hydrogen, provides measure of the acidity or alkalinity of a solution on a scale of 0 to 14; DO = dissolved oxygen; NTU = nephelometric turbidity units; mg N/L = milligrams of nitrogen per litre; mg P/L = milligrams of phosphorus per litre; µg/L = micrograms per litre; CFU/100 mL = coliform forming units per 100 millilitres; BTEX = benzene, toluene, ethylbenzene, xylene; < = less than.

Table E-13 Laboratory Water Quality Data From Ab-S1 During the Open-Water Period, 2013

Location		Guidelines					Station Ab-S1		Summary Statistics												
		Aquatic Life					Ab-S1														
Sample Name							Ab-S1	Ab-S1										% Above Guideline				
Sampling Season							Summer	Fall														
Sample Date							12-Aug-13	7-Sep-13														
Easting (NAD 83, 12W)							546850	546850														
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7159585	7159585	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Field Measured																					
Sample depth	m	—	—	—	—	—	0.3	0.3	2	0.3	0.3	0.3	0.3	—	—	—	—	—	—	—
Secchi depth	m	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total Depth	m	—	—	—	—	—	0.7	0.7	2	0.7	0.7	0.7	0.7	—	—	—	—	—	—	—
Water temperature	°C	—	—	—	—	—	16.7	10.5	2	10.5	13.6	13.6	16.7	4.4	3.1	—	—	—	—	—
Specific conductivity	µS/cm	—	—	—	—	—	15	11	2	11	13.1	13	15	2.7	1.9	—	—	—	—	—
Dissolved oxygen	mg/L	—	6.5	—	—	—	10.5	11.1	2	10.5	10.8	10.8	11.1	0.38	0.27	—	—	—	—	—
Dissolved oxygen saturation	%	—	—	—	—	—	109	99	2	99	104	104	109	6.9	4.9	—	—	—	—	—
Conventional Parameters																					
Alkalinity, total (as $CaCO_3$)	mg/L	—	—	—	—	—	3.9	4.5	2	3.9	4.2	4.2	4.5	0.42	0.3	—	—	—	—	—
Alkalinity, gran (as H+)	meq/L	—	—	—	—	—	<0.1	0.12	2	<0.1	0.12	0.085	0.12	0.049	0.035	—	—	—	—	—
Conductance	µS/cm	—	—	—	—	—	14	14	2	14	14	14	14	0.35	0.25	—	—	—	—	—
Hardness	mg/L	—	—	—	—	—	4.5	4.9	2	4.5	4.7	4.7	4.9	0.28	0.2	—	—	—	—	—
pH	pH units	—	6.5 – 9.0	6.5 – 8.5	—	—	**6.4**[C, D]	6.7	2	**6.4**[C, D]	6.6	6.5	6.7	0.2	0.14	—	50	50	—	—
Total dissolved solids	mg/L	—	—	500	—	—	17	14	2	14	16	16	17	2.1	1.5	—	—	—	—	—
Total suspended solids	mg/L	—	—	—	—	—	<3.0	<3.0	2	<3.0	<3.0	<3.0	<3.0	—	—	—	—	—	—	—
Turbidity	NTU	—	—	—	—	—	0.37	0.47	2	0.37	0.42	0.42	0.47	0.071	0.05	—	—	—	—	—
Major Ions																					
Bicarbonate	mg/L	—	—	—	—	—	<5.0	5.4	2	<5.0	5.4	4.0	5.4	2.1	1.5	—	—	—	—	—
Calcium	mg/L	—	—	—	—	—	0.81	0.90	2	0.81	0.86	0.86	0.90	0.064	0.045	—	—	—	—	—
Chloride	mg/L	640	120	250	—	64.5[i]	<0.5	<0.5	2	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Fluoride	mg/L	—	0.12	1.5	—	—	<0.02	<0.02	2	<0.02	<0.02	<0.02	<0.02	—	—	—	—	—	—	—
Magnesium	mg/L	—	—	—	—	—	0.60	0.64	2	0.60	0.62	0.62	0.64	0.028	0.02	—	—	—	—	—
Potassium	mg/L	—	—	—	112	41	0.51	0.52	2	0.51	0.52	0.52	0.52	0.0071	0.005	—	—	—	—	—
Sodium	mg/L	—	—	200	—	—	0.62	0.75	2	0.62	0.68	0.68	0.75	0.092	0.065	—	—	—	—	—
Sulphate	mg/L	—	—	500	250[i]	22.7[i]	1.1	1.1	2	1.1	1.1	1.1	1.1	0.035	0.025	—	—	—	—	—
Nutrients																					
Total organic carbon	mg/L	—	—	—	—	—	3.4	3.4	2	3.4	3.4	3.4	3.4	0	0	—	—	—	—	—
Dissolved organic carbon	mg/L	—	—	—	—	—	3.5	3.6	2	3.5	3.6	3.6	3.6	0.071	0.05	—	—	—	—	—
Total nitrogen (calculated)	mg N/L	—	—	—	—	—	0.13	0.14	2	0.13	0.14	0.14	0.14	0.0092	0.0065	—	—	—	—	—
Total Kjeldahl Nitrogen	mg N/L	—	—	—	—	—	0.13	0.14	2	0.13	0.14	0.14	0.14	0.0092	0.0065	—	—	—	—	—
Total ammonia	mg N/L	—	2.7 – 139[i]	—	—	—	0.0065	0.012	2	0.0065	0.0093	0.0091	0.012	0.0036	0.0026	—	—	—	—	—
Nitrate	mg N/L	124	2.9	10	—	0.57[i]	<0.006	<0.006	2	<0.006	<0.006	<0.006	<0.006	—	—	—	—	—	—	—
Nitrite	mg N/L	—	0.06	1	—	—	<0.002	<0.002	2	<0.002	<0.002	<0.002	<0.002	—	—	—	—	—	—	—

Table E-13 Laboratory Water Quality Data From Ab-S1 During the Open-Water Period, 2013

Location		Guidelines					Station Ab-S1		Summary Statistics												
Sample Name		Aquatic Life					Ab-S1										% Above Guideline				
Sampling Season							Ab-S1	Ab-S1													
Sample Date							Summer	Fall													
Easting (NAD 83, 12W)							12-Aug-13	7-Sep-13													
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	546850	546850	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
							7159585	7159585													
Nutrients (Continued)																					
Total phosphorus	mg P/L	—	—	—	—	—	0.0036	0.0083	2	0.0036	0.0060	0.0060	0.0083	0.0033	0.0024	—	—	—	—	—
Total dissolved phosphorus	mg P/L	—	—	—	—	—	<0.001	0.0029	2	<0.001	0.0029	0.0017	0.0029	0.0017	0.0012	—	—	—	—	—
Dissolved orthophosphate	mg/L	—	—	—	—	—	<0.001	<0.001	2	<0.001	<0.001	<0.001	<0.001	—	—	—	—	—	—	—
Silica, reactive	mg/L	—	—	—	—	—	0.11	0.11	2	0.11	0.11	0.11	0.11	0.00071	0.0005	—	—	—	—	—
Other Parameters																					
Benzene	µg/L	—	370	5	—	—	<0.5	<0.5	2	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Ethylbenzene	µg/L	—	90	2.4	—	—	<0.5	<0.5	2	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Toluene	µg/L	—	2	24	—	—	<0.5	<0.5	2	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Xylene	µg/L	—	—	300	—	—	<0.71	<0.71	2	<0.71	<0.71	<0.71	<0.71	—	—	—	—	—	—	—
Petroleum hydrocarbons – F1 (C6-C10)	mg/L	—	—	—	—	—	<0.1	<0.1	2	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Petroleum hydrocarbons – F1 (C6-C10)-BTEX	mg/L	—	—	—	—	—	<0.1	<0.1	2	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Petroleum hydrocarbons – F2 (C10-C16)	mg/L	—	—	—	—	—	<0.25	<0.25	2	<0.25	<0.25	<0.25	<0.25	—	—	—	—	—	—	—
Total recoverable hydrocarbons	mg/L	—	—	—	—	—	<1.0	1.1	2	<1.0	1.1	0.80	1.1	0.42	0.3	—	—	—	—	—
Fecal coliform	CFU/100 mL	—	—	—	—	—	<1.0	1.0	2	<1.0	<1.0	0.75	1.0	0.35	0.25	—	—	—	—	—
Total Metals																					
Aluminum	µg/L	—	5 or 100[i]	100	—	—	**5.8**[C]	3.2	2	3.2	4.5	4.5	**5.8**[C]	1.9	1.3	—	50	—	—	—
Antimony	µg/L	—	—	6	—	—	<0.02	<0.02	2	<0.02	<0.02	<0.02	<0.02	—	—	—	—	—	—	—
Arsenic	µg/L	—	5	10	—	—	0.33	0.32	2	0.32	0.33	0.33	0.33	0.0071	0.005	—	—	—	—	—
Barium	µg/L	—	—	1,000	—	—	0.96	0.83	2	0.83	0.90	0.89	0.96	0.098	0.07	—	—	—	—	—
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	2	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	2	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Boron	µg/L	29,000	1,500	5,000	—	—	4.1	2.7	2	2.7	3.4	3.4	4.1	0.99	0.7	—	—	—	—	—
Cadmium	µg/L	0.11[k]	0.04[k]	5	—	—	<0.005	<0.005	2	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	2	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Chromium	µg/L	—	1	50	—	—	<0.06	<0.06	2	<0.06	<0.06	<0.06	<0.06	—	—	—	—	—	—	—
Chromium VI	µg/L	—	1	—	—	—	<1.0	<1.0	2	<1.0	<1.0	<1.0	<1.0	—	—	—	—	—	—	—
Cobalt	µg/L	—	—	—	—	—	0.014	0.015	2	0.014	0.015	0.015	0.015	0.00071	0.0005	—	—	—	—	—
Copper	µg/L	—	2[i]	1,000	—	—	0.58	0.53	2	0.53	0.56	0.56	0.58	0.035	0.025	—	—	—	—	—
Iron	µg/L	—	300	300	—	—	7.3	8.5	2	7.3	7.9	7.9	8.5	0.85	0.6	—	—	—	—	—
Lead	µg/L	—	1[i]	10	—	—	<0.01	<0.01	2	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Lithium	µg/L	—	—	—	—	—	1.2	0.97	2	0.97	1.1	1.1	1.2	0.15	0.11	—	—	—	—	—
Manganese	µg/L	—	—	50	—	—	3.1	4.1	2	3.1	3.6	3.6	4.1	0.71	0.5	—	—	—	—	—
Mercury	µg/L	—	0.026	1	—	—	<0.0005	<0.0005	2	<0.0005	<0.0005	<0.0005	<0.0005	—	—	—	—	—	—	—
Molybdenum	µg/L	—	73	—	223,000	19,000	<0.05	<0.05	2	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—

Table E-13 Laboratory Water Quality Data From Ab-S1 During the Open-Water Period, 2013

Location		Guidelines					Station Ab-S1		Summary Statistics											
		Aquatic Life					Ab-S1													
Sample Name							Ab-S1	Ab-S1										% Above Guideline				
Sampling Season							Summer	Fall														
Sample Date							12-Aug-13	7-Sep-13														
Easting (NAD 83, 12W)							546850	546850														
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7159585	7159585	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Total Metals (Continued)																				
Nickel	µg/L	—	25[j]	—	—	—	0.31	0.33	2	0.31	0.32	0.32	0.33	0.0099	0.007	—	—	—	—	—
Selenium	µg/L	—	1	10	—	—	<0.04	<0.04	2	<0.04	<0.04	<0.04	<0.04	—	—	—	—	—	—	—
Silver	µg/L	—	0.1	—	—	—	<0.005	<0.005	2	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—
Strontium	µg/L	—	—	—	—	—	5.2	5.3	2	5.2	5.3	5.3	5.3	0.014	0.010	—	—	—	—	—
Thallium	µg/L	—	0.8	—	—	—	<0.01	<0.01	2	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Tin	µg/L	—	—	—	—	—	<0.05	<0.05	2	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—
Titanium	µg/L	—	—	—	—	—	0.16	<0.1	2	<0.1	0.16	0.11	0.16	0.078	0.055	—	—	—	—	—
Uranium	µg/L	33	15	20	—	—	0.021	0.019	2	0.019	0.020	0.020	0.021	0.0014	0.001	—	—	—	—	—
Vanadium	µg/L	—	—	—	300	30	<0.05	<0.05	2	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—
Zinc	µg/L	—	30	5,000	—	—	<0.8	0.81	2	<0.8	0.81	0.61	0.81	0.29	0.21	—	—	—	—	—
Dissolved Metals																				
Aluminum	µg/L	—	—	—	—	—	3.1	0.67	2	0.67	1.9	1.9	3.1	1.7	1.2	—	—	—	—	—
Antimony	µg/L	—	—	—	—	—	<0.02	<0.02	2	<0.02	<0.02	<0.02	<0.02	—	—	—	—	—	—	—
Arsenic	µg/L	—	—	—	—	—	0.3	0.32	2	0.30	0.31	0.31	0.32	0.013	0.009	—	—	—	—	—
Barium	µg/L	—	—	—	—	—	0.88	1.1	2	0.88	0.99	1.0	1.1	0.16	0.11	—	—	—	—	—
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	2	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	2	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Boron	µg/L	—	—	—	—	—	3.1	3.0	2	3.0	3.1	3.1	3.1	0.071	0.05	—	—	—	—	—
Cadmium	µg/L	—	—	—	—	—	<0.005	<0.005	2	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	2	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Chromium	µg/L	—	—	—	—	—	<0.06	<0.06	2	<0.06	<0.06	<0.06	<0.06	—	—	—	—	—	—	—
Cobalt	µg/L	—	—	—	—	—	<0.01	0.011	2	<0.01	0.011	0.008	0.011	0.0042	0.003	—	—	—	—	—
Copper	µg/L	—	—	—	—	—	0.52	0.54	2	0.52	0.53	0.53	0.54	0.014	0.01	—	—	—	—	—
Iron	µg/L	—	—	—	—	—	2.2	4.3	2	2.2	3.3	3.3	4.3	1.5	1.1	—	—	—	—	—
Lead	µg/L	—	—	—	—	—	<0.01	<0.01	2	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Lithium	µg/L	—	—	—	—	—	1.3	0.89	2	0.89	1.1	1.1	1.3	0.28	0.2	—	—	—	—	—
Manganese	µg/L	—	—	—	—	—	1.2	1.7	2	1.2	1.5	1.5	1.7	0.39	0.27	—	—	—	—	—
Mercury	µg/L	—	—	—	—	—	<0.0005	<0.0005	2	<0.0005	<0.0005	<0.0005	<0.0005	—	—	—	—	—	—	—
Molybdenum	µg/L	—	—	—	—	—	<0.05	<0.05	2	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—
Nickel	µg/L	—	—	—	—	—	0.28	0.28	2	0.28	0.28	0.28	0.28	0.0028	0.002	—	—	—	—	—
Selenium	µg/L	—	—	—	—	—	<0.04	<0.04	2	<0.04	<0.04	<0.04	<0.04	—	—	—	—	—	—	—
Silver	µg/L	—	—	—	—	—	<0.005	<0.005	2	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—
Strontium	µg/L	—	—	—	—	—	5.3	5.2	2	5.2	5.3	5.3	5.3	0.11	0.08	—	—	—	—	—
Thallium	µg/L	—	—	—	—	—	<0.01	<0.01	2	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Tin	µg/L	—	—	—	—	—	<0.05	<0.05	2	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—

Table E-13 Laboratory Water Quality Data From Ab-S1 During the Open-Water Period, 2013

Location		Guidelines					Station Ab-S1		Summary Statistics											
		Aquatic Life					Ab-S1													
Sample Name							Ab-S1	Ab-S1								% Above Guideline				
Sampling Season							Summer	Fall												
Sample Date							12-Aug-13	7-Sep-13												
Easting (NAD 83, 12W)							546850	546850												
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7159585	7159585	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Dissolved Metals (Continued)																				
Titanium	µg/L	—	—	—	—	—	<0.1	0.14	2	<0.1	0.14	0.095	0.14	0.064	0.045	—	—	—	—	—
Uranium	µg/L	—	—	—	—	—	0.019	0.021	2	0.019	0.020	0.020	0.021	0.0014	0.001	—	—	—	—	—
Vanadium	µg/L	—	—	—	—	—	<0.05	<0.05	2	<0.05	<0.05	<0.05	<0.05	—	—	—	—	—	—	—
Zinc	µg/L	—	—	—	—	—	<0.8	<0.8	2	<0.8	<0.8	<0.8	<0.8	—	—	—	—	—	—	—

Note:

Bolded concentrations are higher than relevant water quality guidelines.

C) = concentration higher than the relevant chronic aquatic life guideline or outside the recommended pH or DO concentration range.

D) = concentration higher than the relevant drinking water guideline or outside the recommended pH or DO concentration range.

Guideline exceedances by median concentrations are based on guidelines calculated using median values of hardness, pH, and temperature, and are not included in the percent exceedance calculations.

Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision after comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Measured concentrations equal to the guideline values were not identified as exceedances.

a) Source: CCME (Canadian Council of Ministers of the Environment). (1999, with updates to 2014). Canadian Environmental Quality Guidelines. Winnipeg, MB, Canada.

b) Source: Health Canada. 2012. Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.

c) Source: Elphick JRF, Bergh KD, Bailey HC.(2011). Chronic toxicity of chloride to freshwater species: effects of hardness and implications for water quality guidelines. Environ Toxicol Chem 30: 230-246.

d) Source: Rescan (Rescan Environmental Services Ltd.). (2012a). Ekati Diamond Mine: Site-Specific Water Quality Objective for Potassium. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

e) Source: Rescan. (2012b). Ekati Diamond Mine: Site-specific Water Quality Objective for Sulphate. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

f) Source: Rescan. (2012c). Ekati Diamond Mine: Site-Specific Water Quality Objective for Nitrate, 2012. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

g) Source: Rescan. (2012d). Ekati Diamond Mine: Site Specific Water Quality Objective for Molybdenum, 2011. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

h) Source: Rescan. (2012e). Ekati Diamond Mine: Site-specific Water Quality Objective for Vanadium. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.

i) Guidelines based on hardness of 4.7 mg $CaCO_3$/L.

j) Guidelines based on pH of 6.0 to 7.2, temperature of 4.4°C to 20.4°C, and water hardness of 3.6 to 7.4 mg/L.

k) Acute guideline applies to all waters of hardness below 5.3 mg $CaCO_3$/L; chronic guideline applies to all waters of hardness below 17 mg $CaCO_3$/L.

—- = no guideline or data; CWQG = Canadian Drinking Water Quality Guidelines; DWQG = Drinking Water Quality Guidelines; SSWQO = Site-Specific Water Quality Objective; min = minimum, max = maximum; NAD = North American Datum; H+ = hydrogen ions; $CaCO_3$ = calcium carbonate; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % = percent; meq/L = milliequivalents per litre; pH = potential of hydrogen, provides measure of the acidity or alkalinity of a solution on a scale of 0 to 14; DO = dissolved oxygen; NTU = nephelometric turbidity units; mg N/L = milligrams of nitrogen per litre; mg P/L = milligrams of phosphorus per litre; µg/L = micrograms per litre; CFU/100 mL = coliform forming units per 100 millilitres; BTEX = benzene, toluene, ethylbenzene, xylene; < = less than.

Table E-14 Laboratory Water Quality Data From Sub-Basin Streams During the Open-Water Period, 2013
Part A

Location		Guidelines					Sub-Basin Stream Sampling Stations															
		Aquatic Life					C-S1	D-S1	E-S2-1		F-S1		G-S1		I-S1		J-S1		K-S1		L-S1	
Sample Name							C-S1	D-S1	E-S2-1	E-S2-1	F-S1	F-S1	G-S1	G-S1	I-S1	I-S1	J-S1	J-S1	K-S1	K-S1	L-S1	L-S1
Sampling Season							Late Spring	Late Spring	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall
Sample Date							27-Jul-13	27-Jul-13	19-Jul-13	14-Sep-13	19-Jul-13	10-Sep-13	27-Jul-13	10-Sep-13	19-Jul-13	16-Sep-13	19-Jul-13	11-Sep-13	19-Jul-13	11-Sep-13	29-Jul-13	7-Sep-13
Easting (NAD 83, 12W)							539935	536832	535267	535267	541073	541073	545193	545193	552840	552840	556033	556033	554080	554080	550131	550131
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7166859	7170474	7176533	7176533	7176452	7176452	7174326	7174326	7170080	7170080	7166482	7166482	7161614	7161614	7159101	7159101
Field Measured																						
Total depth	m	—	—	—	—	—	0.4	0.4	0.4	0.6	0.3	0.3	0.5	0.2	0.5	0.2	0.4	0.3	0.3	0.2	0.3	0.3
Sample depth	m	—	—	—	—	—	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.1	0.3	0.1	0.2	0.1	0.2	0.1	0.2	0.2
Secchi depth	m	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Water temperature	°C	—	—	—	—	—	10.9	12.5	11.4	8.0	12.0	4.4	12.3	6.0	9.8	5.1	10.2	7.2	10.0	—	13.4	9.0
Specific conductivity	µS/cm	—	—	—	—	—	18	12	9	10	7	14	10	14	11	—	13	11	11	16	14	16
Dissolved oxygen	mg/L	—	6.5	—	—	—	9.7	9.9	9.7	—	—	—	10.5	—	10.8	—	10.9	12.2	10.7	10.9	11.6	9.9
Dissolved oxygen saturation	%	—	—	—	—	—	88	92	93	—	—	—	97	—	100	—	102	101	89	95	110	83
Conventional Parameters																						
Alkalinity, gran (as H+)	meq/L	—	—	—	—	—	0.14	0.12	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.14
Alkalinity, total as CaCO3	mg/L	—	—	—	—	—	5.5	4.1	2.8	3	2.9	2.8	3.1	4.6	3.5	3.7	5.0	3.9	4.0	4.7	3.3	6.9
Conductance	µS/cm	—	—	—	—	—	20	14	12	13	13	14	12	13	12	12	16	14	17	18	16	19
Hardness	mg/L	—	—	—	—	—	7.4	4.9	3.8	4.3	4.5	4.3	3.8	3.8	4.1	4.1	5.0	4.8	6.0	6.8	5.6	7.4
pH	pH units	—	6.5 – 9.0	6.5 – 8.5	—	—	**6.5**[C, D]	**6.4**[C, D]	**6.3**[C, D]	**6.3**[C, D]	**6.2**[C, D]	**6.2**[C, D]	**6.4**[C, D]	**6.4**[C, D]	**6.4**[C, D]	**6.4**[C, D]	7.0	6.7	**6.3**[C, D]	6.7	**6.2**[C, D]	6.7
Total dissolved solids	mg/L	—	—	500	—	—	31	21	13	18	21	29	24	14	20	15	16	18	17	11	20	55
Total suspended solids	mg/L	—	—	—	—	—	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	5.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	14
Turbidity	NTU	—	—	—	—	—	0.51	0.52	0.74	1.0	0.22	0.39	0.47	0.46	0.44	0.4	0.62	1.1	0.26	0.41	0.66	3.7
Major Ions																						
Bicarbonate	mg/L	—	—	—	—	—	6.7	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.7	<5.0	<5.0	6.2	<5.0	<5.0	5.7	<5.0	8.4
Calcium	mg/L	—	—	—	—	—	1.1	0.78	0.69	0.8	0.88	0.82	0.63	0.61	0.72	0.68	0.9	0.83	0.98	1.2	0.82	1.3
Chloride	mg/L	640	120	250	—	64.5[i]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride	mg/L	—	0.12	1.5	—	—	0.034	0.027	<0.02	<0.02	<0.02	<0.02	0.023	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Magnesium	mg/L	—	—	—	—	—	1.1	0.71	0.51	0.57	0.55	0.56	0.53	0.55	0.56	0.58	0.66	0.67	0.86	0.95	0.78	1.0
Potassium	mg/L	—	—	—	112	41	0.79	0.52	0.35	0.39	0.14	0.7	0.5	0.46	0.52	0.5	0.63	0.61	0.66	0.64	0.65	0.83
Sodium	mg/L	—	—	200	—	—	0.76	0.69	0.53	0.64	0.63	0.73	0.62	0.62	0.58	0.59	0.68	0.69	0.59	0.63	0.60	1.09
Sulphate	mg/L	—	—	500	250[i]	22.7[i]	2.3	1.3	1.2	1.5	1.8	1.6	0.99	1.2	1.2	1.2	1.1	1.3	2.3	2.9	1.6	0.37
Nutrients																						
Total organic carbon	mg/L	—	—	—	—	—	3.5	3.0	3.5	5.0	4.1	7.1	3.0	3.7	3.1	2.6	4.4	3.8	3.2	2.7	8.5	13
Dissolved organic carbon	mg/L	—	—	—	—	—	4.0	3.4	3.6	5.1	4.5	7.1	3.4	3.9	3.2	2.4	4.4	3.5	3.5	3.3	9.4	12
Total nitrogen (calculated)	mg N/L	—	—	—	—	—	0.27	0.19	0.16	0.19	0.19	0.29	0.16	0.19	0.16	0.16	0.25	0.21	0.18	0.26	0.31	1.4
Total Kjeldahl Nitrogen	mg N/L	—	—	—	—	—	0.22	0.18	0.16	0.19	0.19	0.29	0.16	0.19	0.15	0.14	0.25	0.21	0.16	0.23	0.31	1.4
Total ammonia	mg N/L	—	2.7 – 139[i]	—	—	—	0.014	0.015	0.013	<0.005	0.014	0.019	0.015	0.021	0.0081	0.014	0.011	0.022	0.014	0.019	0.014	0.024
Nitrate	mg N/L	124	2.9	10	—	0.57[i]	0.059	0.012	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.0078	0.02	<0.006	<0.006	0.027	0.027	<0.006	<0.006
Nitrite	mg N/L	—	0.06	1	—	—	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002

Table E-14 Laboratory Water Quality Data From Sub-Basin Streams During the Open-Water Period, 2013
Part A

Location		Guidelines					Sub-Basin Stream Sampling Stations															
		Aquatic Life					C-S1	D-S1	E-S2-1		F-S1		G-S1		I-S1		J-S1		K-S1		L-S1	
Sample Name							C-S1	D-S1	E-S2-1	E-S2-1	F-S1	F-S1	G-S1	G-S1	I-S1	I-S1	J-S1	J-S1	K-S1	K-S1	L-S1	L-S1
Sampling Season							Late Spring	Late Spring	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall
Sample Date							27-Jul-13	27-Jul-13	19-Jul-13	14-Sep-13	19-Jul-13	10-Sep-13	27-Jul-13	10-Sep-13	19-Jul-13	16-Sep-13	19-Jul-13	11-Sep-13	19-Jul-13	11-Sep-13	29-Jul-13	7-Sep-13
Easting (NAD 83, 12W)							539935	536832	535267	535267	541073	541073	545193	545193	552840	552840	556033	556033	554080	554080	550131	550131
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7166859	7170474	7176533	7176533	7176452	7176452	7174326	7174326	7170080	7170080	7166482	7166482	7161614	7161614	7159101	7159101
Nutrients (Continued)																						
Total phosphorus	mg P/L	—	—	—	—	—	0.0058	0.0063	0.0077	0.0096	0.0031	0.0064	0.0056	0.0055	0.0066	0.0047	0.011	0.0096	0.004	0.004	0.011	0.095
Total dissolved phosphorus	mg P/L	—	—	—	—	—	0.0032	0.0027	0.0026	0.0037	0.0026	0.0034	0.0025	0.0025	0.0016	0.0027	0.004	0.0041	0.0028	0.0021	0.0056	0.05
Dissolved orthophosphate	mg/L	—	—	—	—	—	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001
Silica, reactive	mg/L	—	—	—	—	—	0.31	0.35	0.11	0.87	0.37	1.8	0.13	0.27	0.19	0.36	0.15	0.095	0.38	0.75	0.11	0.26
Other Parameters																						
Benzene	µg/L	—	370	5	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	—	90	2.4	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	—	2	24	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene	µg/L	—	—	300	—	—	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71
Petroleum hydrocarbons – F1 (C6-C10)	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Petroleum hydrocarbons – F1 (C6-C10)-BTEX	mg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Petroleum hydrocarbons – F2 (C10-C16)	mg/L	—	—	—	—	—	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total recoverable hydrocarbons	mg/L	—	—	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fecal coliform	CFU/100 mL	—	—	—	—	—	7.0	9.0	<1.0	<1.0	<1.0	12	3.0	<1.0	5.0	<1.0	<1.0	<1.0	1.0	<1.0	2.0	11
Total Metals																						
Aluminum	µg/L	—	5 or 100[j]	100	—	—	15	**14**[C]	**32**[C]	**47**[C]	**25**[C]	**61**[C]	**8.9**[C]	**9.1**[C]	**11**[C]	**7.2**[C]	15	15	**8.8**[C]	6.9	**34**[C]	**227**[C, D]
Antimony	µg/L	—	—	6	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.023	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1
Arsenic	µg/L	—	5	10	—	—	0.35	0.34	0.25	0.28	0.39	0.46	0.34	0.38	0.26	0.2	0.41	0.35	0.21	0.21	0.7	2.1
Barium	µg/L	—	—	1,000	—	—	3.3	2.4	2.3	2.9	6.4	5.6	1.8	1.4	1.4	1.1	1.3	0.97	2.4	2.4	3.3	8.5
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.5
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.076
Boron	µg/L	29,000	1,500	5,000	—	—	3.3	2.9	2.9	1.6	2.6	2.3	2.1	2.6	3.6	4.0	2.7	4.7	3.3	3.0	3.4	<10
Cadmium	µg/L	0.11[k]	0.04[k]	5	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.014
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	—	1	50	—	—	0.078	0.068	0.089	0.19	0.13	0.26	<0.06	<0.06	<0.06	<0.06	0.066	0.08	<0.06	<0.06	0.21	**1.3**[C]
Chromium VI	µg/L	—	1	—	—	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	µg/L	—	—	—	—	—	0.082	0.21	0.061	0.097	0.22	0.24	0.032	0.042	0.037	0.024	0.03	0.031	0.037	0.047	0.13	1.3
Copper	µg/L	—	2[j]	1,000	—	—	0.83	0.64	0.59	0.78	0.38	0.65	0.44	0.43	0.48	0.4	0.76	0.72	0.68	0.64	**2.1**[C]	**3.3**[C]
Iron	µg/L	—	300	300	—	—	140	56	85	110	130	290	31	35	42	29	43	45	21	41	239	**1,920**[C, D]
Lead	µg/L	—	1[j]	10	—	—	<0.01	<0.01	0.013	0.018	<0.01	0.011	<0.01	<0.01	0.019	<0.01	<0.01	0.015	<0.01	0.011	0.026	0.21
Lithium	µg/L	—	—	—	—	—	1.4	1.2	1.4	1.6	1.0	1.4	0.99	1.0	1.0	1.1	1.2	1.7	1.2	0.99	1.5	<5.0
Manganese	µg/L	—	—	50	—	—	5.6	11	1.7	2.7	2.4	3.0	4.1	5.5	5.7	2.8	4.4	3.3	2.6	3.9	15	**96**[D]

Table E-14 Laboratory Water Quality Data From Sub-Basin Streams During the Open-Water Period, 2013
Part A

Location		Guidelines					Sub-Basin Stream Sampling Stations													
		Aquatic Life					C-S1	D-S1	E-S2-1		F-S1		G-S1		I-S1		J-S1		K-S1		L-S1	
Sample Name							C-S1	D-S1	E-S2-1	E-S2-1	F-S1	F-S1	G-S1	G-S1	I-S1	I-S1	J-S1	J-S1	K-S1	K-S1	L-S1	L-S1
Sampling Season							Late Spring	Late Spring	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall
Sample Date							27-Jul-13	27-Jul-13	19-Jul-13	14-Sep-13	19-Jul-13	10-Sep-13	27-Jul-13	10-Sep-13	19-Jul-13	16-Sep-13	19-Jul-13	11-Sep-13	19-Jul-13	11-Sep-13	29-Jul-13	7-Sep-13
Easting (NAD 83, 12W)							539935	536832	535267	535267	541073	541073	545193	545193	552840	552840	556033	556033	554080	554080	550131	550131
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7166859	7170474	7176533	7176533	7176452	7176452	7174326	7174326	7170080	7170080	7166482	7166482	7161614	7161614	7159101	7159101
Total Metals (Continued)																						
Mercury	µg/L	—	0.026	1	—	—	0.00094	<0.0005	0.00071	0.00095	0.00077	0.0018	<0.0005	0.00053	0.00052	0.00061	0.00053	<0.0005	0.00067	0.00064	0.00051	0.0038
Molybdenum	µg/L	—	73	—	223,000	19,000	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.067
Nickel	µg/L	—	25[i]	—	—	—	0.76	0.56	0.34	0.57	0.65	0.88	0.21	0.18	0.34	0.16	0.38	0.33	0.49	0.48	1.5	3.6
Selenium	µg/L	—	1	10	—	—	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.1
Silver	µg/L	—	0.1	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01
Strontium	µg/L	—	—	—	—	—	7.1	5.2	5.3	5.6	6.1	5.6	4.4	4.0	4.5	4.1	5.3	6.1	6.1	7.0	5.5	8.2
Thallium	µg/L	—	0.8	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05
Tin	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1
Titanium	µg/L	—	—	—	—	—	0.29	0.22	1.3	1.7	0.42	0.8	0.18	<0.1	0.27	0.19	0.7	0.89	0.14	0.17	0.81	10
Uranium	µg/L	33	15	20	—	—	0.043	0.024	0.046	0.062	0.016	0.035	0.022	0.021	0.019	0.013	0.02	0.026	<0.01	<0.01	0.032	0.1
Vanadium	µg/L	—	—	—	300	30	0.064	0.065	0.12	0.15	0.087	0.13	<0.05	<0.05	<0.05	<0.05	0.072	0.084	<0.05	<0.05	0.15	1.1
Zinc	µg/L	—	30	5,000	—	—	1.4	0.99	1.7	1.7	1.7	2.2	<0.8	2.1	8.4	5.6	<0.8	1.3	<0.8	1.2	1.4	7.0
Dissolved Metals																						
Aluminum	µg/L	—	—	—	—	—	12	14	11	24	22	56	3.4	7.3	3.7	4.0	6.1	3.8	7.5	5.6	25	113
Antimony	µg/L	—	—	—	—	—	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.042	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	µg/L	—	—	—	—	—	0.35	0.37	0.21	0.27	0.36	0.4	0.31	0.31	0.21	0.18	0.35	0.32	0.22	0.2	0.64	1.9
Barium	µg/L	—	—	—	—	—	3.2	2.5	2.0	2.7	6.5	5.5	1.7	1.6	1.2	1.4	2.9	0.89	2.5	2.4	3.3	94
Beryllium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011
Bismuth	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	—	—	—	—	—	3.8	4.1	4.8	2.1	2.8	2.6	3.5	2.6	5.3	4.3	3.2	3.2	3.4	2.8	3.3	20
Cadmium	µg/L	—	—	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0073
Cesium	µg/L	—	—	—	—	—	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	—	—	—	—	—	0.064	0.098	0.076	0.12	0.17	0.27	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.19	0.95
Cobalt	µg/L	—	—	—	—	—	0.079	0.23	0.042	0.089	0.21	0.22	0.016	0.037	0.015	0.018	0.02	0.023	0.027	0.046	0.12	0.87
Copper	µg/L	—	—	—	—	—	0.82	0.7	0.57	0.79	0.42	0.63	0.39	0.52	0.41	0.43	0.75	0.74	0.71	0.63	1.7	2.1
Iron	µg/L	—	—	—	—	—	69	51	40	51	82	169	9.0	18	12	13	12	13	13	23	110	1,120
Lead	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	0.013	0.016	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	0.012	0.018	0.091
Lithium	µg/L	—	—	—	—	—	1.3	1.2	1.2	1.7	1.4	1.5	1.2	1.0	1.3	1.2	1.6	1.3	1.3	1.1	2.1	1.8
Manganese	µg/L	—	—	—	—	—	5.0	12	1.4	2.1	2.3	2.7	1.7	4.8	2.5	2.0	1.7	1.7	1.9	3.2	13	73
Mercury	µg/L	—	—	—	—	—	0.00093	0.00052	0.00075	0.0008	0.0009	0.0015	<0.0005	0.00055	<0.0005	0.00068	<0.0005	<0.0005	0.00058	0.00051	<0.0005	0.0024
Molybdenum	µg/L	—	—	—	—	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.055
Nickel	µg/L	—	—	—	—	—	0.73	0.61	0.35	0.62	0.73	0.85	0.2	0.21	0.19	0.17	0.33	0.28	0.48	0.47	1.5	3.1
Selenium	µg/L	—	—	—	—	—	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.087
Silver	µg/L	—	—	—	—	—	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0061
Strontium	µg/L	—	—	—	—	—	7.0	5.2	5.0	5.7	6.6	5.7	4.5	4.2	4.8	4.2	5.7	4.8	6.4	7.1	5.9	8.4

Table E-14 Laboratory Water Quality Data From Sub-Basin Streams During the Open-Water Period, 2013
Part A

Location		Guidelines					Sub-Basin Stream Sampling Stations													
		Aquatic Life					C-S1	D-S1	E-S2-1		F-S1		G-S1		I-S1		J-S1		K-S1		L-S1	
Sample Name							C-S1	D-S1	E-S2-1	E-S2-1	F-S1	F-S1	G-S1	G-S1	I-S1	I-S1	J-S1	J-S1	K-S1	K-S1	L-S1	L-S1
Sampling Season							Late Spring	Late Spring	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall	Late Spring	Fall
Sample Date							27-Jul-13	27-Jul-13	19-Jul-13	14-Sep-13	19-Jul-13	10-Sep-13	27-Jul-13	10-Sep-13	19-Jul-13	16-Sep-13	19-Jul-13	11-Sep-13	19-Jul-13	11-Sep-13	29-Jul-13	7-Sep-13
Easting (NAD 83, 12W)							539935	536832	535267	535267	541073	541073	545193	545193	552840	552840	556033	556033	554080	554080	550131	550131
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	7166859	7170474	7176533	7176533	7176452	7176452	7174326	7174326	7170080	7170080	7166482	7166482	7161614	7161614	7159101	7159101
Dissolved Metals (Continued)																						
Thallium	µg/L	—	—	—	—	—	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	µg/L	—	—	—	—	—	0.4	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	0.23	<0.05	0.19	<0.05	<0.05	<0.05
Titanium	µg/L	—	—	—	—	—	0.15	0.31	0.16	0.48	0.24	0.57	0.12	0.37	<0.1	<0.1	0.12	0.29	<0.1	0.34	0.37	4.3
Uranium	µg/L	—	—	—	—	—	0.038	0.029	0.038	0.053	0.014	0.032	0.019	0.019	0.019	0.013	0.018	0.017	<0.01	<0.01	0.029	0.08
Vanadium	µg/L	—	—	—	—	—	0.054	0.11	0.077	0.068	0.074	0.085	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	0.52
Zinc	µg/L	—	—	—	—	—	1.5	1.9	1.1	1.2	2.3	2.4	0.81	1.7	<0.8	<0.8	1.1	2.8	2.0	<0.8	2.3	52

Note:
Bolded concentrations are higher than relevant water quality guidelines.
C) = concentration higher than the relevant chronic aquatic life guideline or outside the recommended pH or DO concentration range.
D) = concentration higher than the relevant drinking water guideline or outside the recommended pH or DO concentration range.
Guideline exceedances by median concentrations are based on guidelines calculated using median values of hardness, pH, and temperature, and are not included in the percent exceedance calculations.
Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision after comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Measured concentrations equal to the guideline values were not identified as exceedances.
a) Source: CCME (Canadian Council of Ministers of the Environment). (1999, with updates to 2014). Canadian Environmental Quality Guidelines. Winnipeg, MB, Canada.
b) Source: Health Canada. (2012). Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.
c) See Part B.
d) See Part B.
e) See Part B.
f) See Part B.
g) See Part B.
h) See Part B.
i) Guidelines based on hardness of 4.7 mg $CaCO_3$/L.
j) Guidelines based on pH of 6.0 to 7.2, temperature of 4.4°C to 20.4°C, and water hardness of 3.6 to 7.4 mg/L.
k) Acute guideline applies to all waters of hardness below 5.3 mg $CaCO_3$/L; chronic guideline applies to all waters of hardness below 17 mg $CaCO_3$/L.
— = no guideline or data; CWQG = Canadian Drinking Water Quality Guidelines; DWQG = Drinking Water Quality Guidelines; SSWQO = Site-Specific Water Quality Objective; NAD = North American Datum; H+ = hydrogen ions; $CaCO_3$ = calcium carbonate; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % = percent; meq/L = milliequivalents per litre; pH = potential of hydrogen, provides measure of the acidity or alkalinity of a solution on a scale of 0 to 14; DO = dissolved oxygen; NTU = nephelometric turbidity units; mg N/L = milligrams of nitrogen per litre; mg P/L = milligrams of phosphorus per litre; µg/L = micrograms per litre; CFU/100 mL = coliform forming units per 100 millilitres; BTEX = benzene, toluene, ethylbenzene, xylene; < = less than.

Table E-14 Laboratory Water Quality Data From Sub-Basin Streams During the Open-Water Period, 2013
Part B

Location		Guidelines					Summary Statistics											
Sample Name		Aquatic Life												% Above Guideline				
Sampling Season																		
Sample Date																		
Easting (NAD 83, 12W)					Short-Term SSWQO												Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]		Long-Term SSWQO	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]		
Field Measured																		
Total depth	m	—	—	—	—	—	16	0.2	0.3	0.3	0.6	0.13	0.03	—	—	—	—	—
Sample depth	m	—	—	—	—	—	16	0.1	0.2	0.2	0.3	0.06	0.02	—	—	—	—	—
Secchi depth	m	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Water temperature	°C	—	—	—	—	—	15	4.4	10.0	9.5	13.4	2.8	0.72	—	—	—	—	—
Specific conductivity	µS/cm	—	—	—	—	—	15	7	12	13	18	2.9	0.76	—	—	—	—	—
Dissolved oxygen	mg/L	—	6.5	—	—	—	11	9.7	10.7	10.6	12.2	0.80	0.24	—	—	—	—	—
Dissolved oxygen saturation	%	—	—	—	—	—	11	83	95	95	110	7.6	2.3	—	—	—	—	—
Conventional Parameters																		
Alkalinity, gran (as H+)	meq/L	—	—	—	—	—	16	<0.1	<0.1	0.072	0.14	0.035	0.0088	—	—	—	—	—
Alkalinity, total as CaCO3	mg/L	—	—	—	—	—	16	2.8	3.8	4.0	6.9	1.1	0.28	—	—	—	—	—
Conductance	µS/cm	—	—	—	—	—	16	12	14	15	20	2.8	0.69	—	—	—	—	—
Hardness	mg/L	—	—	—	—	—	16	3.8	4.7	5.0	7.4	1.2	0.31	—	—	—	—	—
pH	pH units	—	6.5 – 9.0	6.5 – 8.5	—	—	16	**6.2**[C, D]	**6.4**[C, D]	**6.4**[C, D]	7.0	0.22	0.054	—	75	75	—	—
Total dissolved solids	mg/L	—	—	500	—	—	16	11	19	21	55	10	2.6	—	—	—	—	—
Total suspended solids	mg/L	—	—	—	—	—	16	<3.0	<3.0	2.5	14	3.2	0.8	—	—	—	—	—
Turbidity	NTU	—	—	—	—	—	16	0.22	0.49	0.74	3.7	0.82	0.21	—	—	—	—	—
Major Ions																		
Bicarbonate	mg/L	—	—	—	—	—	16	<5.0	<5.0	3.8	8.4	2.0	0.5	—	—	—	—	—
Calcium	mg/L	—	—	—	—	—	16	0.61	0.82	0.85	1.3	0.19	0.048	—	—	—	—	—
Chloride	mg/L	640	120	250	—	64.5[i]	16	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Fluoride	mg/L	—	0.12	1.5	—	—	16	<0.02	<0.02	0.013	0.034	0.0075	0.0019	—	—	—	—	—
Magnesium	mg/L	—	—	—	—	—	16	0.51	0.62	0.70	1.1	0.19	0.048	—	—	—	—	—
Potassium	mg/L	—	—	—	112	41	16	0.14	0.57	0.56	0.83	0.17	0.043	—	—	—	—	—
Sodium	mg/L	—	—	200	—	—	16	0.53	0.63	0.67	1.1	0.13	0.16	—	—	—	—	—
Sulphate	mg/L	—	—	500	250[i]	22.7[i]	16	0.37	1.3	1.5	2.9	0.61	0.15	—	—	—	—	—
Nutrients																		
Total organic carbon	mg/L	—	—	—	—	—	16	2.6	3.6	4.6	13	2.7	0.69	—	—	—	—	—
Dissolved organic carbon	mg/L	—	—	—	—	—	16	2.4	3.8	4.8	12	2.6	0.65	—	—	—	—	—
Total nitrogen (calculated)	mg N/L	—	—	—	—	—	16	0.16	0.19	0.29	1.4	0.30	0.075	—	—	—	—	—
Total Kjeldahl Nitrogen	mg N/L	—	—	—	—	—	16	0.14	0.19	0.28	1.4	0.30	0.076	—	—	—	—	—
Total ammonia	mg N/L	—	2.7 – 139[i]	—	—	—	16	<0.005	0.014	0.015	0.024	0.0053	0.0013	—	—	—	—	—
Nitrate	mg N/L	124	2.9	10	—	0.57[i]	16	<0.006	<0.006	0.011	0.059	0.015	0.0038	—	—	—	—	—
Nitrite	mg N/L	—	0.06	1	—	—	16	<0.002	<0.002	0.0011	0.002	0.00025	0.000063	—	—	—	—	—

Table E-14 Laboratory Water Quality Data From Sub-Basin Streams During the Open-Water Period, 2013
Part B

Location		Guidelines					Summary Statistics												
		Aquatic Life												% Above Guideline				
Sample Name																		
Sampling Season																		
Sample Date																		
Easting (NAD 83, 12W)																		
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Nutrients (Continued)																		
Total phosphorus	mg P/L	—	—	—	—	—	16	0.0031	0.0064	0.012	0.095	0.022	0.0056	—	—	—	—	—
Total dissolved phosphorus	mg P/L	—	—	—	—	—	16	0.0016	0.0028	0.0060	0.050	0.012	0.003	—	—	—	—	—
Dissolved orthophosphate	mg/L	—	—	—	—	—	16	<0.001	<0.001	<0.01	<0.01	—	—	—	—	—	—	—
Silica, reactive	mg/L	—	—	—	—	—	16	0.095	0.29	0.41	1.8	0.43	0.11	—	—	—	—	—
Other Parameters																		
Benzene	µg/L	—	370	5	—	—	16	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Ethylbenzene	µg/L	—	90	2.4	—	—	16	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Toluene	µg/L	—	2	24	—	—	16	<0.5	<0.5	<0.5	<0.5	—	—	—	—	—	—	—
Xylene	µg/L	—	—	300	—	—	16	<0.71	<0.71	<0.71	<0.71	—	—	—	—	—	—	—
Petroleum hydrocarbons – F1 (C6-C10)	mg/L	—	—	—	—	—	16	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Petroleum hydrocarbons – F1 (C6-C10)-BTEX	mg/L	—	—	—	—	—	16	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Petroleum hydrocarbons – F2 (C10-C16)	mg/L	—	—	—	—	—	16	<0.25	<0.25	<0.25	<0.25	—	—	—	—	—	—	—
Total recoverable hydrocarbons	mg/L	—	—	—	—	—	16	<1.0	<1.0	0.53	1.0	0.13	0.031	—	—	—	—	—
Fecal coliform	CFU/100 mL	—	—	—	—	—	16	<1.0	1.0	3.4	12	4.1	1.0	—	—	—	—	—
Total Metals																		
Aluminum	µg/L	—	5 or 100[j]	100	—	—	16	6.9	**15**[(C)]	**34**[(C)]	**227**[(C, D)]	54	13	—	69	6	—	—
Antimony	µg/L	—	—	6	—	—	16	<0.02	<0.02	<0.1	<0.1	—	—	—	—	—	—	—
Arsenic	µg/L	—	5	10	—	—	16	0.20	0.35	0.45	2.1	0.45	0.11	—	—	—	—	—
Barium	µg/L	—	—	1,000	—	—	16	0.97	2.4	3.0	8.5	2.1	0.53	—	—	—	—	—
Beryllium	µg/L	—	—	—	—	—	16	<0.01	<0.01	<0.5	<0.5	—	—	—	—	—	—	—
Bismuth	µg/L	—	—	—	—	—	16	<0.01	<0.01	0.0094	0.076	0.018	0.0044	—	—	—	—	—
Boron	µg/L	29,000	1,500	5,000	—	—	16	1.6	3.0	<10	<10	0.9	0.22	—	—	—	—	—
Cadmium	µg/L	0.11[k]	0.04[k]	5	—	—	16	<0.005	<0.005	0.0032	0.014	0.0029	0.00072	—	—	—	—	—
Cesium	µg/L	—	—	—	—	—	16	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Chromium	µg/L	—	1	50	—	—	16	<0.06	0.073	0.16	**1.3**[(C)]	0.3	0.075	—	6	—	—	—
Chromium VI	µg/L	—	1	—	—	—	16	<1.0	<1.0	<1.0	<1.0	—	—	—	—	—	—	—
Cobalt	µg/L	—	—	—	—	—	16	0.024	0.054	0.16	1.3	0.31	0.077	—	—	—	—	—
Copper	µg/L	—	2[j]	1,000	—	—	16	0.38	0.65	0.87	**3.3**[(C)]	0.77	0.19	—	13	—	—	—
Iron	µg/L	—	300	300	—	—	16	21	50	203	**1,920**[(C, D)]	464	116	—	6	6	—	—
Lead	µg/L	—	1[j]	10	—	—	16	<0.01	0.011	0.023	0.21	0.051	0.013	—	—	—	—	—
Lithium	µg/L	—	—	—	—	—	16	0.99	1.2	1.3	<5.0	0.39	0.097	—	—	—	—	—
Manganese	µg/L	—	—	50	—	—	16	1.7	4.0	11	**96**[(D)]	23	5.8	—	—	6	—	—
Mercury	µg/L	—	0.026	1	—	—	16	<0.0005	0.00063	0.00086	0.0038	0.00088	0.00022	—	—	—	—	—
Molybdenum	µg/L	—	73	—	223,000	19,000	16	<0.05	<0.05	0.028	0.067	0.011	0.0026	—	—	—	—	—

Table E-14 Laboratory Water Quality Data From Sub-Basin Streams During the Open-Water Period, 2013
Part B

Location		Guidelines					Summary Statistics											
Sample Name		Aquatic Life												% Above Guideline				
Sampling Season																		
Sample Date																		
Easting (NAD 83, 12W)																		
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Total Metals (Continued)																		
Nickel	µg/L	—	25[i]	—	—	—	16	0.16	0.49	0.71	3.6	0.83	0.21	—	—	—	—	—
Selenium	µg/L	—	1	10	—	—	16	<0.04	<0.04	<0.1	<0.1	—	—	—	—	—	—	—
Silver	µg/L	—	0.1	—	—	—	16	<0.005	<0.005	<0.01	<0.01	—	—	—	—	—	—	—
Strontium	µg/L	—	—	—	—	—	16	4.0	5.5	5.6	8.2	1.1	0.28	—	—	—	—	—
Thallium	µg/L	—	0.8	—	—	—	16	<0.01	<0.01	<0.05	<0.05	—	—	—	—	—	—	—
Tin	µg/L	—	—	—	—	—	16	<0.05	<0.05	<0.1	<0.1	—	—	—	—	—	—	—
Titanium	µg/L	—	—	—	—	—	16	<0.1	0.36	1.1	10	2.5	0.62	—	—	—	—	—
Uranium	µg/L	33	15	20	—	—	16	<0.01	0.023	0.031	0.1	0.024	0.0061	—	—	—	—	—
Vanadium	µg/L	—	—	—	300	30	16	<0.05	0.069	0.14	1.1	0.26	0.066	—	—	—	—	—
Zinc	µg/L	—	30	5,000	—	—	16	<0.8	1.5	2.4	8.4	2.4	0.61	—	—	—	—	—
Dissolved Metals																		
Aluminum	µg/L	—	—	—	—	—	16	3.4	9.2	20	113	28	7.1	—	—	—	—	—
Antimony	µg/L	—	—	—	—	—	16	<0.02	<0.02	0.012	0.042	0.008	0.002	—	—	—	—	—
Arsenic	µg/L	—	—	—	—	—	16	0.18	0.32	0.41	1.9	0.42	0.1	—	—	—	—	—
Barium	µg/L	—	—	—	—	—	16	0.89	2.5	8.4	94	23	5.7	—	—	—	—	—
Beryllium	µg/L	—	—	—	—	—	16	<0.01	<0.01	0.0054	0.011	0.0015	0.00038	—	—	—	—	—
Bismuth	µg/L	—	—	—	—	—	16	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Boron	µg/L	—	—	—	—	—	16	2.1	3.4	4.5	20	4.1	1.0	—	—	—	—	—
Cadmium	µg/L	—	—	—	—	—	16	<0.005	<0.005	0.0028	0.0073	0.0012	0.0003	—	—	—	—	—
Cesium	µg/L	—	—	—	—	—	16	<0.1	<0.1	<0.1	<0.1	—	—	—	—	—	—	—
Chromium	µg/L	—	—	—	—	—	16	<0.06	0.062	0.14	0.95	0.23	0.057	—	—	—	—	—
Cobalt	µg/L	—	—	—	—	—	16	0.015	0.044	0.13	0.87	0.21	0.053	—	—	—	—	—
Copper	µg/L	—	—	—	—	—	16	0.39	0.67	0.77	2.1	0.46	0.12	—	—	—	—	—
Iron	µg/L	—	—	—	—	—	16	9.0	31	113	1,120	272	68	—	—	—	—	—
Lead	µg/L	—	—	—	—	—	16	<0.01	<0.01	0.014	0.091	0.021	0.0053	—	—	—	—	—
Lithium	µg/L	—	—	—	—	—	16	1.0	1.3	1.4	2.1	0.29	0.073	—	—	—	—	—
Manganese	µg/L	—	—	—	—	—	16	1.4	2.4	8.1	73	18	4.4	—	—	—	—	—
Mercury	µg/L	—	—	—	—	—	16	<0.0005	0.00057	0.00071	0.0024	0.00055	0.00014	—	—	—	—	—
Molybdenum	µg/L	—	—	—	—	—	16	<0.05	<0.05	0.027	0.055	0.0075	0.0019	—	—	—	—	—
Nickel	µg/L	—	—	—	—	—	16	0.17	0.48	0.67	3.1	0.72	0.18	—	—	—	—	—
Selenium	µg/L	—	—	—	—	—	16	<0.04	<0.04	0.024	0.087	0.017	0.0042	—	—	—	—	—
Silver	µg/L	—	—	—	—	—	16	<0.005	<0.005	0.0027	0.0061	0.0009	0.00023	—	—	—	—	—
Strontium	µg/L	—	—	—	—	—	16	4.2	5.7	5.7	8.4	1.2	0.29	—	—	—	—	—
Thallium	µg/L	—	—	—	—	—	16	<0.01	<0.01	<0.01	<0.01	—	—	—	—	—	—	—
Tin	µg/L	—	—	—	—	—	16	<0.05	<0.05	0.074	0.4	0.11	0.027	—	—	—	—	—

Table E-14 Laboratory Water Quality Data From Sub-Basin Streams During the Open-Water Period, 2013
Part B

Location		Guidelines					Summary Statistics											
		Aquatic Life												% Above Guideline				
Sample Name																		
Sampling Season																		
Sample Date																		
Easting (NAD 83, 12W)																		
Northing (NAD 83, 12W)	Unit	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO	Long-Term SSWQO	Count	Min	Median	Mean	Max	Standard Deviation	Standard Error	Acute CWQG[a]	Chronic CWQG[a]	DWQG[b]	Short-Term SSWQO (c,d,e,f,g,h)	Long-Term SSWQO (c,d,e,f,g,h)
Dissolved Metals (Continued)																		
Titanium	µg/L	—	—	—	—	—	16	<0.1	0.27	0.5	4.3	1.0	0.26	—	—	—	—	—
Uranium	µg/L	—	—	—	—	—	16	<0.01	0.019	0.027	0.08	0.019	0.0048	—	—	—	—	—
Vanadium	µg/L	—	—	—	—	—	16	<0.05	0.052	0.08	0.52	0.12	0.03	—	—	—	—	—
Zinc	µg/L	—	—	—	—	—	16	<0.8	1.6	4.6	52	13	3.2	—	—	—	—	—

Note:
Bolded concentrations are higher than relevant water quality guidelines.
C) = concentration higher than the relevant chronic aquatic life guideline or outside the recommended pH or DO concentration range.
D) = concentration higher than the relevant drinking water guideline or outside the recommended pH or DO concentration range.
Guideline exceedances by median concentrations are based on guidelines calculated using median values of hardness, pH, and temperature, and are not included in the percent exceedance calculations.
Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision after comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Measured concentrations equal to the guideline values were not identified as exceedances.
a) Source: CCME (Canadian Council of Ministers of the Environment). (1999, with updates to 2014). Canadian Environmental Quality Guidelines. Winnipeg, MB, Canada.
b) Source: Health Canada. (2012). Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.
c) Source: Elphick JRF, Bergh KD, Bailey HC. (2011). Chronic toxicity of chloride to freshwater species: effects of hardness and implications for water quality guidelines. Environ Toxicol Chem 30: 230-246.
d) Source: Rescan (Rescan Environmental Services Ltd.). (2012a). Ekati Diamond Mine: Site-Specific Water Quality Objective for Potassium. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.
e) Source: Rescan. (2012b). Ekati Diamond Mine: Site-specific Water Quality Objective for Sulphate. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.
f) Source: Rescan. (2012c). Ekati Diamond Mine: Site-Specific Water Quality Objective for Nitrate, 2012. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.
g) Source: Rescan. (2012d). Ekati Diamond Mine: Site Specific Water Quality Objective for Molybdenum, 2011. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.
h) Source: Rescan. (2012e). Ekati Diamond Mine: Site-specific Water Quality Objective for Vanadium. Prepared for BHP Billiton Canada Inc. Yellowknife, NWT, Canada.
i) Guidelines based on hardness of 4.7 mg $CaCO_3$/L.
j) Guidelines based on pH of 6.0 to 7.2, temperature of 4.4°C to 20.4°C, and water hardness of 3.6 to 7.4 mg/L.
k) Acute guideline applies to all waters of hardness below 5.3 mg $CaCO_3$/L; chronic guideline applies to all waters of hardness below 17 mg $CaCO_3$/L.
— = no guideline or data; CWQG = Canadian Drinking Water Quality Guidelines; DWQG = Drinking Water Quality Guidelines; SSWQO = Site-Specific Water Quality Objective; min = minimum, max = maximum; NAD = North American Datum; H+ = hydrogen ions; $CaCO_3$ = calcium carbonate; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; % = percent; meq/L = milliequivalents per litre; pH = potential of hydrogen, provides measure of the acidity or alkalinity of a solution on a scale of 0 to 14; DO = dissolved oxygen; NTU = nephelometric turbidity units; mg N/L = milligrams of nitrogen per litre; mg P/L = milligrams of phosphorus per litre; µg/L = micrograms per litre; CFU/100 mL = coliform forming units per 100 millilitres; BTEX = benzene, toluene, ethylbenzene, xylene; < = less than.

Table E-15 Depth-Integrated Nutrient Concentrations in Lac du Sauvage, Duchess Lake, Lake Af1, Lake EL1, and Paul Lake During the Summer and Fall, 2013

Parameter			Total Nitrogen	Total Phosphorus	Soluble Reactive Silica
Detection Limit			0.050	0.001	0.005
Unit	Station ID	Date	mg/L	mg/L	mg/L
Lac du Sauvage	Aa-1	13-Aug-13	—	0.010	0.071
	Ab-1	12-Aug-13	—	0.006	—
	Ac-1	05-Aug-13	—	0.008	0.034
	Ac-4	11-Aug-13	—	0.006	0.038
	Ac-7	18-Aug-13	—	0.008	0.030
	Ad-1	10-Aug-13	—	0.010	0.043
	Ae-1	9-Aug-13	—	0.006	0.122
Duchess Lake	Af-1	7-Sep-13	—	0.044	0.151
	Af-7	7-Sep-13	—	0.011	0.153
Lake Af1	Af-10	17-Aug-13	0.377	0.021	0.143
Lake E1	E-L1-1	17-Aug-13	0.323	0.015	0.207
Paul Lake	PL-1	14-Aug-13	0.194	0.011	0.167
	PL-2	14-Aug-13	0.568	0.020	0.158
	PL-3	15-Aug-13	0.224	0.009	0.189
	PL-4	—	—	—	—
	PL-5	15-Aug-13	0.256	0.010	0.161

ID = identification; mg/L = milligrams per litre; — = no sample collected.

Table E-16 Chlorophyll *a* Field Replicates Collected in Lac du Sauvage, Duchess Lake, Lake Af1, Sub-Basin Lakes (C1, D3 [Counts], G2, and H1), Lake E1, and Paul Lake During the Open-Water Period, 2013

Lake	Station ID	Date	Average (µg/L)	Standard Deviation (µg/L)	Standard Error (µg/L)
Lac du Sauvage	Aa-1	24-Jul-13	2.84	0.07	0.04
		13-Aug-13	2.26	0.04	0.02
		11-Sep-13	2.94	0.16	0.09
	Ab-1	23-Jul-13	1.36	0.07	0.04
		12-Aug-13	0.65	0.01	0.00
		11-Sep-13	3.24	0.19	0.11
	Ac-1	20-Jul-13	1.65	0.07	0.04
		10-Aug-13	0.96	0.02	0.01
		11-Sep-13	3.11	0.12	0.07
	Ac-4	21-Jul-13	1.16	0.01	0.00
		11-Aug-13	0.89	0.02	0.01
		11-Sep-13	3.20	0.07	0.04
	Ac-7	20-Jul-13	1.63	0.08	0.05
		11-Aug-13	0.87	0.04	0.02
		11-Sep-13	3.18	0.15	0.08
	Ad-1	25-Jul-13	1.68	0.07	0.04
		10-Aug-13	1.23	0.03	0.02
		07-Sep-13	2.79	0.00	0.00
	Ae-1	25-Jul-13	1.91	0.19	0.11
		09-Aug-13	1.15	0.04	0.02
		05-Sep-13	2.04	0.33	0.19
Duchess Lake	Af-1	22-Jul-13	3.04	0.19	0.11
		08-Aug-13	2.54	0.16	0.09
		07-Sep-13	5.12	0.13	0.08
	Af-7	26-Jul-13	2.80	0.10	0.06
		08-Aug-13	3.59	0.26	0.15
		07-Sep-13	5.21	0.06	0.03
Lake Af1	Af-10	26-Jul-13	9.49	0.18	0.10
		17-Aug-13	13.45	0.40	0.23
		12-Sep-13	8.95	0.49	0.28
Sub-basin lakes (C1, D3 [Counts], G2, H1)	C-L1	20-Aug-13	2.99	0.18	0.13
	D-L3	20-Aug-13	1.99	0.06	0.03
	G-L2	10-Sep-13	4.31	0.19	0.11
	H-L1	11-Sep-13	5.45	0.15	0.09
Lake E1	E-L1-1	17-Aug-13	4.25	0.15	0.09
		12-Sep-13	4.01	0.12	0.07
	E-L1-2	12-Sep-13	3.15	0.40	0.23

Table E-16 Chlorophyll *a* Field Replicates Collected in Lac du Sauvage, Duchess Lake, Lake Af1, Sub-Basin Lakes (C1, D3 [Counts], G2, and H1), Lake E1, and Paul Lake During the Open-Water Period, 2013

Lake	Station ID	Date	Average (µg/L)	Standard Deviation (µg/L)	Standard Error (µg/L)
Paul Lake	PL-1	28-Jul-13	3.82	0.05	0.03
		14-Aug-13	4.27	0.19	0.11
	PL-2	28-Jul-13	3.24	0.02	0.01
		14-Aug-13	3.28	0.05	0.03
		15-Sep-13	4.15	0.07	0.04
	PL-3	29-Jul-13	2.64	0.11	0.06
		15-Aug-13	0.22	0.03	0.02
		15-Sep-13	5.77	0.19	0.11
	PL-4	29-Jul-13	2.62	0.08	0.04
		15-Sep-13	5.18	0.33	0.19
	PL-5	15-Aug-13	0.18	0.01	0.00
		15-Sep-13	4.31	0.17	0.10

Note: Error is based on standard error of the mean.
ID = identification; µg/L = micrograms per litre.