



BLACK STURGEON LAKES WATER QUALITY MONITORING 2015 REPORT

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1.0 BACKGROUND

In the fall of 2007, the City of Kenora was presented with the results of the *Lake Capacity and Management Study for Black Sturgeon Lake*. One of the recommendations of this study was to conduct a water quality assessment on Lower Black Sturgeon Lake for two consecutive years to establish baseline data and then once every five years to monitor changes to the water quality in the lake.

In 2009 and 2010, the City of Kenora awarded the contract to conduct the baseline data work for the first two-years of water quality monitoring on Black Sturgeon Lakes to Ryan Haines Consulting. In 2015, the water quality assessment contract was awarded to Kenora Resource Consultants Inc. (note – Ryan Haines Consulting was incorporated into Kenora Resource Consultants Inc. in 2012).

2.0 METHODOLOGY

Ten sampling sessions were conducted during the 2015 season between May and October with one sampling session in the months of May and June and two sampling sessions in the months of July, August, September, and October. Water samples were taken at two locations on Lower Black Sturgeon Lake and one location at Upper Black Sturgeon during each sampling session. Sample locations on Lower Black Sturgeon correspond to sites identified in the *Lake Capacity and Management Study for Black Sturgeon Lake*. The site on Upper Black Sturgeon was added during the 2010 sampling season to help to better understand potential sources of the higher nutrient levels found at the upstream site on Lower Black Sturgeon during the 2009 sampling season.

The selection of the site locations has been designed to determine the impacts of development on the water quality of Black Sturgeon Lakes. Site 2 is located at the outlet of Black Sturgeon Lakes into the Winnipeg River, Site 3 is located at inlet of Black Sturgeon Creek into Lower Black Sturgeon Lake, and Site 4 is located at the outlet of Upper Black Sturgeon Lake (Site 4) into Black Sturgeon Creek. Site 2 is the main sampling location used to assess the impacts of development on water quality because the new and proposed developments on Lower Black Sturgeon Lake are occurring upstream of this site.

All field work was conducted from a small motorboat with a sonar unit mounted to the stern. At each sampling site, an anchor was used to keep the boat in one location.

Temperature/oxygen profiles were obtained at Sites #2, #3, and #4 (Figure 1) during each sampling session using an YSI 55 Dissolved Oxygen Meter. One mid-summer profile at Site 1 was added to determine the distribution of oxygen and temperature throughout the water column at one of the deepest sections in the center portion of the lake.

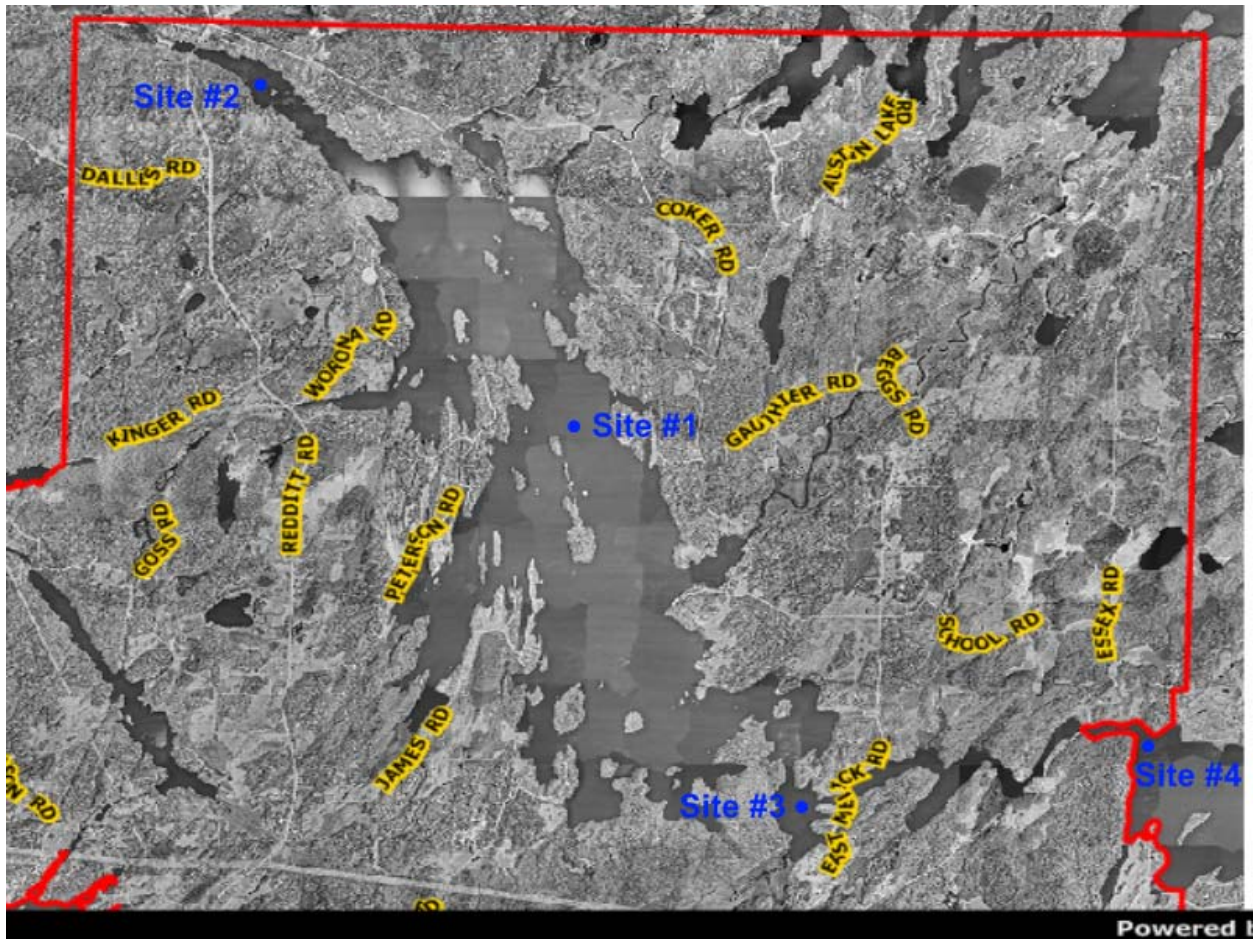


Figure 1 – Sampling Sites for Water Quality Monitoring on Black Sturgeon Lakes for 2015 sampling season

Secchi depth was determined at each site by lowering a Secchi disk (20-cm disk with alternating black and white quadrants) over the shady side of the boat (Figure 2). The disk was lowered until the observer could no longer distinguish between the white and black quadrants and then raised until the disk came back into view. This was repeated three times and then the depths at which the disk disappeared and then reappeared were averaged to give the Secchi depth.



Figure 2 – Lowering of Secchi disk

Lake productivity samples were collected both as a euphotic zone composite and at a depth of 1 m from the bottom. The euphotic zone is the section of the water column where enough light penetrates to facilitate algae growth (measured as 2X the Secchi depth). In order to obtain a water sample containing water from the euphotic zone, a weighted, 500 mL, small neck bottle (Figure 3) was lowered with a rope in the water column to a depth of 2X Secchi depth then quickly brought to the surface before the bottle became completely filled.



Figure 3 – Transferring water sample from euphotic zone composite into lab sample bottle

At each site, an additional water sample was taken approximately one meter from the bottom of the lake using a Beta horizontal water sampler (Figure 4). Both ends of the water sampler were opened prior to lowering it (using a rope) to the desired water depth. At the desired depth, a small weight was sent down through the water column along the length of the rope triggering a release mechanism on the sampler and causing the sampler caps to close.



Figure 4 – Horizontal Beta Sampler prior to deployment

All euphotic zone samples and samples taken one meter from the bottom of the lake were transferred immediately upon collection to sample bottles for analysis at a laboratory. One euphotic zone sample and one bottom sample were taken at each site and analyzed for total phosphorous. All water samples were shipped via Greyhound bus to ALS Laboratory Group in Winnipeg, MB, for analysis.

3.0 RESULTS

During the 2015 field season, there was information collected from all three sites (Site 2, Site 3, Site 4) for a number of different factors (phosphorous, Secchi depth, dissolved oxygen/temperature profiles, dissolved organic carbon, colour, pH, alkalinity, turbidity and scans for cations/anions and trace metals) as well as a mid-summer dissolved oxygen/temperature profile taken at Site 1. All of this information is important to ensure that data is collected to help determine the spatial and/or temporal attributes of any changes to water quality in Black Sturgeon Lakes. However, it is felt that the data collected at Site 1, Site 3, and Site 4 are most important to assist in determining potential sources of any impacts to water quality that may be found at Site 2. In addition, it is felt that the dissolved oxygen/temperature profiles and bottom samples for phosphorous at all three sites are important for assisting in determining potential sources and/or causes of any water quality impairment that may be found at Site 2.

For the reasons listed above, the following results and discussion sections will focus on the phosphorous results and Secchi depth measurements that were collected at Site 2 in 2009, 2010, and 2015 as well as the spring water quality characteristics analyses from Site 2 collected in 2010 and 2015. All of the additional data collected during the 2015 field season will be provided to the City of Kenora in digital

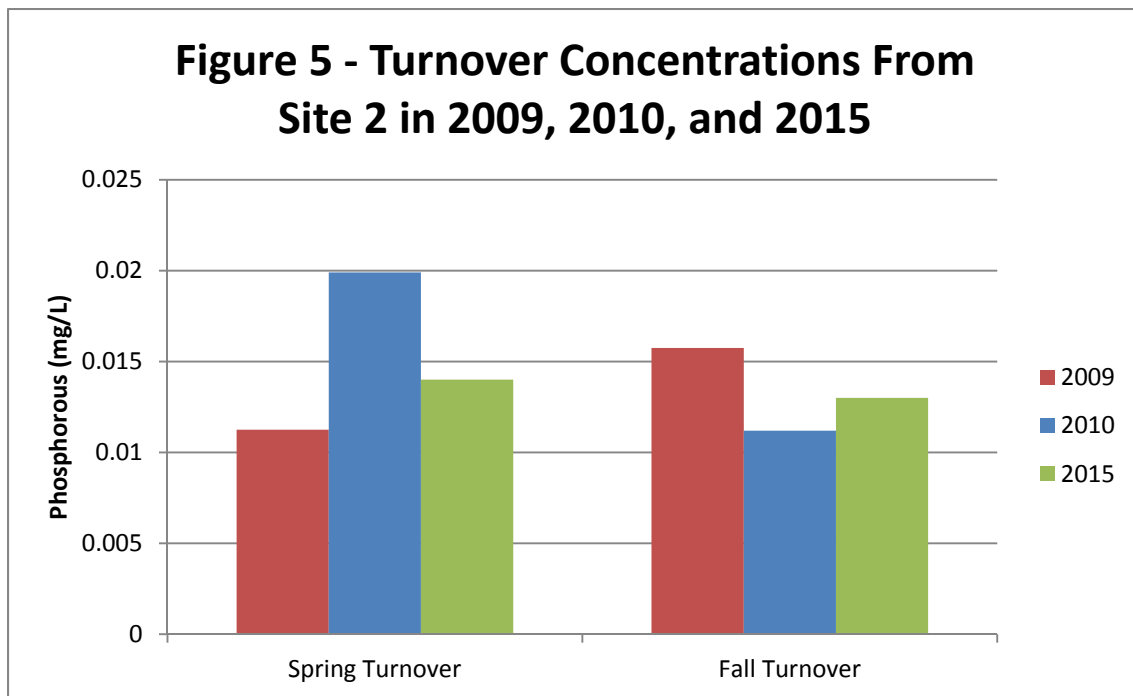
format to ensure that the information is stored for future analysis should there be evidence of decline in water quality at Site 2 during sampling seasons in the future.

3.1 Sampling Session Dates and Locations

The 2015 sampling sessions were conducted on May 31st, June 21st, July 5th, July 19th, August 9th, August 23rd, September 6th, September 20th, October 4th, and October 25th, 2015. The depth of the sampling sites varied due to fluctuating water levels and the anchoring location for each site. The deepest portion of Site 2 was fairly isolated and difficult to locate, sampling depths at this site varied from 14.9 to 17.0 m. The sampling depths at Site 3 varied from 9.5 to 10.0 m. Site 4 was the shallowest site with sampling depths ranging from 6.5 to 7.1 m.

3.2 Total Phosphorous

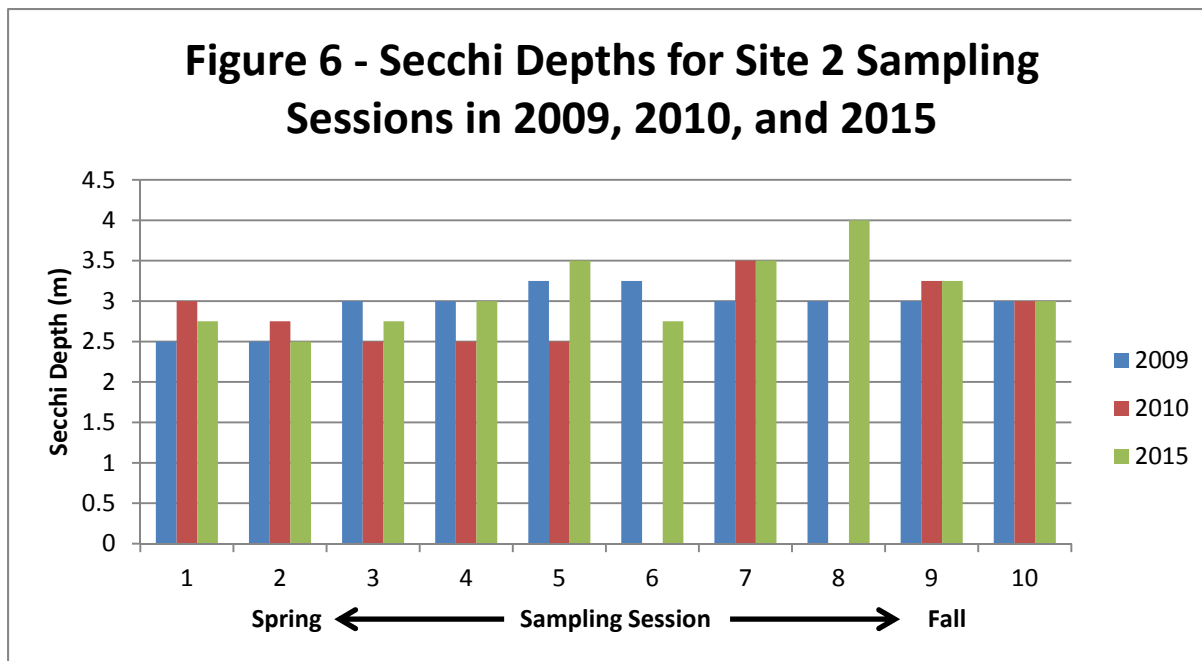
The 2009, 2010, and 2015 euphotic zone spring and fall turnover results for the total phosphorous concentrations for Site 2 were all below the provincial water quality objective of 0.0200 mg/L. During 2015, the turnover euphotic zone phosphorous concentrations taken at Site 2 (spring - 0.0140 mg/L and fall - 0.0130 mg/L) were found to be in between the concentrations found during the baseline years of 2009 (spring - 0.0113 mg/L and fall - 0.0158 mg/L) and 2010 (spring - 0.0199 mg/L and fall - 0.0112 mg/L) (Figure 5).



3.3 Secchi Depths

During the 2015 sampling season, the Secchi depths collected at Site 2 varied from 2.5 to 4.0 m with an average of 3.1 m. The 2010 Secchi depths for Site 2 ranged from 2.5 to 3.5 m with an average of 2.9 m and in 2009 the Secchi depths for Site 2 ranged from 2.5 m to 3.3 m with an average of 3.0 m (Figure 6). Secchi depths during all three field seasons were occasionally taken in the early morning or in the

evening on overcast days, which would result in a reduction in visibility (and thus, Secchi depth) when compared to mid-day measurements on sunny days.



Note: During the 2010 sampling season, eight sampling sessions were conducted – this is why the sixth and eighth sessions are missing

3.3 Chemical Analysis - Water Quality Characteristics

The spring turnover water samples were analyzed for 54 parameters encompassing dissolved organic carbon, colour, pH, alkalinity, turbidity and scans for cations/anions and trace metals. The 2015 results were comparable to the results for the 2010 analyses and were all within the provincial water quality objectives for the parameters where an objective is provided. The full results, with the 2010 results included for comparison, can be found in Appendix 1.

4.0 DISCUSSION

4.1 Total Phosphorous

The total phosphorous readings that are of the most interest for water quality analysis are the ones taken during spring and fall turnover. The reason for this is that turnover is when the phosphorous is mixed throughout the water column and it is also when past phosphorous concentrations (i.e. Lake Partner Program) have been measured to enable analysis of trends over time.

The Ontario provincial water quality objective for total phosphorous concentrations is less than 20 µg/L (0.02 mg/L) “to avoid nuisance concentrations of algae in lakes” (MOE 1994). The spring and fall turnover phosphorous concentrations collected during the 2015 sample season were all below Ontario’s provincial water quality objective for Sites 2, 3, and 4.

The spring total phosphorous concentration of 0.014 mg/L from Site 2 was a significantly less than the result from 2010 (0.0199 mg/L) and more than the concentration of phosphorous found in the 2009 spring sample (0.0113 mg/L). This value was also within the Lake Partner Program range of total phosphorous samples analyzed between 2004 and 2014 on lower Black Sturgeon Lake (0.012 to 0.022 mg/L) and is below the mean of 0.017 mg/L over this same time period (Ministry of Environment 2015a). This indicates that the phosphorous concentrations on Lower Black Sturgeon Lake appear to have been relatively stable (and below the water quality objective) for the past decade.

These values indicate that the productivity of lower Black Sturgeon Lake has remained relatively stable since 2004. In addition, the phosphorous values found during the three years of this study have all been below the water quality objectives for nuisance algae.

4.2 Secchi Depths

The mean Secchi depth for Site 2 during the 2015 sampling season (3.1 m) was greater than that found during both the 2009 (3.0 m) and the 2010 (2.9 m) sampling seasons. The mean Secchi depths for 2015 is also within the range of 2.2 m to 4.0 m and greater than the average of 3.0 m for lower Black Sturgeon Lake determined as part of the lake partner program from 1999 to 2014 (Ministry of the Environment 2015b). This data would support the findings of the phosphorous data analysis and give indication that the water quality on lower Black Sturgeon Lake has been relatively stable over the past decade.

4.3 Chemical Analysis - Water Quality Characteristics

The 2015 results were comparable to the results for the 2010 analyses and were all within the provincial water quality objectives for the parameters where an objective is provided. Once again, this data supports the findings of the phosphorous results and Secchi depth readings indicating that the water quality health of Black Sturgeon Lakes has remained relatively consistent over the past several years.

5.0 SUMMARY AND RECOMMENDATIONS

Lower Black Sturgeon Lake is within the provincial water quality objectives for a healthy lake for all of the parameters measured and analyzed in this study. All results indicate that Black Sturgeon Lakes have all of the characteristics to be expected in a dystrophic lake (i.e. heavily coloured due to presence of humic compounds of plant origin) located in northwestern Ontario. In addition, the 2015 water quality results are consistent with results of previous studies conducted on Lower Black Sturgeon Lake. This indicates that the health of the water body has remained consistent and is not deteriorating over time.

The variation shown during the 2009, 2010, and 2015 sampling seasons demonstrates the importance of collecting multiple years of data to establish robust data sets. The summer of 2009 was characterized by relatively cool conditions and therefore the information collected during this season provides a detailed synopsis of Lower Black Sturgeon Lake water quality during a cool summer. The 2010 open water season was exceptionally long and wet which produced a data set that reflects these climatic conditions. However, the results of these varying summer patterns was that despite the fact there were no major changes to land use, the 2009 and 2010 sampling seasons produced different water quality sampling

results. The 2015 sampling season produced results from a more *average* or *typical* open water season with results that were often in between the two baseline sampling seasons.

The increase in nutrient levels during the 2010 sampling season highlights the challenges faced when conducting a sampling protocol that only revisits the water body every 5 years. Fortunately, the 2015 sampling season happened to be a relatively *average* or *normal* summer. If future quinquennial sampling seasons were to fall on exceptionally dry or wet seasons, the information gained from them may provide a skewed picture of the impacts of development on the watershed. For this reason, it is recommended that the City of Kenora explore the potential of conducting a focussed annual water quality sampling program to monitor the impacts of development on water quality on lower Black Sturgeon Lake. There is the possibility that, for similar costs, an annual sampling protocol may provide a more accurate picture of any potential changes to water quality on Black Sturgeon Lakes over time.

6.0 REFERENCES

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Ministry of the Environment. 2015b. Lake Partner Secchi Depth Data. Found on website at: <http://desc.ca/programs/lpp>

Ministry of Environment and Energy. July 1994. *Water Management: Policies; Guidelines; Provincial Water Quality Objectives of the Ministry of Environment and Energy*. Found on website at: <http://www.ontario.ca/document/water-management-policies-guidelines-provincial-water-quality-objectives>

APPENDIX 1 – Laboratory Results for Water Quality Characteristics (2010 and 2015)

Parameter	2010	2015	Unit	PWQO
Alkalinity, Bicarbonate (HCO ₃)	21.3	16.8	mg/L	natural
Alkalinity, Carbonate (CO ₃)	<	<	mg/L	natural
Alkalinity, Hydroxide (OH)	<	<	mg/L	natural
Total Alkalinity (CaCO ₃)	17.5	16.8	mg/L	natural
Chloride (Cl)	<	3.76 ◊	mg/L	210
Fluoride (F)	0.15	0.037	mg/L	n/a
Sulphate (SO ₄)	<	1.93 ◊	mg/L	n/a
Colour, True	20	18	CU	n/a
Dissolved Organic Carbon	8.7	7.5	mg/L	n/a
Turbidity	1.2	1.1	NTU	n/a
pH	7.3	7.44	pH units	6.5 - 8.5
Aluminum (Al)-Total	0.044	0.0513	mg/L	0.075
Antimony (Sb)-Total	<	<	mg/L	0.02
Arsenic (As)-Total	<	0.00032 ◊	mg/L	0.005
Barium (Ba)-Total	0.00832	0.00845	mg/L	n/a
Beryllium (Be)-Total	<	<	mg/L	0.011
Bismuth (Bi)-Total	<	<	mg/L	n/a
Boron (B)-Total	<	<	mg/L	0.2
Cadmium (Cd)-Total	<	<	mg/L	0.0001
Calcium (Ca)-Total	5.05	5.77	mg/L	n/a
Cesium (Cs)-Total	<	<	mg/L	n/a
Chromium (Cr)-Total	<	<	mg/L	0.001
Cobalt (Co)-Total	<	<	mg/L	0.0009
Copper (Cu)-Total	0.00073	0.00087	mg/L	0.001
Iron (Fe)-Total	0.065	<	mg/L	0.3
Lead (Pb)-Total	<	0.0001 ◊	mg/L	0.001
Lithium (Li)-Total	n/a	<	mg/L	n/a
Magnesium (Mg)-Total	1.5	1.79	mg/L	n/a
Manganese (Mn)-Total	0.00496	0.00529	mg/L	n/a
Molybdenum (Mo)-Total	<	<	mg/L	0.04
Nickel (Ni)-Total	0.00048	<	mg/L	0.025
Phosphorus (P)-Total	<	<	mg/L	0.02
Potassium (K)-Total	0.954	1.08	mg/L	n/a
Rubidium (Rb)-Total	0.00161	0.00202	mg/L	n/a
Selenium (Se)-Total	<	<	mg/L	0.1
Silicon (Si)-Total	1.16	0.88	mg/L	n/a
Silver (Ag)-Total	<	<	mg/L	0.0001

Parameter	2010	2015	Unit	PWQO
Sodium (Na)-Total	2.53	3.25	mg/L	n/a
Strontium (Sr)-Total	0.0219	0.0239	mg/L	n/a
Tellurium (Te)-Total	<	<	mg/L	n/a
Thallium (Tl)-Total	<	<	mg/L	0.0003
Thorium (Th)-Total	n/a	<	mg/L	n/a
Tin (Sn)-Total	<	<	mg/L	n/a
Titanium (Ti)-Total	0.00094	0.00124	mg/L	n/a
Tungsten (W)-Total	<	<	mg/L	0.03
Uranium (U)-Total	<	<	mg/L	0.005
Vanadium (V)-Total	<	0.0002 \diamond	mg/L	0.006
Zinc (Zn)-Total	<	<	mg/L	0.03
Zirconium (Zr)-Total	<	<	mg/L	0.004
Nitrate	n/a	<	mg/L	n/a
Nitrate + Nitrite	0.057	<	mg/L	n/a
Nitrite	n/a	<	mg/L	n/a
Total Kjeldahl Nitrogen	n/a	0.37 \diamond	mg/L	n/a
Total Nitrogen Calculated	n/a	0.37 \diamond	mg/L	n/a

PWQO – Ontario Provincial Water Quality Objective

n/a – results were not provided for this parameter

< - measurement was less than the error found in the laboratory analysis procedure and equipment

\diamond - number is shown for the 2015 results due to a decrease in the reporting limits for the laboratory analysis accuracy, not necessarily due to any increase in the parameter/concentration

APPENDIX 2 – Site Dissolved Oxygen/Temperature Profiles

Site 1

Site 1 DO (Dissolved Oxygen) Temperature Profiles

Depth	Temp	DO (%)	DO (mg/L)
0.5	20.8	107.7	9.63
1	20.8	108.4	9.66
2	20.8	108.1	9.66
3	20.9	107.6	9.64
4	20.8	107.5	9.59
5	20.8	104.3	9.31
6	20.4	100.6	9.07
7	20	97.3	8.82
8	18.8	81.4	7.56
9	17.2	65.1	6.25
10	13.4	51.7	5.39
11	12.4	52.4	5.61
12	11.4	52.1	5.69
13	10.4	50.5	5.65
14	10	51	5.76
15	9.6	51.8	5.85
16	9.4	51.2	5.89
17	9.1	50.3	5.82
18	8.9	49.8	5.77
19	8.9	48.9	5.68
20	8.7	48.1	5.61
21	8.6	47.4	5.54
22	8.5	46.7	5.44
23	8.4	45.7	5.36
24	8.4	45.1	5.24
25	8.3	43.7	5.12
26	8.3	42.6	4.98
27	8.3	41.1	4.82
28	8.2	34.6	4.03
29	8.1	27.7	3.26

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
n/a	750	19:25	29.5

Site 2

May 31

Site 2 Dissolved Oxygen/Temperature Profiles May 31

Depth	Temp	DO (%)	DO (mg/L)
0.5	12.9	106.7	11.41
1	12.3	107.2	11.55
2	11.8	106.3	11.52
3	11.6	105.9	11.63
4	11.3	105.2	11.54
5	11.1	102.6	11.34
6	9.6	95.3	10.85
7	7.9	87.2	10.44
8	7.8	87.6	10.42
9	7.6	86.6	10.25
10	7.4	85.5	10.27
11	7.4	85	10.18
12	7.3	84.6	10.2
13	7.2	83.8	10.18
14	7.1	82	9.87
15	7.1	79.6	9.59

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
2.75	758	14:30	15.6

June 21

Site 2 Dissolved Oxygen/Temperature Profiles June 21

Depth	Temp	DO (%)	DO (mg/L)
0.5	19.9	116	10.55
1	19.8	116	10.68
2	19.7	115.8	10.59
3	19.3	114.6	10.6
4	18.9	113.5	10.56
5	18	110.5	10.49
6	17.7	107.7	10.24
7	17.4	104.3	10.05
8	16.1	98.3	9.76
9	14.3	93.3	9.58
10	11.3	82.5	9.07
11	9.6	76.9	8.79
12	9.2	74.7	8.59
13	8.8	71.8	8.35
14	8.6	66.4	7.74

15	8.4	61	7.1
16	8.3	57.2	6.65

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
2.5	745.1	17:00	16.9

July 5

Site 2 Dissolved Oxygen/Temperature Profiles July 5

Depth	Temp	DO (%)	DO (mg/L)
0.5	22.4	112.4	9.76
1	22.5	112.5	9.76
2	22.4	112.2	9.73
3	22.3	111.4	9.67
4	21.5	108.7	9.64
5	19	97.6	9.12
6	16.7	87.2	8.45
7	13.8	75.6	7.8
8	12.7	70.6	7.52
9	11.5	67.1	7.34
10	10	63.5	7.11
11	9.9	62.8	7.13
12	9.8	62.7	7.14
13	9.7	62.7	7.12
14	9.7	62.4	7.09
15	9.7	62.2	7.04
16	9.6	62.2	7.11

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
2.75	745.7	10:15	16.5

July 19

Site 2 Dissolved Oxygen/Temperature Profiles July 19

Depth	Temp	DO (%)	DO (mg/L)
0.5	23.6	112.1	9.5
1	23.6	112	9.51
2	23.6	112.3	9.54
3	23.5	110.5	9.41
4	23.2	109.6	9.38
5	22.7	104.9	9.04
6	21.3	94.7	8.4
7	19.5	83	7.65
8	17.4	72.2	6.96

9	14	62.9	6.53
10	11.2	58.1	6.38
11	10.5	56.9	6.36
12	9.9	55.4	6.26
13	9.6	55.8	6.39
14	9.4	56.1	6.42
15	9.3	54.9	6.26
16			

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
3	739.8	15:50	15.7

August 9

Site 2 Dissolved Oxygen/Temperature Profiles August 9

Depth	Temp	DO (%)	DO (mg/L)
0.5	21.2	107.3	9.57
1	21.1	107.7	9.6
2	21	107.8	9.61
3	21	106.2	9.51
4	20.9	105.5	9.37
5	20.7	101.2	9.08
6	20.3	96.6	8.8
7	19.6	92.3	8.44
8	17.6	76.4	7.33
9	14.6	60.2	6.14
10	11.9	53.1	5.75
11	11.1	50.6	5.6
12	10.7	48.6	5.44
13	9.9	39.4	4.44
14	9.7	31.5	3.48
15	9.6	25.4	2.87
16	9.4	20.1	2.28
17			

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
3.5	749.9	17:44	17

August 23

Site 2 Dissolved Oxygen/Temperature Profiles August 23

Depth	Temp	DO (%)	DO (mg/L)
0.5	19.9	100.5	9.15
1	20	100.1	9.16
2	20	100	9.05

3	20.1	99.3	9.03
4	20.1	99.4	9.02
5	20.2	98.9	9
6	20.2	99.4	8.94
7	20.2	98.4	8.95
8	20.2	95.4	8.62
9	19.7	86.1	7.84
10	15.8	55.1	5.44
11	12.8	45.7	4.83
12	11.7	40.1	4.33
13	10.5	34.3	3.8
14	10.3	29.6	3.25
15	10.1	24.2	2.65
16	9.9	17.8	2.01
17			

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
2.75	738.5	12:45	17

September 6

Site 2 Dissolved Oxygen/Temperature Profiles September 6

Depth	Temp	DO (%)	DO (mg/L)
0.5	21.7	105.3	9.29
1	21.7	105.4	9.26
2	21.6	103.3	9.11
3	21	101.3	9.06
4	20.1	96.9	8.79
5	18.9	88.4	8.25
6	17.9	84.3	8.02
7	17.5	81.3	7.78
8	17	78.5	7.58
9	16.8	76.6	7.43
10	15.7	71	7.03
11	13.7	56.9	5.95
12	11.7	39.3	4.23
13	10	27.1	3.05
14	9.8	21.7	2.41
15	9.6	15.3	1.71
16	9.5	12.6	1.41
17			

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
3.5	745.4	11:20	16.9

September 20

Site 2 Dissolved Oxygen/Temperature Profiles September 20

Depth	Temp	DO (%)	DO (mg/L)
0.5	18.3	98.1	9.24
1	18	97.8	9.28
2	17.8	97.6	9.29
3	17.8	97.4	9.27
4	17.7	96.9	9.19
5	17.5	96.3	9.23
6	17.4	95.9	9.15
7	17.3	94.6	9.11
8	17.3	93.6	9.02
9	17.2	87.9	8.3
10	16.5	73.2	7.12
11	14.5	53.9	5.5
12	11.8	34.7	3.74
13	11.3	29.3	3.16
14	10.2	20.5	2.25
15	9.9	15.1	1.71
16			
17			

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
4	746.8	13:50	16

October 4

Site 2 Dissolved Oxygen/Temperature Profiles October 4

Depth	Temp	DO (%)	DO (mg/L)
0.5	14.5	99.2	10.09
1	14.6	98.9	10.04
2	14.6	98.3	9.94
3	14.6	98	9.98
4	14.6	97.6	9.92
5	14.7	97.3	9.85
6	14.7	97.3	9.89
7	14.7	97	9.9
8	14.7	97.2	9.88
9	14.7	96.7	9.82
10	14.7	96.7	9.82
11	14.7	93.4	9.45
12	11.8	38.2	4.04
13	11.4	29.8	3.23
14	10.9	18.1	2

15
16
17

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
3.25	758.5	9:50	14.9

October 25

Site 2 DO (Dissolved Oxygen) Temperature Profiles October 25

Depth	Temp	DO (%)	DO (mg/L)
0.5	9.7	92.4	10.52
1	9.9	91.6	10.4
2	9.9	91.2	10.32
3	9.9	90.5	10.25
4	9.9	90.2	10.2
5	9.9	90	10.17
6	9.9	89.6	10.16
7	9.9	89.8	10.16
8	9.9	89.4	10.11
9	9.9	89.1	10.1
10	9.9	89.4	10.05
11	9.9	88.8	10.04
12	9.9	88.8	10
13	9.9	88.4	10
14	9.9	88.4	10.02
15	9.9	88.5	10.01
16	9.9	88.1	10.01
17			

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
3	760	12:20	16.8

Site 3

May 31

Site 3 DO (Dissolved Oxygen) Temperature Profiles May 31

Depth	Temp	DO (%)	DO (mg/L)
0.5	16.8	105.8	10.3
1	16.6	105.3	10.35
2	16.2	105.3	10.39
3	16	105.7	10.43

4	14.3	100.3	10.27
5	12.3	88.8	9.51
6	9.4	72.4	8.3
7	8.6	58.1	6.76
8	8	43.2	5
9	7.5	27.5	3.15

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
2.25	757.7	15:45	9.5

June 21

Site 3 DO (Dissolved Oxygen) Temperature Profiles June 21

Depth	Temp	DO (%)	DO (mg/L)
0.5	21	111	9.93
1	20.8	112.4	10.05
2	20.7	111.4	9.97
3	19.9	110.7	10.1
4	19	103.9	9.64
5	15.7	71.6	7.09
6	11.2	41.6	4.57
7	9.3	22.3	2.54
8	8.1	9.1	1.04
9	7.8	3.6	0.38

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
2.75	745.2	17:40	9.5

July 5

Site 3 DO (Dissolved Oxygen) Temperature Profiles July 5

Depth	Temp	DO (%)	DO (mg/L)
0.5	22.8	107.1	9.25
1	22.8	107.7	9.28
2	22.7	108.2	9.38
3	22.5	105	9.11
4	19.8	81.3	7.34
5	15.4	46	4.61
6	11.1	15.4	1.7
7	9.8	8.6	0.94
8	9	3.5	0.39
9	8.4	1.7	0.2

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
2.75	745.4	10:50	9.6

July 19

Site 3 DO (Dissolved Oxygen) Temperature Profiles July 19

Depth	Temp	DO (%)	DO (mg/L)
0.5	23.3	105.7	9.02
1	23.3	105.9	9.01
2	23.4	105.9	9.01
3	23.3	103.4	8.79
4	21.6	79.6	7.01
5	18.3	42.2	3.86
6	13.8	9.6	0.92
7	10.5	3.8	0.43
8	9.3	2.4	0.28
9	8.9	1.9	0.21

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
2.5	738.7	17:40	9.6

August 9

Site 3 DO (Dissolved Oxygen) Temperature Profiles August 9

Depth	Temp	DO (%)	DO (mg/L)
0.5	21.6	109.4	9.65
1	21.6	108.6	9.62
2	21.3	106.8	9.49
3	21	104.8	9.36
4	20.3	93	8.39
5	18.9	58.6	5.41
6	13.9	5.7	0.57
7	11.1	2.5	0.29
8	9.4	1.3	0.15
9	8.5	0.8	0.09

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
3	750.1	18:10	9.7

August 23

Site 3 DO (Dissolved Oxygen) Temperature Profiles August 23

Depth	Temp	DO (%)	DO (mg/L)
0.5	19.5	95.1	8.68

1	19.6	94.9	8.7
2	19.6	94.3	8.63
3	19.7	93.9	8.6
4	19.7	93.5	8.47
5	18.7	53.2	4.88
6	14.1	4.8	0.45
7	11.4	2.5	0.26
8	9.8	1.5	0.19
9	9.3	1.2	0.14

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
2.75	739.6	14:15	9.7

September 6

Site 3 DO (Dissolved Oxygen) Temperature Profiles September 6

Depth	Temp	DO (%)	DO (mg/L)
0.5	22.4	107.7	9.38
1	22.4	107.8	9.32
2	22.3	103.4	8.96
3	21.6	91	8.03
4	19.5	70.7	6.47
5	17.6	56.2	5.31
6	16.2	36.7	3.55
7	13.7	7.8	0.78
8	11.2	3.2	0.35
9	10.3	2	0.21

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
2.75	745.4	12:05	10

September 20

Site 3 DO (Dissolved Oxygen) Temperature Profiles September 20

Depth	Temp	DO (%)	DO (mg/L)
0.5	18	96	9.11
1	17.8	95.4	9.1
2	17.7	95.5	9.13
3	17.7	95.5	9.08
4	17.6	95.1	9.05
5	17.6	94.7	9.02
6	17.6	94.3	9.06
7	17.5	94	8.99

8	17.5	93.4	8.95
9	13.7	9.8	0.98

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
2.75	746.1	15:50	9.5

October 4

Site 3 DO (Dissolved Oxygen) Temperature Profiles October 4

Depth	Temp	DO (%)	DO (mg/L)
0.5	14	94.7	9.77
1	14	94.5	9.77
2	14	94.3	9.72
3	14	93.9	9.68
4	14	93.6	9.66
5	14	93	9.67
6	14	93	9.58
7	13.9	92.7	9.54
8	13.9	92.8	9.54
9	13.8	92.5	9.6

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
2.25	758.3	10:45	9.9

October 25

Site 3 DO (Dissolved Oxygen) Temperature Profiles October 25

Depth	Temp	DO (%)	DO (mg/L)
0.5	8.3	94.5	11.13
1	8.3	94.6	11.13
2	8.3	93.5	11
3	8.3	93	10.92
4	8.3	92.3	10.91
5	8.3	92.5	10.88
6	8.3	92.2	10.85
7	8.3	92.2	10.88
8	8.2	92.3	10.88
9	8.2	92.8	10.9

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
2	759.8	13:15	9.6

Site X (4)

May 31

Site X (4) DO (Dissolved Oxygen) Temperature Profiles May 31

Depth	Temp	DO (%)	DO (mg/L)
0.5	15.7	106.7	10.56
1	15.5	107.3	10.72
2	15.4	107.2	10.71
3	15.4	107.2	10.75
4	14.6	105.3	10.77
5	12.6	99.3	10.63
6	11.4	94.1	10.33

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
3.5	757.4	16:30	6.5

June 21

Site X (4) DO (Dissolved Oxygen) Temperature Profiles

Depth	Temp	DO (%)	DO (mg/L)
0.5	20.6	110.1	9.87
1	20.3	109.7	9.94
2	19.8	107.3	9.83
3	19.2	105.9	9.8
4	15.8	89.5	8.8
5	14.2	83	8.49
6	13.1	79.7	8.39

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
3.5	745.1	18:12	6.6

July 5

Site X (4) DO (Dissolved Oxygen) Temperature Profiles July 5

Depth	Temp	DO (%)	DO (mg/L)
0.5	22.5	108.7	9.4
1	22.5	108.6	9.45
2	22.4	108	9.34
3	22.2	106.9	9.35
4	22	106.5	9.32
5	21.2	102.1	9.05
6	18.4	89.3	8.4

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
3	745.8	11:20	6.5

July 19

Site X (4) DO (Dissolved Oxygen) Temperature Profiles July 19

Depth	Temp	DO (%)	DO (mg/L)
0.5	22.2	107	9.32
1	22.3	107.3	9.33
2	22.2	106.5	9.26
3	22.2	105.5	9.15
4	21.9	102	8.98
5	17.9	72.6	6.86
6	17.2	67.5	6.46

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
3	739.1	17:05	6.7

August 9

Site X (4) DO (Dissolved Oxygen) Temperature Profiles August 9

Depth	Temp	DO (%)	DO (mg/L)
0.5	20.4	101.3	9.14
1	20.4	101	9.11
2	20.2	99.2	8.96
3	20.1	97.7	8.87
4	20	96	8.75
5	19.9	92.4	8.45
6	19.7	87.6	8.02

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
3	749.8	18:50	6.5

August 23

Site X (4) DO (Dissolved Oxygen) Temperature Profiles August 23

Depth	Temp	DO (%)	DO (mg/L)
0.5	19.4	99.5	9.09
1	19.5	99	9.1
2	19.5	98.6	9.08
3	19.5	98.3	9.08
4	19.6	98.7	9.03
5	19.6	98.3	9.01
6	19.6	97.8	8.99

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
2.75	739.6	14:41	6.6

September 6

Site X (4) DO (Dissolved Oxygen) Temperature Profiles September 6

Depth	Temp	DO (%)	DO (mg/L)
0.5	22.3	107.7	9.35
1	22.3	107.5	9.38
2	22.2	106.8	9.37
3	22.1	105.7	9.25
4	21.8	103.8	9.13
5	21.6	102.8	9.04
6	19.8	86.3	7.85

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
4	745.5	12:40	6.5

September 20

Site X (4) DO (Dissolved Oxygen) Temperature Profiles September 20

Depth	Temp	DO (%)	DO (mg/L)
0.5	18.5	96.5	9.06
1	18.2	97	9.13
2	18	97.3	9.19
3	17.9	97	9.24
4	17.8	96.8	9.22
5	17.7	96.4	9.21
6	17.7	96	9.2

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
3	764.4	15:25	7.1

October 4

Site X (4) DO (Dissolved Oxygen) Temperature Profiles October 4

Depth	Temp	DO (%)	DO (mg/L)
0.5	14.7	100	10.14
1	14.7	100.1	10.13
2	14.7	99.5	10.1
3	14.7	99.3	10.11
4	14.7	99	10.03
5	14.7	98.5	10.01
6	14.7	98.6	9.96

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
3	758.4	11:10	6.6

October 25

Site X (4) DO (Dissolved Oxygen) Temperature Profiles October 25

Depth	Temp	DO (%)	DO (mg/L)
0.5	9.3	97	11.11
1	9.4	96.4	11.02
2	9.4	95	10.89
3	9.4	95	10.84
4	9.4	94.3	10.8
5	9.4	93.7	10.7
6	9.4	93.3	10.7

Secchi Depth (m)	B.P. (mmHg)	Time	Depth (m)
2.75	759.4	14:00	6.6

APPENDIX 3 – Lab Results

May 31



Kenora Resource Consultants Inc.
ATTN: RYAN HAINES
SITE 155, COMPARTMENT 14, RR1
KENORA ON P9N 3W7

Date Received: 01-JUN-15
Report Date: 11-JUN-15 14:50 (MT)
Version: FINAL

Client Phone: 807-465-5689

Certificate of Analysis

Lab Work Order #: L1619400
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1619400-1 BS-2015-SITE 2							
Sampled By: RH on 31-MAY-15							
Matrix: RAW							
Alkalinity species as HCO₃, CO₃, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO ₃)	16.8		1.2	mg/L		10-JUN-15	
Alkalinity, Carbonate							
Carbonate (CO ₃)	<0.60		0.60	mg/L		10-JUN-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		10-JUN-15	
Total Alkalinity as CaCO₃							
Alkalinity, Total (as CaCO ₃)	16.8		1.0	mg/L		08-JUN-15	R3204268
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	3.76		0.50	mg/L		02-JUN-15	R3201710
Fluoride in Water by IC							
Fluoride (F)	0.037		0.020	mg/L		02-JUN-15	R3201710
Sulfate in Water by IC							
Sulfate (SO ₄)	1.93		0.30	mg/L		02-JUN-15	R3201710
Miscellaneous Parameters							
Colour, True	18.0		5.0	CU		02-JUN-15	R3200370
Dissolved Organic Carbon	7.5		1.0	mg/L		05-JUN-15	R3202411
Phosphorus (P)-Total	0.014		0.010	mg/L		04-JUN-15	R3201143
Turbidity	1.10		0.10	NTU		02-JUN-15	R3201076
pH	7.44		0.10	pH units		08-JUN-15	R3204268
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0513		0.0050	mg/L	03-JUN-15	03-JUN-15	R3201092
Antimony (Sb)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Arsenic (As)-Total	0.00032		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Barium (Ba)-Total	0.00845		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Beryllium (Be)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Bismuth (Bi)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Boron (B)-Total	<0.010		0.010	mg/L	03-JUN-15	03-JUN-15	R3201092
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	03-JUN-15	03-JUN-15	R3201092
Calcium (Ca)-Total	5.77		0.10	mg/L	03-JUN-15	03-JUN-15	R3201092
Cesium (Cs)-Total	<0.00010		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	03-JUN-15	03-JUN-15	R3201092
Cobalt (Co)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Copper (Cu)-Total	0.00087		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Iron (Fe)-Total	<0.10		0.10	mg/L	03-JUN-15	03-JUN-15	R3201092
Lead (Pb)-Total	0.000100		0.000090	mg/L	03-JUN-15	03-JUN-15	R3201092
Lithium (Li)-Total	<0.0020		0.0020	mg/L	03-JUN-15	03-JUN-15	R3201092
Magnesium (Mg)-Total	1.79		0.010	mg/L	03-JUN-15	03-JUN-15	R3201092
Manganese (Mn)-Total	0.00529		0.00030	mg/L	03-JUN-15	03-JUN-15	R3201092
Molybdenum (Mo)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	03-JUN-15	03-JUN-15	R3201092
Phosphorus (P)-Total	<0.10		0.10	mg/L	03-JUN-15	03-JUN-15	R3201092
Potassium (K)-Total	1.08		0.020	mg/L	03-JUN-15	03-JUN-15	R3201092
Rubidium (Rb)-Total	0.00202		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Selenium (Se)-Total	<0.0010		0.0010	mg/L	03-JUN-15	03-JUN-15	R3201092
Silicon (Si)-Total	0.88		0.10	mg/L	03-JUN-15	03-JUN-15	R3201092
Silver (Ag)-Total	<0.00010		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Sodium (Na)-Total	3.25		0.030	mg/L	03-JUN-15	03-JUN-15	R3201092
Strontium (Sr)-Total	0.0239		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1619400-1 BS-2015-SITE 2 Sampled By: RH on 31-MAY-15 Matrix: RAW							
Total Metals by ICP-MS							
Thallium (Tl)-Total	<0.00010		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Thorium (Th)-Total	<0.00010		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Tin (Sn)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Titanium (Ti)-Total	0.00124		0.00050	mg/L	03-JUN-15	03-JUN-15	R3201092
Tungsten (W)-Total	<0.00010		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Uranium (U)-Total	<0.00010		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Vanadium (V)-Total	0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Zinc (Zn)-Total	<0.0020		0.0020	mg/L	03-JUN-15	03-JUN-15	R3201092
Zirconium (Zr)-Total	<0.00040		0.00040	mg/L	03-JUN-15	03-JUN-15	R3201092
Nitrogen Total							
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		02-JUN-15	R3201710
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		04-JUN-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		02-JUN-15	R3201710
Total Kjeldahl Nitrogen							
Total Kjeldahl Nitrogen	0.37		0.20	mg/L	03-JUN-15	05-JUN-15	R3203617
Total Nitrogen Calculated							
Total Nitrogen	0.37		0.20	mg/L		08-JUN-15	
L1619400-2 BS-2015-SITE 3 Sampled By: RH on 31-MAY-15 Matrix: RAW							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	17.2		1.2	mg/L		11-JUN-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		11-JUN-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		11-JUN-15	
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	17.2		1.0	mg/L		09-JUN-15	R3205447
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	6.87		0.50	mg/L		02-JUN-15	R3201710
Fluoride in Water by IC							
Fluoride (F)	0.039		0.020	mg/L		02-JUN-15	R3201710
Sulfate in Water by IC							
Sulfate (SO4)	2.23		0.30	mg/L		02-JUN-15	R3201710
Miscellaneous Parameters							
Colour, True	26.1		5.0	CU		02-JUN-15	R3200370
Dissolved Organic Carbon	8.2		1.0	mg/L		05-JUN-15	R3202411
Phosphorus (P)-Total	0.015		0.010	mg/L		04-JUN-15	R3201143
Turbidity	1.40		0.10	NTU		02-JUN-15	R3201076
pH	7.34		0.10	pH units		09-JUN-15	R3205447
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0785		0.0050	mg/L	03-JUN-15	03-JUN-15	R3201092
Antimony (Sb)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Arsenic (As)-Total	0.00030		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Barium (Ba)-Total	0.00946		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Beryllium (Be)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1619400-2 BS-2015-SITE 3							
Sampled By: RH on 31-MAY-15							
Matrix: RAW							
Total Metals by ICP-MS							
Bismuth (Bi)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Boron (B)-Total	<0.010		0.010	mg/L	03-JUN-15	03-JUN-15	R3201092
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	03-JUN-15	03-JUN-15	R3201092
Calcium (Ca)-Total	6.93		0.10	mg/L	03-JUN-15	03-JUN-15	R3201092
Cesium (Cs)-Total	<0.00010		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	03-JUN-15	03-JUN-15	R3201092
Cobalt (Co)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Copper (Cu)-Total	0.00092		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Iron (Fe)-Total	0.10		0.10	mg/L	03-JUN-15	03-JUN-15	R3201092
Lead (Pb)-Total	<0.000090		0.000090	mg/L	03-JUN-15	03-JUN-15	R3201092
Lithium (Li)-Total	<0.0020		0.0020	mg/L	03-JUN-15	03-JUN-15	R3201092
Magnesium (Mg)-Total	1.81		0.010	mg/L	03-JUN-15	03-JUN-15	R3201092
Manganese (Mn)-Total	0.0102		0.00030	mg/L	03-JUN-15	03-JUN-15	R3201092
Molybdenum (Mo)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	03-JUN-15	03-JUN-15	R3201092
Phosphorus (P)-Total	<0.10		0.10	mg/L	03-JUN-15	03-JUN-15	R3201092
Potassium (K)-Total	1.10		0.020	mg/L	03-JUN-15	03-JUN-15	R3201092
Rubidium (Rb)-Total	0.00214		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Selenium (Se)-Total	<0.0010		0.0010	mg/L	03-JUN-15	03-JUN-15	R3201092
Silicon (Si)-Total	1.04		0.10	mg/L	03-JUN-15	03-JUN-15	R3201092
Silver (Ag)-Total	<0.00010		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Sodium (Na)-Total	4.80		0.030	mg/L	03-JUN-15	03-JUN-15	R3201092
Strontium (Sr)-Total	0.0265		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Thallium (Tl)-Total	<0.00010		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Thorium (Th)-Total	<0.00010		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Tin (Sn)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Titanium (Ti)-Total	0.00183		0.00050	mg/L	03-JUN-15	03-JUN-15	R3201092
Tungsten (W)-Total	<0.00010		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Uranium (U)-Total	<0.00010		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Vanadium (V)-Total	0.00027		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Zinc (Zn)-Total	<0.0020		0.0020	mg/L	03-JUN-15	03-JUN-15	R3201092
Zirconium (Zr)-Total	<0.00040		0.00040	mg/L	03-JUN-15	03-JUN-15	R3201092
Nitrogen Total							
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		02-JUN-15	R3201710
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		04-JUN-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		02-JUN-15	R3201710
Total Kjeldahl Nitrogen							
Total Kjeldahl Nitrogen	0.29		0.20	mg/L	03-JUN-15	05-JUN-15	R3203617
Total Nitrogen Calculated							
Total Nitrogen	0.29		0.20	mg/L		08-JUN-15	
L1619400-3 BS-2015-SITE X							
Sampled By: RH on 31-MAY-15							
Matrix: RAW							
Alkalinity species as HCO3, CO3, OH							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	15.1		1.2	mg/L		11-JUN-15	
Alkalinity, Carbonate							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1619400-3 BS-2015-SITE X							
Sampled By: RH on 31-MAY-15							
Matrix: RAW							
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		11-JUN-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		11-JUN-15	
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	15.1		1.0	mg/L		09-JUN-15	R3205447
Anions by IC							
Chloride in Water by IC							
Chloride (Cl)	3.71		0.50	mg/L		02-JUN-15	R3201710
Fluoride in Water by IC							
Fluoride (F)	0.035		0.020	mg/L		02-JUN-15	R3201710
Sulfate in Water by IC							
Sulfate (SO4)	2.10		0.30	mg/L		02-JUN-15	R3201710
Miscellaneous Parameters							
Colour, True	15.0		5.0	CU		02-JUN-15	R3200370
Dissolved Organic Carbon	7.2		1.0	mg/L		05-JUN-15	R3202411
Phosphorus (P)-Total	0.019		0.010	mg/L		04-JUN-15	R3201143
Turbidity	1.30		0.10	NTU		02-JUN-15	R3201076
pH	7.30		0.10	pH units		09-JUN-15	R3205447
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0552		0.0050	mg/L	03-JUN-15	03-JUN-15	R3201092
Antimony (Sb)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Arsenic (As)-Total	0.00026		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Barium (Ba)-Total	0.00850		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Beryllium (Be)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Bismuth (Bi)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Boron (B)-Total	<0.010		0.010	mg/L	03-JUN-15	03-JUN-15	R3201092
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	03-JUN-15	03-JUN-15	R3201092
Calcium (Ca)-Total	5.58		0.10	mg/L	03-JUN-15	03-JUN-15	R3201092
Cesium (Cs)-Total	<0.00010		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	03-JUN-15	03-JUN-15	R3201092
Cobalt (Co)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Copper (Cu)-Total	0.00072		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Iron (Fe)-Total	<0.10		0.10	mg/L	03-JUN-15	03-JUN-15	R3201092
Lead (Pb)-Total	<0.000090		0.000090	mg/L	03-JUN-15	03-JUN-15	R3201092
Lithium (Li)-Total	<0.0020		0.0020	mg/L	03-JUN-15	03-JUN-15	R3201092
Magnesium (Mg)-Total	1.50		0.010	mg/L	03-JUN-15	03-JUN-15	R3201092
Manganese (Mn)-Total	0.00417		0.00030	mg/L	03-JUN-15	03-JUN-15	R3201092
Molybdenum (Mo)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	03-JUN-15	03-JUN-15	R3201092
Phosphorus (P)-Total	<0.10		0.10	mg/L	03-JUN-15	03-JUN-15	R3201092
Potassium (K)-Total	1.04		0.020	mg/L	03-JUN-15	03-JUN-15	R3201092
Rubidium (Rb)-Total	0.00203		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Selenium (Se)-Total	<0.0010		0.0010	mg/L	03-JUN-15	03-JUN-15	R3201092
Silicon (Si)-Total	1.07		0.10	mg/L	03-JUN-15	03-JUN-15	R3201092
Silver (Ag)-Total	<0.00010		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Sodium (Na)-Total	3.02		0.030	mg/L	03-JUN-15	03-JUN-15	R3201092
Strontium (Sr)-Total	0.0230		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Thallium (Tl)-Total	<0.00010		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Thorium (Th)-Total	<0.00010		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Tin (Sn)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1619400-3 BS-2015-SITE X							
Sampled By: RH on 31-MAY-15							
Matrix: RAW							
Total Metals by ICP-MS							
Titanium (Ti)-Total	0.00146		0.00050	mg/L	03-JUN-15	03-JUN-15	R3201092
Tungsten (W)-Total	<0.00010		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Uranium (U)-Total	<0.00010		0.00010	mg/L	03-JUN-15	03-JUN-15	R3201092
Vanadium (V)-Total	<0.00020		0.00020	mg/L	03-JUN-15	03-JUN-15	R3201092
Zinc (Zn)-Total	<0.0020		0.0020	mg/L	03-JUN-15	03-JUN-15	R3201092
Zirconium (Zr)-Total	<0.00040		0.00040	mg/L	03-JUN-15	03-JUN-15	R3201092
Nitrogen Total							
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		02-JUN-15	R3201710
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		04-JUN-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		02-JUN-15	R3201710
Total Kjeldahl Nitrogen							
Total Kjeldahl Nitrogen	0.24		0.20	mg/L	03-JUN-15	05-JUN-15	R3203617
Total Nitrogen Calculated							
Total Nitrogen	0.24		0.20	mg/L		08-JUN-15	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO ₃ 2-/L.			
ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO ₃ /L			
ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.			
ALK-TITR-WP	Water	Total Alkalinity as CaCO ₃	APHA 2320B
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO ₃ - and H ₂ CO ₃ endpoints indicated electrometrically.			
C-DIS-ORG-WP	Water	Dissolved Organic Carbon	APHA 5310 B-INSTRUMENTAL-WP
This method is applicable to the analysis of ground water, wastewater, and surface water samples. The form detected depends upon sample pretreatment: Unfiltered sample = TC, 0.45um filtered = TDC. Samples are injected into a combustion tube containing an oxidation catalyst. The carrier gas containing the combustion product from the combustion tube flows through an inorganic carbon reactor vessel and is then sent through a halogen scrubber into a sample cell set in a non-dispersive infrared gas analyzer (NDIR) where carbon dioxide is detected. For total inorganic carbon and dissolved inorganic carbon, the sample is injected into an IC reactor vessel where only the IC component is decomposed to become carbon dioxide.			
The peak area generated by the NDIR indicates the TC/TDC or TIC/DIC as applicable. The total organic carbon content of the sample is calculated by subtracting the TIC from the TC. TOC = TC-TIC, DOC = TDC-DIC, Particulate = Total - Dissolved.			
CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
COLOUR-TRUE-WP	Water	Colour, True	APHA 2120C
True Colour is measured spectrophotometrically by comparison to platinum-cobalt standards using the single wavelength method (450 - 465 nm) after filtration of sample through a 0.45 um filter. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment. Concurrent measurement of sample pH is recommended.			
ETL-N-TOT-ANY-WP	Water	Total Nitrogen Calculated	Calculated
F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
MET-T-L-MS-WP	Water	Total Metals by ICP-MS	APHA 3030E/EPA 6020A-TL
This analysis involves preliminary sample treatment by hotblock acid digestion (APHA 3030E). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).			
N-TOTKJ-WP	Water	Total Kjeldahl Nitrogen	Quickchem method 10-107-06-2-E Lachat
Samples are digested with a sulphuric acid solution, cooled, diluted with water, and analyzed for ammonia. Total Kjeldahl nitrogen is the sum of free-ammonia and organic nitrogen compounds which are converted to ammonium sulphate through this digestion process. Analysis is performed by Flow Injection Analysis (FIA). The pH of the digested sample is raised to a known, basic pH by neutralization with a concentrated buffer solution. This neutralization converts the ammonium cation to ammonia. The ammonia produced is heated with salicylate and hypochlorite to produce blue colour which is proportional to the ammonia concentration.			
NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.			
PH-WP	Water	pH	APHA 4500H
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			
SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
TURBIDITY-WP	Water	Turbidity	APHA 2130B (modified)
Turbidity in aqueous matrices is determined by the nephelometric method.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

- mg/kg - milligrams per kilogram based on dry weight of sample*
- mg/kg wwt - milligrams per kilogram based on wet weight of sample*
- mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*
- mg/L - unit of concentration based on volume, parts per million.*
- < - Less than.*
- D.L. - The reporting limit.*
- N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.
 UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
 Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

June 21



Kenora Resource Consultants Inc.
ATTN: RYAN HAINES
SITE 155, COMPARTMENT 14, RR1
KENORA ON P9N 3W7

Date Received: 23-JUN-15
Report Date: 26-JUN-15 14:20 (MT)
Version: FINAL

Client Phone: 807-548-8123

Certificate of Analysis

Lab Work Order #: L1630862
Project P.O. #: NOT SUBMITTED
Job Reference: BR141720 (BOTTLE ORDER #)
C of C Numbers:
Legal Site Desc:


Shannon Sawatzky
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1630862-1 BS-2015-SITE 2 S Sampled By: RH on 21-JUN-15 @ 17:00 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.017		0.010	mg/L		26-JUN-15	R3215537
L1630862-2 BS-2015-SITE 2 B Sampled By: RH on 21-JUN-15 @ 17:00 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.028		0.010	mg/L		26-JUN-15	R3215537
L1630862-3 BS-2015-SITE 3 S Sampled By: RH on 21-JUN-15 @ 17:40 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.015		0.010	mg/L		26-JUN-15	R3215537
L1630862-4 BS-2015-SITE 3 B Sampled By: RH on 21-JUN-15 @ 17:40 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.036		0.010	mg/L		26-JUN-15	R3215537
L1630862-5 BS-2015-SITE X S Sampled By: RH on 21-JUN-15 @ 18:15 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.013		0.010	mg/L		26-JUN-15	R3215537
L1630862-6 BS-2015-SITE X B Sampled By: RH on 21-JUN-15 @ 18:15 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.013		0.010	mg/L		26-JUN-15	R3215537

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Chain of Custody (COC) / Analytical Request Form
Canada Toll Free: 1 800 668 9878



COC Number: 14 - 454477
Page 1 of 1

Report To Company: <u>Kenora Resource Consultants Inc</u> Contact: <u>Ryan Hanks</u> Address: <u>Site 155 Cmp. 14 RR#1 Kenora ON P9N3W7</u> Phone: <u>807-465-5689</u>		Report Format / Distribution Select Report Format: <input type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL) Quality Control (QC) Report with Report: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Criteria on Report - provide details below if box checked Select Distribution: <input type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: <u>ryan.hanks@kenoraconsultants.com</u> Email 2:		(Just Turnaround Time (TAT) is not applicable for all tests) R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3pm) P <input type="checkbox"/> Priority (2-4 business days if received by 3pm) E <input type="checkbox"/> Emergency (1-2 business days if received by 3pm) E2 <input type="checkbox"/> Same day or weekend emergency if received by 10am - contact ALS for surcharge. Specialty Data Required for E2, E or P:	
Invoice To Same as Report To: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Copy of Invoice with Report: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Company: Contact:		Invoice Distribution Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: Email 2:		Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (FP) below	
Project Information ALS Quote #: <u>Q51061</u> Job #: <u>BR 141 F20 (Bottle order #)</u> PO / A/E: LSD:		Oil and Gas Required Fields (client use) Approver ID: Cost Center: GL Account: Routing Code: Activity Code: Location:		Number of Containers	
ALS Lab Work Order # (lab use only)		ALS Contact: <u>JUDY</u> Sampler: <u>RH</u>			
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	
1	BS-2015 - Site 2 S	21-JUN-15	17:00	RAW	X
2	BS-2015 - Site 2 B	21-JUN-15	17:00	RAW	X
3	BS-2015 - Site 3 S	21-JUN-15	17:40	RAW	X
4	BS-2015 - Site 3 B	21-JUN-15	17:40	RAW	X
5	BS-2015 - Site X S	21-JUN-15	18:15	RAW	X
6	BS-2015 - Site X B	21-JUN-15	18:15	RAW	X
Drinking Water (DW) Samples (client use) Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input type="checkbox"/> No Are samples for human drinking water use? <input type="checkbox"/> Yes <input type="checkbox"/> No		Special Instructions / Specify Criteria to add on report (client use) 15°		SAMPLE CONDITION AS RECEIVED (lab use only) Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/> Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> Cooling In-Listed <input type="checkbox"/> INITIAL COOLER TEMPERATURES °C: _____ FINAL COOLER TEMPERATURES °C: _____	
SHIPMENT RELEASE (client use) Released by: <u>[Signature]</u> Date: <u>22 JUN-15</u> Time: <u>10:00</u>		INITIAL SHIPMENT RECEPTION (lab use only) Received by: <u>EE</u> Date: <u>6-23-15</u> Time: <u>8:00</u>		FINAL SHIPMENT RECEPTION (lab use only) Received by: _____ Date: _____ Time: _____	

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION
 WHITE - LABORATORY COPY YELLOW - CLIENT COPY
 Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.
 1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

July 5



Kenora Resource Consultants Inc.
ATTN: RYAN HAINES
SITE 155, COMPARTMENT 14, RR1
KENORA ON P9N 3W7

Date Received: 06-JUL-15
Report Date: 14-JUL-15 14:28 (MT)
Version: FINAL

Client Phone: 807-548-8123

Certificate of Analysis

Lab Work Order #: L1637419
Project P.O. #: NOT SUBMITTED
Job Reference: BR141720 (BOTTLE ORDER #)
C of C Numbers:
Legal Site Desc:

Barb Bayer, B.Sc.
General Manager, Winnipeg

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
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Environmental

www.alsglobal.com

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1637419-1 BS-2015 SITE 2-S Sampled By: RH on 05-JUL-15 @ 10:15 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	<0.010		0.010	mg/L		13-JUL-15	R3225226
L1637419-2 BS-2015 SITE 2-B Sampled By: RH on 05-JUL-15 @ 10:15 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.022		0.010	mg/L		13-JUL-15	R3225226
L1637419-3 BS-2015 SITE 3-S Sampled By: RH on 05-JUL-15 @ 10:50 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	<0.010		0.010	mg/L		13-JUL-15	R3225226
L1637419-4 BS-2015 SITE 3-B Sampled By: RH on 05-JUL-15 @ 10:50 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.109		0.010	mg/L		13-JUL-15	R3225226
L1637419-5 BS-2015 SITE X-S Sampled By: RH on 05-JUL-15 @ 11:20 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	<0.010		0.010	mg/L		13-JUL-15	R3225226
L1637419-6 BS-2015 SITE X-B Sampled By: RH on 05-JUL-15 @ 11:20 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	<0.010		0.010	mg/L		13-JUL-15	R3225226

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Chain of Custody (COC) / Analytical Request Form
Canada Toll Free: 1 800 668 9878



COC Number: 14-454478
Page 1 of 1

Report To Company: <u>Kenora Resource Consultants Inc.</u> Contact: <u>Ryan Harris</u> Address: <u>Site 165 Comp 14 RR#1 Kenora, ON</u> Phone: <u>707-465-5589</u>		Report Form Select Report Format: <input type="checkbox"/> Print <input type="checkbox"/> EDD (DIGITAL) Quality Control (QC) Report with Report: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: <u>ryan.harris@krconsultants.com</u> Email 2: _____		Select Service Level Below (Rush turnaround time (SAT) is not available for all tests) Regular (Standard TAT if received by 3pm) P <input type="checkbox"/> Priority (2-4 business days if received by 3pm) E <input type="checkbox"/> Emergency (1-2 business days if received by 3pm) E2 <input type="checkbox"/> Same day or next day emergency if received by 10am - contact ALS for surcharge. Specify Date Required for E2, E or P: _____																																																																																																																																																																					
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Project Information ALS Quote #: <u>R51061</u> Job #: <u>BR141720 (Bottle order #)</u> PO / AFE: _____ LSD: _____		Oil and Gas Required Fields (client use) Approver ID: _____ Cost Center: _____ GL Account: _____ Routing Code: _____ Activity Code: _____ Location: _____		Specify Date Required for E2, E or P: _____ Number of Containers: _____																																																																																																																																																																					
ALS Lab Work Order # (tab use only) _____ ALS Contact: <u>JUDY</u> Sampler: <u>RH</u>		<table border="1"> <thead> <tr> <th>ALS Sample # (tab use only)</th> <th>Sample Identification and/or Coordinates (This description will appear on the report)</th> <th>Date (dd-mm-yy)</th> <th>Time (hh:mm)</th> <th>Sample Type</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td></td> <td>BS-2015 Site 2-S</td> <td>05 JUL 15</td> <td>10:15</td> <td>RAW</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>BS-2015 Site 2-B</td> <td>05 JUL 15</td> <td>10:15</td> <td>RAW</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>BS-2015 Site 3-S</td> <td>05 JUL 15</td> <td>10:50</td> <td>RAW</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>BS-2015 Site 3-B</td> <td>05 JUL 15</td> <td>10:50</td> <td>RAW</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>BS-2015 Site X-S</td> <td>05 JUL 15</td> <td>11:20</td> <td>RAW</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>BS-2015 Site X-B</td> <td>05 JUL 15</td> <td>11:20</td> <td>RAW</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		ALS Sample # (tab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type																	BS-2015 Site 2-S	05 JUL 15	10:15	RAW	X																	BS-2015 Site 2-B	05 JUL 15	10:15	RAW	X																	BS-2015 Site 3-S	05 JUL 15	10:50	RAW	X																	BS-2015 Site 3-B	05 JUL 15	10:50	RAW	X																	BS-2015 Site X-S	05 JUL 15	11:20	RAW	X																	BS-2015 Site X-B	05 JUL 15	11:20	RAW	X																<table border="1"> <thead> <tr> <th colspan="2">SHIPPING RELEASE (client use)</th> <th colspan="2">INITIAL SHIPMENT RECEPTION (lab use only)</th> <th colspan="2">FINAL SHIPMENT RECEPTION (lab use only)</th> </tr> <tr> <th>Released by:</th> <th>Date:</th> <th>Received by:</th> <th>Date:</th> <th>Received by:</th> <th>Date:</th> </tr> </thead> <tbody> <tr> <td><u>[Signature]</u></td> <td><u>06 JUL 15 10:00</u></td> <td><u>[Signature]</u></td> <td><u>06 JUL 15 16:20</u></td> <td></td> <td></td> </tr> </tbody> </table>		SHIPPING RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RECEPTION (lab use only)		Released by:	Date:	Received by:	Date:	Received by:	Date:	<u>[Signature]</u>	<u>06 JUL 15 10:00</u>	<u>[Signature]</u>	<u>06 JUL 15 16:20</u>		
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Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.
 1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

July 19



Kenora Resource Consultants Inc.
ATTN: RYAN HAINES
SITE 155, COMPARTMENT 14, RR1
KENORA ON P9N 3W7

Date Received: 20-JUL-15
Report Date: 23-JUL-15 15:13 (MT)
Version: FINAL

Client Phone: 807-465-5689

Certificate of Analysis

Lab Work Order #: L1644560
Project P.O. #: NOT SUBMITTED
Job Reference: BR141720 (BOTTLE ORDER#)
C of C Numbers:
Legal Site Desc:

A handwritten signature in black ink, appearing to read 'Hua Wo', written over a horizontal line.

Hua Wo
Chemistry Laboratory Manager

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ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1644560-1 BS-2015 SITE 2-S Sampled By: RH on 19-JUL-15 @ 13:50 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.015		0.010	mg/L		23-JUL-15	R3231257
L1644560-2 BS-2015 SITE 2-B Sampled By: RH on 19-JUL-15 @ 13:50 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.016		0.010	mg/L		23-JUL-15	R3231257
L1644560-3 BS-2015 SITE 3-S Sampled By: RH on 19-JUL-15 @ 17:40 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.016		0.010	mg/L		23-JUL-15	R3231257
L1644560-4 BS-2015 SITE 3-B Sampled By: RH on 19-JUL-15 @ 17:40 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.198		0.010	mg/L		23-JUL-15	R3231257
L1644560-5 BS-2015 SITE X-S Sampled By: RH on 19-JUL-15 @ 17:05 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.016		0.010	mg/L		23-JUL-15	R3231257
L1644560-6 BS-2015 SITE X-B Sampled By: RH on 19-JUL-15 @ 17:05 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.015		0.010	mg/L		23-JUL-15	R3231257

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.			
** ALS test methods may incorporate modifications from specified reference methods to improve performance.			

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

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mg/kg - milligrams per kilogram based on dry weight of sample

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mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

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< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

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UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Chain of Custody (COC) / Analytical Request Form
 Canada Toll Free: 1 800 568 9878



COC Number: 14-454774
 Page 1 of 1

Report To Company: <i>Kanara Resource Consultants Inc.</i> Contact: <i>Ryan Harris</i> Address: <i>5415 Comp 14 Rte 11 Kanara ON</i> Phone: <i>807-465-5569</i>		Report Format / Distribution Select Report Format: <input type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> XSD (DIGITAL) Quality Control (QC) Report with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: <i>ryan.harris@kanarac consultants.com</i> Email 2:		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests) R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3pm) P <input type="checkbox"/> Priority (2-4 business days if received by 3pm) E <input type="checkbox"/> Emergency (1-2 business days if received by 8am) E2 <input type="checkbox"/> Same day or weekend emergency if received by 10am - contact ALS for surcharge. Specify Date Required for E2, E or P:	
Invoice To Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Copy of Invoice with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Invoice Distribution Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: Email 2:		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (FP) below	
Company: Contact:		Project Information ALS Quote #: <i>051061</i> Job #: <i>RR 141 720 (Bottle order #)</i> PO / A/E: LSD: ALS Lab Work Order # (lab use only):		Analysis Request Number of Containers:	
ALS Contact: <i>JUDY</i>		Sampler: <i>RH</i>		OBTAIN	
Sample Identification and/or Coordinates (This description will appear on the report)		Date (dd-mm-yy)		Time (h:mm)	
<i>BS-2015 Site 2-S</i>		<i>19-JUL-15</i>		<i>15:50</i>	
<i>BS-2015 Site 2-B</i>		<i>19-JUL-15</i>		<i>15:50</i>	
<i>BS-2015 Site 3-S</i>		<i>19-JUL-15</i>		<i>17:40</i>	
<i>BS-2015 Site 3-B</i>		<i>19-JUL-15</i>		<i>17:40</i>	
<i>BS-2015 Site X-S</i>		<i>19-JUL-15</i>		<i>17:05</i>	
<i>BS-2015 Site X-B</i>		<i>19-JUL-15</i>		<i>17:05</i>	
Sample Type		Sample Type		Sample Type	
<i>RAW</i>		<i>RAW</i>		<i>RAW</i>	
<i>RAW</i>		<i>RAW</i>		<i>RAW</i>	
<i>RAW</i>		<i>RAW</i>		<i>RAW</i>	
<i>RAW</i>		<i>RAW</i>		<i>RAW</i>	
<i>RAW</i>		<i>RAW</i>		<i>RAW</i>	
<i>RAW</i>		<i>RAW</i>		<i>RAW</i>	
Drinking Water (DW) Samples (client use)		Special Instructions / Specify Criteria to add on report (client use)		SAMPLE CONDITION AS RECEIVED (lab use only)	
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input type="checkbox"/> No		Are samples for human drinking water use? <input type="checkbox"/> Yes <input type="checkbox"/> No		Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/> Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> Cooling initiated <input type="checkbox"/>	
INITIAL SHIPMENT RECEPTION (lab use only)		INITIAL SHIPMENT RECEPTION (lab use only)		INITIAL SHIPMENT RECEPTION (lab use only)	
Released by: <i>[Signature]</i> Date: <i>20 JUL 15</i> Time: <i>08:00</i>		Received by: <i>LE</i> Date: <i>7-20-15</i> Time: <i>8:15</i>		Received by: _____ Date: _____ Time: _____	

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION
 FAILURE TO COMPLETE ALL PORTIONS OF THIS FORM MAY DELAY ANALYSIS. PLEASE FILL IN THIS FORM LEGIBLY. BY THE USE OF THIS FORM THE USER ACKNOWLEDGES AND AGREES WITH THE TERMS AND CONDITIONS AS SPECIFIED ON THE BACK PAGE OF THE WHITE - REPORT COPY.
 1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

August 9



Kenora Resource Consultants Inc.
ATTN: RYAN HAINES
SITE 155, COMPARTMENT 14, RR1
KENORA ON P9N 3W7

Date Received: 11-AUG-15
Report Date: 19-AUG-15 10:57 (MT)
Version: FINAL

Client Phone: 807-548-8123

Certificate of Analysis

Lab Work Order #: L1655386
Project P.O. #: NOT SUBMITTED
Job Reference: BR141720 (BOTTLE ORDER #)
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1655386-1 BS-2015 SITE 2-S Sampled By: RH on 09-AUG-15 @ 17:44 Matrix: Raw Miscellaneous Parameters Phosphorus (P)-Total	0.012		0.010	mg/L		19-AUG-15	R3249166
L1655386-2 BS-2015 SITE 2-B Sampled By: RH on 09-AUG-15 @ 17:44 Matrix: Raw Miscellaneous Parameters Phosphorus (P)-Total	0.024		0.010	mg/L		19-AUG-15	R3249166
L1655386-3 BS-2015 SITE 3-S Sampled By: RH on 09-AUG-15 @ 18:10 Matrix: Raw Miscellaneous Parameters Phosphorus (P)-Total	0.012		0.010	mg/L		19-AUG-15	R3249166
L1655386-4 BS-2015 SITE 3-B Sampled By: RH on 09-AUG-15 @ 18:10 Matrix: Raw Miscellaneous Parameters Phosphorus (P)-Total	0.312		0.010	mg/L		19-AUG-15	R3249166
L1655386-5 BS-2015 SITE X-S Sampled By: RH on 09-AUG-15 @ 18:50 Matrix: Raw Miscellaneous Parameters Phosphorus (P)-Total	0.011		0.010	mg/L		19-AUG-15	R3249166
L1655386-6 BS-2015 SITE X-B Sampled By: RH on 09-AUG-15 @ 18:50 Matrix: Raw Miscellaneous Parameters Phosphorus (P)-Total	<0.010		0.010	mg/L		19-AUG-15	R3249166

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
----------------------------	---------------------

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

*mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.*

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

August 23



Kenora Resource Consultants Inc.
ATTN: RYAN HAINES
SITE 155, COMPARTMENT 14, RR1
KENORA ON P9N 3W7

Date Received: 25-AUG-15
Report Date: 01-SEP-15 15:21 (MT)
Version: FINAL

Client Phone: 807-548-8123

Certificate of Analysis

Lab Work Order #: L1662332
Project P.O. #: NOT SUBMITTED
Job Reference: BR 141720 - BS-2015 SITE 2-S
C of C Numbers:
Legal Site Desc:


Shannon Sawatzky
Account Manager

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RIGHT SOLUTIONS RIGHT PARTNER

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1662332-1 BS-2015 SITE 2-S Sampled By: RH on 23-AUG-15 @ 12:45 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.010		0.010	mg/L		01-SEP-15	R3257799
L1662332-2 BS-2015 SITE 2-B Sampled By: RH on 23-AUG-15 @ 12:45 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.020		0.010	mg/L		01-SEP-15	R3257799
L1662332-3 BS-2015 SITE 3-S Sampled By: RH on 23-AUG-15 @ 14:15 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.014		0.010	mg/L		01-SEP-15	R3257799
L1662332-4 BS-2015 SITE 3-B Sampled By: RH on 23-AUG-15 @ 14:15 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.379		0.010	mg/L		01-SEP-15	R3257799
L1662332-5 BS-2015 SITE X-B Sampled By: RH on 23-AUG-15 @ 14:41 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.015		0.010	mg/L		01-SEP-15	R3257799
L1662332-6 BS-2015 SITE X-S Sampled By: RH on 23-AUG-15 @ 14:41 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.014		0.010	mg/L		01-SEP-15	R3257799

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

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mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

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UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

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Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



COC Number: 14-455295

Page 1 of 1
L1662332

Report To Company: <u>Kenora Resource Consultants Inc</u> Contact: <u>Ryan Harris</u> Address: <u>Site 155 Comp 14 RR#1 Kenora ON</u> Phone: <u>807-465-5689</u>		Report Format / Distribution Select Report Format: <input type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDP (DIGITAL) Quality Control (QC) Report with Report: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: <u>Ryan.Harris@kenoraconsultants.com</u> Email 2:		Select Service Level (below (R)an Turnaround Time (TAT) is not available for all tests) R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3pm) P <input type="checkbox"/> Priority (2-4 business days if received by 3pm) E <input type="checkbox"/> Emergency (1-2 business days if received by 3pm) E2 <input type="checkbox"/> Same day or weekend emergency if received by 10am - contact ALS for surcharge. Specify Date Required for E2 E or P:	
Invoice To Same as Report To: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Copy of Invoice with Report: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Company: Contact:		Invoice Distribution Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: Email 2:		Analysis Request Indicate Filtered (F), Preserved (P), or Filtered and Preserved (FP) below	
Project Information ALS Quote #: <u>251061</u> Job #: <u>BR141720 (Bottle order #)</u> PO / AFE: LSD:		Oil and Gas Required Fields (client use) Approver ID: Cost Center: GL Account: Routing Code: Activity Code: Location:		Number of Containers	
ALS Lab Work Order # (lab use only)		ALS Contact: <u>JUDY</u> Sampler: <u>RH</u>			
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	
2	RS-2015 Site 2-S	23-AUG-15	12:45	RAW	X
3	RS-2015 Site 2-B	23-AUG-15	12:45	RAW	X
4	RS-2015 Site 3-S	23-AUG-15	14:15	RAW	X
5	RS-2015 Site 3-B	23-AUG-15	14:15	RAW	X
6	RS-2015 Site X-B	23-AUG-15	14:41	RAW	X
7	RS-2015 Site X-S	23-AUG-15	14:41	RAW	X
Drinking Water (DW) Samples (client use) Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input type="checkbox"/> No Are samples for human drinking water use? <input type="checkbox"/> Yes <input type="checkbox"/> No		Special Instructions / Specify Criteria to add on report (client use) 		SAMPLE CONDITION AS RECEIVED (lab use only) Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/> Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> Cooling initiated <input type="checkbox"/> INITIAL COOLER TEMPERATURES °C: _____ FINAL COOLER TEMPERATURES °C: _____	
SHIPMENT RELEASE (client use) Released by: <u>[Signature]</u> Date: <u>24-AUG-15</u> Time: <u>12:00</u>		INITIAL SHIPMENT RECEPTION (lab use only) Received by: <u>EL</u> Date: <u>8-25-15</u> Time: <u>8:00</u>		FINAL SHIPMENT RECEPTION (lab use only) Received by: _____ Date: _____ Time: _____	

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY
 Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.
 1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

September 6



Kenora Resource Consultants Inc.
ATTN: RYAN HAINES
SITE 155, COMPARTMENT 14, RR1
KENORA ON P9N 3W7

Date Received: 08-SEP-15
Report Date: 11-SEP-15 10:31 (MT)
Version: FINAL

Client Phone: 807-548-8123

Certificate of Analysis

Lab Work Order #: L1669068
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

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ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
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www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1669068-1 BS-2015 SITE 2-S Sampled By: RH on 06-SEP-15 @ 11:20 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.013		0.010	mg/L		10-SEP-15	R3263976
L1669068-2 BS-2015 SITE 2-B Sampled By: RH on 06-SEP-15 @ 11:20 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.027		0.010	mg/L		10-SEP-15	R3263976
L1669068-3 BS-2015 SITE 3-S Sampled By: RH on 06-SEP-15 @ 12:05 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.015		0.010	mg/L		10-SEP-15	R3263976
L1669068-4 BS-2015 SITE 3-B Sampled By: RH on 06-SEP-15 @ 12:05 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.474		0.010	mg/L		10-SEP-15	R3263976
L1669068-5 BS-2015 SITE X-S Sampled By: RH on 06-SEP-15 @ 12:40 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.011		0.010	mg/L		10-SEP-15	R3263976
L1669068-6 BS-2015 SITE X-B Sampled By: RH on 06-SEP-15 @ 12:40 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.014		0.010	mg/L		10-SEP-15	R3263976

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
----------------------------	---------------------

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

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 mg/kg wwt - milligrams per kilogram based on wet weight of sample
 mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
 mg/L - unit of concentration based on volume, parts per million.*

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D.L. - The reporting limit.

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September 20



Kenora Resource Consultants Inc.
ATTN: RYAN HAINES
SITE 155, COMPARTMENT 14, RR1
KENORA ON P9N 3W7

Date Received: 22-SEP-15
Report Date: 25-SEP-15 12:27 (MT)
Version: FINAL

Client Phone: 807-548-8123

Certificate of Analysis

Lab Work Order #: L1676253
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

A handwritten signature in black ink, appearing to read 'Hua Wo', is written over a horizontal line.

Hua Wo
Chemistry Laboratory Manager

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Environmental The logo icon for Environmental, featuring a stylized green leaf or plant.

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RIGHT SOLUTIONS RIGHT PARTNER

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1676253-1 BS-2015-SITE 2S Sampled By: RH on 20-SEP-15 @ 13:50 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	<0.010		0.010	mg/L		25-SEP-15	R3275561
L1676253-2 BS-2015-SITE 2B Sampled By: RH on 20-SEP-15 @ 13:50 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.027		0.010	mg/L		25-SEP-15	R3275561
L1676253-3 BS-2015-SITE 3S Sampled By: RH on 20-SEP-15 @ 15:50 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.016		0.010	mg/L		25-SEP-15	R3275561
L1676253-4 BS-2015-SITE 3B Sampled By: RH on 20-SEP-15 @ 15:50 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.096		0.010	mg/L		25-SEP-15	R3275561
L1676253-5 BS-2015-SITE XS Sampled By: RH on 20-SEP-15 @ 15:25 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.012		0.010	mg/L		25-SEP-15	R3275561
L1676253-6 BS-2015-SITE XB Sampled By: RH on 20-SEP-15 @ 15:25 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.014		0.010	mg/L		25-SEP-15	R3275561

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

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The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
----------------------------	---------------------

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GLOSSARY OF REPORT TERMS

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 mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
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D.L. - The reporting limit.

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Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



COC # _____

Page 1 of 1

L1676253-COFC

Report To		Service Requested (Rush for routine analysis subject to availability)								
Company: Kenora Resource Consultants Inc. W10289		<input checked="" type="radio"/> Regular (Standard Turnaround Times - Business Days) <input type="radio"/> Priority (2-4 Business Days) - 90% Surcharge - Contact ALS to Confirm TAT <input type="radio"/> Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT <input type="radio"/> Same Day or Weekend Emergency - Contact ALS to Confirm TAT								
Contact: Ryan Haines		<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Other <input checked="" type="checkbox"/> PDF <input type="checkbox"/> Excel <input type="checkbox"/> Digital <input checked="" type="checkbox"/> FAX								
Address: Site 155, Compartment 14; RR1 Kenora, ON P9N 3W7 Cell: 807-465-5689		Email 1: ryanhaines123@gmail.com								
Phone: 807-465-5689 Fax:		Email 2:								
Invoice To Same as Report? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Email 3:								
Hardcopy of Invoice with Report? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Analysis Request								
Company:		Please indicate below Filtered, Preserved or both (F, P, F/P)								
Contact:		Job #:								
Address:		PO / AFE:								
Phone: Fax:		LSD:								
Lab Work Order # (lab use only)		Quote #: Q51061								
ALS Contact: JUDY		Sampler: RH								
Sample #	Sample Identification (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	P	T	COL	Number of Containers		
	BS-2015-SZTL 2S	20-SEP-15	13:50	RAW	X				1	
	BS-2015-SZTL 2B	20-SEP-15	13:50	RAW	X				1	
	BS-2015-SZTL 3S	20-SEP-15	13:50	RAW	X				1	
	BS-2015-SZTL 3B	20-SEP-15	15:50	RAW	X				1	
	BS-2015-SZTL XS	20-SEP-15	15:25	RAW	X				1	
	BS-2015-SZTL XB	20-SEP-15	15:25	RAW	X				1	
Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details										
Place an X in the box below the analysis/analyses you require.										
Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.										
By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.										
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.										
SHIPMENT, RELEASE (client use)			SHIPMENT, RECEPTION (lab use only)			SHIPMENT, VERIFICATION (lab use only)				
Released by: <i>[Signature]</i>	Date (dd-mm-yy): 21-SEP-15	Time (hh-mm): 12:00	Received by: <i>[Signature]</i>	Date: 9-22-15	Time: 8:00	Temperature: 14 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF

GENF 18.01 Front

October 4



Kenora Resource Consultants Inc.
ATTN: RYAN HAINES
SITE 155, COMPARTMENT 14, RR1
KENORA ON P9N 3W7

Date Received: 06-OCT-15
Report Date: 08-OCT-15 15:37 (MT)
Version: FINAL

Client Phone: 807-548-8123

Certificate of Analysis

Lab Work Order #: L1683484
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

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ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1683484-1 BS-2015-SITE 2 - S Sampled By: RH on 04-OCT-15 @ 09:50 Matrix: Raw Miscellaneous Parameters Phosphorus (P)-Total	0.018		0.010	mg/L		08-OCT-15	R3285880
L1683484-2 BS-2015-SITE 2 - B Sampled By: RH on 04-OCT-15 @ 09:50 Matrix: Raw Miscellaneous Parameters Phosphorus (P)-Total	0.023		0.010	mg/L		08-OCT-15	R3285880
L1683484-3 BS-2015-SITE 3 - S Sampled By: RH on 04-OCT-15 @ 10:45 Matrix: Raw Miscellaneous Parameters Phosphorus (P)-Total	0.017		0.010	mg/L		08-OCT-15	R3285880
L1683484-4 BS-2015-SITE 3 - B Sampled By: RH on 04-OCT-15 @ 10:45 Matrix: Raw Miscellaneous Parameters Phosphorus (P)-Total	0.016		0.010	mg/L		08-OCT-15	R3285880
L1683484-5 BS-2015-SITE X - S Sampled By: RH on 04-OCT-15 @ 11:10 Matrix: Raw Miscellaneous Parameters Phosphorus (P)-Total	0.015		0.010	mg/L		08-OCT-15	R3285880
L1683484-6 BS-2015-SITE X - B Sampled By: RH on 04-OCT-15 @ 11:10 Matrix: Raw Miscellaneous Parameters Phosphorus (P)-Total	0.015		0.010	mg/L		08-OCT-15	R3285880

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

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Laboratory Definition Code	Laboratory Location
----------------------------	---------------------

Chain of Custody Numbers:

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 mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
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< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

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204-255-9720



L1683484-COFC

COC # L1683484

Page 1 of 1

Report To	Kenora Resource Consultants Inc. W10289	Re	<input checked="" type="checkbox"/> PDF <input type="checkbox"/> Excel <input type="checkbox"/> Digital <input type="checkbox"/> Fax	Service Requested (Rush for routine analysis subject to availability)
Contact:	Ryan Haines	Email 1:	ryanhaines123@gmail.com	<input checked="" type="radio"/> Regular (Standard Turnaround Times - Business Days)
Address:	Site 155, Compartment 14, RR1 Kenora, ON P9N 3W7 Cell: 807-465-5689	Email 2:		<input type="radio"/> Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Phone:	807-465-5689	Email 3:		<input type="radio"/> Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
Invoice To	Same as Report? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Client / Project Information	Analysis Request	
Hardcopy of Invoice with Report?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Job #:	Please indicate below Filtered, Preserved or both (F, P, F/P)	
Company:		PO / AFE:		
Contact:		LSD:		
Address:		Quote #:	Q51061	
Phone:		Lab Work Order #		
		ALS Contact:	JUDY	
		Sampler:	RH	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mm-yy)	Time (hr:mm)	Sample Type	P	T	COOL	Number of Containers
1	BS-2015 Site 2-S	04-OCT-15	09:50	RAW	X			1
2	BS-2015 Site 2-B	04-OCT-15	09:50	RAW	X			1
3	BS-2015 Site 3-S	04-OCT-15	10:45	RAW	X			1
4	BS-2015 Site 3-B	04-OCT-15	10:45	RAW	X			1
5	BS-2015 Site X-S	04-OCT-15	11:10	RAW	X			1
6	BS-2015 Site X-B	04-OCT-15	11:10	RAW	X			1

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Place an X in the box below the analysis/analyses you require. Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT, RELEASE (client use)			SHIPMENT, RECEIPT (lab use only)			SHIPMENT, VERIFICATION (lab use only)		
Released by:	Date (dd-mm-yy):	Time (hr:mm):	Received by:	Date:	Time:	Temperature:	Verified by:	Date:
<i>[Signature]</i>	05-OCT-15	12:00	OB	10/06/15	8:00	11 °C		

GENF 13.01 Front

October 25



Kenora Resource Consultants Inc.
ATTN: RYAN HAINES
SITE 155, COMPARTMENT 14, RR1
KENORA ON P9N 3W7

Date Received: 27-OCT-15
Report Date: 05-NOV-15 14:23 (MT)
Version: FINAL

Client Phone: 807-548-8123

Certificate of Analysis

Lab Work Order #: L1693731
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

Environmental

www.alsglobal.com

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1693731-1 BS-2015-SITE 2S Sampled By: RH on 25-OCT-15 @ 12:20 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.013		0.010	mg/L		05-NOV-15	R3306163
L1693731-2 BS-2015-SITE 2B Sampled By: RH on 25-OCT-15 @ 12:20 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.012		0.010	mg/L		05-NOV-15	R3306163
L1693731-3 BS-2015-SITE 3S Sampled By: RH on 25-OCT-15 @ 13:15 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.012		0.010	mg/L		05-NOV-15	R3306163
L1693731-4 BS-2015-SITE 3B Sampled By: RH on 25-OCT-15 @ 13:15 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.012		0.010	mg/L		05-NOV-15	R3306163
L1693731-5 BS-2015-SITE XS Sampled By: RH on 25-OCT-15 @ 14:00 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.013		0.010	mg/L		05-NOV-15	R3306163
L1693731-6 BS-2015-SITE XB Sampled By: RH on 25-OCT-15 @ 14:00 Matrix: RAW Miscellaneous Parameters Phosphorus (P)-Total	0.016		0.010	mg/L		05-NOV-15	R3306163

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
----------------------------	---------------------

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

*mg/kg - milligrams per kilogram based on dry weight of sample
 mg/kg wwt - milligrams per kilogram based on wet weight of sample
 mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
 mg/L - unit of concentration based on volume, parts per million.*

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

