COCHRANE

WATER / WASTE WATER SERVICES

GLACKMEYER LAGOON

2016 ANNUAL REPORT

Reference Index

2016 Annual Report

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ANNUAL

PERFORMANCE

REPORT

Annual Performance Report

This report is prepared to comply with Section 23 of the Special Terms and Conditions of the Certificate of Approval Number 3-0113-79-817. The report shall contain:

(i) A summary of all monitoring data and analytical data collected relative to the works during the 2016 reporting period;

No flow meters are installed at the Glackmeyer Lagoon

RAW SEWAGE RESULTS

RAW SEWAGE	MONTHLY AVERAGE RESULTS
BOD	207.25 mg/l
SUSPENDED SOLIDS	108.42 mg/l
TOTAL PHOSPHORUS	6.27 mg/l
TKN	56.87 mg/l
AMMONIA	14.88 mg/l

(II) a comprehensive interpretation of all monitoring data and analytical data collected relative to the works during the reporting period of 2016, and a comparison to the effluent quality and quantity criteria described in Section 19;

The following are samples taken before and during discharging the Glackmeyer Lagoon.

Test	**Prior to Discharge** May 3, 2016	**During Discharge** May 12, 2016	**During Discharge** May 13, 2016
Sulphate	<1		
pH	8.30		
BOD	7.9	25	9.6
SUSPENDED SOLIDS	6.5	52	18
TKN	4.24	8.61	3.4
PHOSPHORUS	0.662	1.31	1.06
E.Coli		<5	<5
AMMONIA		1.58	0.918
NITRATE		0.35	0.2
NITRITE		0.04	0.03

(iii) a tabulation and description of any bypass or upset condition which occurred during the period being reported upon.

An overflow event occurred on May 13, 2016. See attached Table 1 Bypass/Overflow report

(iv) a summary of any effluent assurance or control measures undertaken in the reporting period;

The monitoring programs consists of regular weekly rounds ensuring all equipment is functioning (valves) and take a weekly pH sample in both lagoons during months when access is available (ex. snow) and weekly from the pumping station pit.

(v) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming apart of the works;

No maintenance was performed at the lagoons, only routine grass cutting.

(vi) a description of any operating problems encountered and corrective actions taken during the reporting period;

None.

(vii) a summary of any proposed alteration, extension or replacement in the process or operation of the works to be completed over the next reporting period which may require approval under the Ontario Water Resources Act;

1. ***Flow meter to monitor flow into lagoons.***
2. ***Flow meters on each discharge line.***

(viii) an evaluation of the calibration and maintenance procedures conducted on all monitoring equipment;

Currently no equipment that requires calibration.

(ix) an evaluation of the need for modifications to the works to improve performance and reliability and to minimize upsets / bypasses;

As per section (vii)

At this time, the Town of Cochrane is evaluating the need for modifications to the works to improve performance and reliability and to minimize upsets / bypasses. One possible modification includes installing a flow meter to calculate flow entering the lagoon and at the end of the discharge line for both cells.

This is the report on the Cochrane Waste Water Treatment Plant for the year 2016. I certify that the information in this document and all the attachments are correct, accurate and complete to the best of my knowledge.

Prepared by,
Jared Alcock
Interim Asset Coordinator

Respectfully submitted and revised by:

Lynn Chapleau
Compliance Supervisor

ANNUAL SUMMARY

			Glackmeyer Lagoon / Lab Results							2016	ID: 120002068			
month	**Jan.**	**Feb.**	**March**	**April**	**May**	**June**	**July**	**Aug.**	**Sept.**	**Oct.**	**Nov.**	**Dec.**	TOTAL	AVG.
Number of Samples	1	1	1	1	1	1	1	1	1	1	1	1		
	Jan 19/16	Feb 9/16	Mar.15/16	April 5/16	May 3/16	June 7/16	July 12/16	2-Aug-16	6-Sep-16	4-Oct-16	1-Nov-16	6-Dec-16		
BOD (mg/l)	205	397	380	200	100	77	98	190	350	190	110	190	2487	207.25
SS (mg/l)	105	86	180	51	63	35	184	125	196	120	50	106	1301	108.4167
TKN (mg/l)	58.7	186	43.3	29.8	32.3	27.5	48.8	72.4	62.9	66.1	27.6	27	682.4	56.86667
Total P. (mg/l)	7.3	17.6	6.55	3.02	4.12	2.74	5.31	7.67	7.03	7.44	2.85	3.66	75.29	6.274167
Ammonia (mg/l)	25.7	11.6	4.45	6.89	14	5.02	24.5	34.6	13.8	23.6	6.58	7.85	178.59	14.8825
Number of Samples	2	3	3	3	2	5	3	4	5	4	4	4		
North Lagoon pH					8.95	8.37	9.09	8.72	8.62	7.95	7.6		15.55	8.471429
South Lagoon pH					9.48	7.78	7.6	7.4	7.66	7.57	7.51		15.08	7.857143
Pumping Station pH	7.915	7.74	7.6	7.54	7.57	7.45	7.43	7.44	7.62	7.61	7.44	7.72	91.075	7.589583

month	**Jan.**	**Feb.**	**March**	**April**	**May**	**June**	**July**	**Aug.**	**Sept.**	**Oct.**	**Nov.**	**Dec.**	TOTAL	AVG.
Prior To Discharge					May 3/16									
													0	#DIV/0!
BOD (mg/l)					7.9									
SS (mg/l)					6.5								6.5	6.5
TKN (mg/l)					4.24								4.24	4.24
pH (mg/l)					8.3								8.3	8.3
Total P. (mg/l)					0.662								0.662	0.662
Sulphates (mg/l)					<1									
During Discharge					May 12/16	May 13/16								
BOD (mg/l)					25	9.6							34.6	17.3
SS (mg/l)					52	18							70	35
Total P. (mg/l)					1.31	1.06							2.37	1.185
Ammonia (mg/l)					1.58	0.918							2.498	1.249
TKN (mg/l)					8.61	3.4							12.01	6.005
Nitrate (mg/l)					0.35	0.2							0.55	0.275
Nitrite (mg/l)					0.04	0.03							0.07	0.035
E.Coli (CFU)					<5	<5							0	#DIV/0!

DISCHARGE

ANALYTICAL

REPORTS

Accuracy Environmental Laboratories Ltd.

CERTIFICATE OF ANALYSIS

Client:	Ken McWhirter	Work Order Number:	271877
Company:	Town of Cochrane - Wastewater	PO #:	
Address:	171 Fourth Ave, Box 490 Cochrane, ON, P0L 1C0	Regulation: Project #:	None Town of Cochrane
Phone/Fax:	(705) 272-4232 / (705) 272-2634	DWS #:	
Email:	ken.mcwhirter@cochraneontario.com	Sampled By:	Tyler Cheff
Date Order Received:	5/3/2016	Analysis Started:	5/4/2016
Arrival Temperature:	14 °C	Analysis Completed:	5/10/2016

WORK ORDER SUMMARY

ANALYSES WERE PERFORMED ON THE FOLLOWING SAMPLES. THE RESULTS RELATE ONLY TO THE ITEMS TESTED.

Sample Description	Lab ID	Matrix	Type	Comments	Date Collected	Time Collected
South lagoon - Prior to discharge	715145	Wastewater	None		5/3/2016	10:25 AM

METHODS AND INSTRUMENTATION

THE FOLLOWING METHODS WERE USED FOR YOUR SAMPLE(S):

Method	Lab	Description	Reference
A23.2-TP Water(KL)	Kirkland Lake	Determination of Total Phosphorus in Water	Based on EPA 365.3
A5.4-Anions (Sulfate)(KL)	Kirkland Lake	Determination of Sufate by Nephelometry	Based on EPA 375.4
A58-TKN Water Dig.(KL)	Kirkland Lake	Determination of Total Kjeldahl Nitrogen in Waters with Block Digestion	Based on APHA-4500-Norg D
KL-BOD5	Kirkland Lake	Determination of 5-Day Biological Oxygen Demand (BOD5)	Based on APHA-5210B
KL-pH Water	Kirkland Lake	Determination of pH by ion selective electrode	Based on APHA-4500-H+ B
KL-TSS	Kirkland Lake	Determination of Total Suspended Solids in water by gravimetry	Based on APHA-2540D

This report has been approved by:

Brad Woodward, H.B.Sc.
Laboratory Director

1470 Government Rd, Kirkland Lake, ON, P2N 3J1
Phone: (705) 642-3361 Fax: (705) 642-3222 Web: www.testmark.ca

CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 271877

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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 271877

WORK ORDER RESULTS

Sample Description	South lagoon - Prior to discharge		
Lab ID	715145		
Anions	**Result**	**MDL**	**Units**
Sulphate	<1	1	mg/L

Sample Description	South lagoon - Prior to discharge		
Lab ID	715145		
General Chemistry	**Result**	**MDL**	**Units**
pH	8.3	N/A	pH
Total Kjeldahl Nitrogen	4.24	0.4	mg/L
Total Phosphorus (as P)	0.662	0.002	mg/L

Sample Description	South lagoon - Prior to discharge		
Lab ID	715145		
Oxygen Demand	**Result**	**MDL**	**Units**
BOD (5-day)	7.9	5	mg/L

Sample Description	South lagoon - Prior to discharge		
Lab ID	715145		
Solids	**Result**	**MDL**	**Units**
Total Suspended Solids	6.5	1	mg/L

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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 271877

LEGEND

Dates: Dates are formatted as mm/dd/year throughout this report.

MDL: Method detection limit or minimum reporting limit.

Quality Control: All associated Quality Control data is available on request.

Accuracy Environmental Laboratories Ltd.

CERTIFICATE OF ANALYSIS

Client:	Ken McWhirter	Work Order Number:	272833
Company:	Town of Cochrane - Wastewater	PO #:	
Address:	171 Fourth Ave, Box 490 Cochrane, ON, P0L 1C0	Regulation: Project #:	None
Phone/Fax:	(705) 272-4232 / (705) 272-2634	DWS #:	
Email:	ken.mcwhirter@cochraneontario.com	Sampled By:	Chris Crawford
Date Order Received:	5/12/2016	Analysis Started:	5/13/2016
Arrival Temperature:	15 °C	Analysis Completed:	5/18/2016

WORK ORDER SUMMARY

ANALYSES WERE PERFORMED ON THE FOLLOWING SAMPLES. THE RESULTS RELATE ONLY TO THE ITEMS TESTED.

Sample Description	Lab ID	Matrix	Type	Comments	Date Collected	Time Collected
South Lagoon - during discharge, first sample	717738	Wastewater	None		5/12/2016	10:30 AM

METHODS AND INSTRUMENTATION

THE FOLLOWING METHODS WERE USED FOR YOUR SAMPLE(S):

Method	Lab	Description	Reference
A126-Anions (NO3+NO2)(KL)	Kirkland Lake	Determination of Nitrate+Nitrite by Colorimetry	Based on EPA 353.1
A23.2-TP Water(KL)	Kirkland Lake	Determination of Total Phosphorus in Water	Based on EPA 365.3
A42-Ammonia Water(KL)	Kirkland Lake	Determination of Ammonia/Ammonium in Water	Based on EPA 350.1
A58-TKN Water Dig.(KL)	Kirkland Lake	Determination of Total Kjeldahl Nitrogen in Waters with Block Digestion	Based on APHA-4500-Norg D
KL-BOD5	Kirkland Lake	Determination of 5-Day Biological Oxygen Demand (BOD5)	Based on APHA-5210B
KL-EC(mFC-BCIG)	Kirkland Lake	Determination of E. coli in water by Membrane Filtration	Based on MOE E3371
KL-TSS	Kirkland Lake	Determination of Total Suspended Solids in water by gravimetry	Based on APHA-2540D

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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 272833

This report has been approved by:

Brad Woodward, H.B.Sc.
Laboratory Director

CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 272833

WORK ORDER RESULTS

Sample Description	South Lagoon - during discharge, first sample		
Lab ID	717738		
Anions	**Result**	**MDL**	**Units**
Nitrate (as N)	0.35	0.1	mg/L
Nitrite (as N)	0.04	0.03	mg/L
NO3+NO2 (as N)	0.39	0.1	mg/L

Sample Description	South Lagoon - during discharge, first sample		
Lab ID	717738		
General Chemistry	**Result**	**MDL**	**Units**
Ammonia (as N)	1.58	0.01	mg/L
Total Kjeldahl Nitrogen	8.61	0.4	mg/L
Total Phosphorus (as P)	1.31	0.02	mg/L

Sample Description	South Lagoon - during discharge, first sample		
Lab ID	717738		
Microbiology	**Result**	**MDL**	**Units**
Escherichia coli	<5 [<5]	5	CFU/100mL

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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 272833

Sample Description	South Lagoon - during discharge, first sample		
Lab ID	717738		
Oxygen Demand	**Result**	**MDL**	**Units**
BOD (5-day)	25	10	mg/L

Sample Description	South Lagoon - during discharge, first sample		
Lab ID	717738		
Solids	**Result**	**MDL**	**Units**
Total Suspended Solids	52	2	mg/L

LEGEND

Dates: Dates are formatted as mm/dd/year throughout this report.

MDL: Method detection limit or minimum reporting limit.

[ ]: Results for laboratory replicates are shown in square brackets immediately below the associated sample result for ease of comparison.

Quality Control: All associated Quality Control data is available on request.

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Accuracy Environmental Laboratories Ltd.

CERTIFICATE OF ANALYSIS

Client:	Ken McWhirter	Work Order Number:	272924
Company:	Town of Cochrane - Wastewater	PO #:	
Address:	171 Fourth Ave, Box 490 Cochrane, ON, P0L 1C0	Regulation: Project #:	None Town of Cochrane
Phone/Fax:	(705) 272-4232 / (705) 272-2634	DWS #:	
Email:	ken.mcwhirter@cochraneontario.com	Sampled By:	Chris Crawford
Date Order Received:	5/15/2016	Analysis Started:	5/18/2016
Arrival Temperature:	15.1 °C	Analysis Completed:	5/20/2016

WORK ORDER SUMMARY

ANALYSES WERE PERFORMED ON THE FOLLOWING SAMPLES. THE RESULTS RELATE ONLY TO THE ITEMS TESTED.

Sample Description	Lab ID	Matrix	Type	Comments	Date Collected	Time Collected
South Lagoon - During discharge second sample	717957	Wastewater	None		5/13/2016	10:15 AM

METHODS AND INSTRUMENTATION

THE FOLLOWING METHODS WERE USED FOR YOUR SAMPLE(S):

Method	Lab	Description	Reference
A126-Anions (NO3+NO2)(KL)	Kirkland Lake	Determination of Nitrate+Nitrite by Colorimetry	Based on EPA 353.1
A23.2-TP Water(KL)	Kirkland Lake	Determination of Total Phosphorus in Water	Based on EPA 365.3
A42-Ammonia Water(KL)	Kirkland Lake	Determination of Ammonia/Ammonium in Water	Based on EPA 350.1
A58-TKN Water Dig.(KL)	Kirkland Lake	Determination of Total Kjeldahl Nitrogen in Waters with Block Digestion	Based on APHA-4500-Norg D
KL-BOD5	Kirkland Lake	Determination of 5-Day Biological Oxygen Demand (BOD5)	Based on APHA-5210B
KL-EC(mFC-BCIG)	Kirkland Lake	Determination of E. coli in water by Membrane Filtration	Based on MOE E3371
KL-TSS	Kirkland Lake	Determination of Total Suspended Solids in water by gravimetry	Based on APHA-2540D

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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 272924

This report has been approved by:

Brad Woodward, H.B.Sc.
Laboratory Director

CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 272924

WORK ORDER RESULTS

Sample Description	South Lagoon - During discharge second sample		
Lab ID	717957		
Anions	**Result**	**MDL**	**Units**
Nitrate (as N)	0.2	0.1	mg/L
Nitrite (as N)	0.03	0.03	mg/L

Sample Description	South Lagoon - During discharge second sample		
Lab ID	717957		
General Chemistry	**Result**	**MDL**	**Units**
Ammonia (as N)	0.918	0.01	mg/L
Total Kjeldahl Nitrogen	3.4	0.4	mg/L
Total Phosphorus (as P)	1.06	0.02	mg/L

Sample Description	South Lagoon - During discharge second sample		
Lab ID	717957		
Microbiology	**Result**	**MDL**	**Units**
Escherichia coli	<5	5	CFU/100mL

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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 272924

Sample Description	South Lagoon - During discharge second sample		
Lab ID	717957		
Oxygen Demand	Result	MDL	Units
BOD (5-day)	9.6	5	mg/L

Sample Description	South Lagoon - During discharge second sample		
Lab ID	717957		
Solids	Result	MDL	Units
Total Suspended Solids	18	1	mg/L

LEGEND

Dates: Dates are formatted as mm/dd/year throughout this report.

MDL: Method detection limit or minimum reporting limit.

Quality Control: All associated Quality Control data is available on request.

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BYPASS SUMMARY

NOTIFICATION AND LAB RESULTS

Table 1 BYPASS AND OVERFLOW EVENTS

FACILITY NAME: Glackmeyer Lagoon **YEAR:** 2016

DATE:

Date (dd/mm/yy)	Location	Type (PB/SB/STPO /CSO/SSO/STWO)	Start Time	Duration (hours)	Volume (1,000m3)	M/E	Disinfection (Y/N)	Treatment (Y/N)	Reason Code*	Sample Results BOD5 (mg/L)	SS (mg/L)	TP (mg/L)	E.Coli (/100ml)
13/05/2016	G. Lagoon	STPO	13:45	984	Unknown		N	N	1, 2	26	28	0.762	105

Legend

PB = Primary Bypass
SB = Secondary Bypass
STPO = Sewage Treatment Plant Overflow
CSO = Combined Sewer Overflow
SSO = Sanitary Sewer Overflow
STWO = Satellite Treatment Works Overflow

M = Measured
E = Estimated

Y = Yes
N = No

*Reason Codes:
1 = Heavy Precipitation
2 = Spring Runoff
3 = Infiltration
4 = Mechanical/Equipment Failure
5 = Pipe Failures(break/leak/plugged)
6 = Process Upsets
7 = Power Outages
8 = Unknown
9 = Other, please comment below.

Comments: