

COCHRANE

WATER / WASTE WATER SERVICES



GLACKMEYER LAGOON

2023 ANNUAL REPORT

Reference Index

2023 Annual Report

- A- Annual Performance Report**
- B- Annual Summary**
- C- Discharge Analytical Report**

ANNUAL
PERFORMANCE
REPORT

Annual Performance Report

This report is prepared to comply with Section 9 (5) of the Environmental Compliance Approval Number 1561-ADZNH4, issued February 21, 2017. The report shall contain:

- a) A summary and interpretation of all monitoring data and a comparison to the effluent limits outlined Condition 6, including an overview of the success and adequacy of the Works;

RAW SEWAGE RESULTS

RAW SEWAGE	MONTHLY AVERAGE RESULTS
BOD	174.5 mg/l
SUSPENDED SOLIDS	98.3 mg/l
TOTAL PHOSPHORUS	6.054 mg/l
TKN	59.23 mg/l
AMMONIA	26.9 mg/l
CBOD	157.7 mg/L
pH	7.31 mg/L

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

Test	Prior to Discharge May 9, 2023	Beginning of Discharge May 23, 2023	During Discharge (25%) May 26, 2023	During Discharge (50%) May 28, 2023	During Discharge (75%) May 30, 2023	End of Discharge June 1, 2023
pH	7.78	8.2	7.61	7.9	7.53	7.51
CBOD	3.1	1.1	41	2.4	2.4	6.3
SUSPENDED SOLIDS	15	1.7	130	38.7	8	7.6
PHOSPHORUS	0.354	0.32	1.48	0.427	0.555	1.37
E.Coli	5	1	10	4	2430	2600
Un-Ionized AMMONIA	0.002	0.005	0.002		0.002	0.008
AMMONIA	0.01	0.09	0.01	0.07	0.14	0.43

- b) A description of any operating problems encountered, and corrective actions taken;

None.

- c) A summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the Works;

None.

- d) 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.

- e) A summary of the calibration and maintenance carried out on all effluent monitoring equipment;

The effluent flow meter will be calibrated in 2024.

- f) A description of efforts made and results achieved in meeting the Effluent Objectives of Condition 5.

The attached Data Summary shows the Glackmeyer Lagoon has not exceeded the effluent concentrations for the CBOD (30 mg/l), the Total Suspended Solids (40 mg/L) and the Phosphorus Criteria (1.0mg/L). pH levels (6.5-8.5) were maintained.

- g) A tabulation of the volume of sludge generated in the reporting period, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed;

None.

- h) A summary of any complaints received during the reporting period and any steps taken to address the complaints;

None.

- i) A summary of all by-pass, spills or abnormal discharge events;

None.

- j) A copy of all Notice of Modifications submitted to the Water Supervisor as a result of Schedule B, Section 1, with a status report on the implementation of each modification;

None.

- k) A report summarizing all modifications completed as results of Schedule B, Section 3;

None.

- l) Any other information the Water Supervisor requires from time to time;

None.

This is the report on the Glackmeyer Lagoon for the year 2023. 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,
Melissa Hoogenhoud
Environmental Services and Compliance Supervisor

ANNUAL SUMMARY

Glackmeyer Lagoon / Lab Results														2023		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					
BOD (mg/l)	140	190	325	220	130	8.6	130	230	210	140	170	200	2093.6	174.47	BOD (mg/l)		
SS (mg/l)	71.7	70	215	170	84	11	123	99	136	17.3	110	72.5	1179.5	98.292	SS (mg/l)		
TKN (mg/l)	38.6	62.1	94.4	87.9	37.2	5.9	58.3	129	62.4	49.7	32.8	52.4	710.7	59.225	TKN (mg/l)		
Total P. (mg/l)	4.23	5.8	10.7	8.81	4.31	0.76	6.17	5.55	8.39	8.07	3.54	6.32	72.65	6.0542	Total P. (mg/l)		
Ammonia (mg/l)	10.6	20.2	26.4	59.9	15.5	1.31	34.3	40.4	43.6	39.2	8.2	23.3	322.91	26.909	Ammonia (mg/l)		
CBOD (mg/L)	110	150	327	230	100	7	88	230	170	200	110	170	1892	157.67	CBOD (mg/L)		
Number of Samples	4	3	3	2	1	1		1	1		4	3					
North Lagoon pH					8.2	7.42		7.88	7.83				0	7.8325			
South Lagoon pH								7.32	7.54				0	7.43			
Pumping Station pH	7.54	7.486667	7.423333	7.4	7.62						7.565	7.69	52.725	7.5321			
month	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	TOTAL	AVG.			
Prior To Discharge					May 9/23												
CBOD (mg/l)					3.1								3.1	3.1			
SS (mg/l)					15								15	15			
Ammonia (mg/l)					0.01								0.01	0.01			
pH (mg/l)					7.78								7.78	7.78			
Total P. (mg/l)					0.354								0.354	0.354			
Un-Ionized Ammonia (mg/l)					0.002								0.002	0.002			
E.Coli					5								5	5			
During Discharge					May 23/23 - Prior to discharge	May 26/23 - 25%	May 28/23 - 50%	May 30/23 - 75%	June 1/23 - End								
CBOD (mg/l)					1.1	41	2.4	2.4	6.3				53.2	37.2			
SS (mg/l)					1.7	130	38.7	8	7.6				186	37.2			
Total P. (mg/l)					0.32	1.48	0.427	0.555	1.37				4.152	0.8304			
Ammonia (as N) (mg/l)					0.09	0.01	0.07	0.14	0.43				0.74	0.148			
Un-Ionized Amm (mg/l)					0.005	0.002		0.002	0.008				0.017	0.0043			
pH					8.2	7.61	7.9	7.53	7.51				38.75	7.75			
Temperature					17.8	16.6	18.6	24	27.6				104.6	20.92			
E.Coli (CFU)					1	10	4	2430	2600				5045	1009			

DISCHARGE

ANALYTICAL

REPORTS



CERTIFICATE OF ANALYSIS

Client:	Melissa Hoogenhoud	Work Order Number:	498418
Company:	Town of Cochrane - Wastewater	PO #:	11885
Address:	171 Fourth Ave, Box 490 Cochrane, ON, P0L 1C0	Regulation:	Information not provided
Phone:		Project #:	
Email:	Melissa.Hoogenhoud@cochraneontario.com	DWS #:	
		Sampled By:	Benoit Parent
Date Order Received:	5/9/2023	Analysis Started:	5/10/2023
Arrival Temperature:	15 °C	Analysis Completed:	5/18/2023

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
Northcell-prior to discharge	1877882	Wastewater	Grab		5/9/2023	10:35 AM

METHODS AND INSTRUMENTATION

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

Method	Lab	Description	Reference
Ammonia Water (A42)	Timmins	Determination of Ammonia/Ammonium in Water	Modified from EPA 350.1
CBOD (A3)	Kirkland Lake	Determination of Carbonaceous Biochemical Oxygen Demand (CBOD) 5-Day.	Modified from SM-5210-B
E.coli by MF on mFC-BCIG (A10)	Timmins	Determination of E. coli in water by Membrane Filtration on mFC-BCIG media	Modified from MOE E3371
Field pH (R112)	Timmins	Client Supplied Field Determination of pH of Water	Field Test
Field Temp (R113)	Timmins	Client Supplied Field Determination of Temperature of Water	Field Test
pH of Water (A2.0)	Timmins	Determination of Water pH by Ion Selective Electrode	Modified from APHA-4500H+ B
Received Temperature (A113)	Timmins	Temperature of Sample Upon Receipt	In House
TP Water (A23.2)	Kirkland Lake	Determination of Total Phosphorus in Water.	Modified from EPA 365.3 and ESS 310.2,
TSS (A27)	Timmins	Determination of Total Suspended Solids in water by gravimetry	Modified from SM-2540
Un-ionized NH3 (A42.4)	Timmins	Calculation of Un-ionized Ammonia, based on Client Field pH and Temperature	Modified from APHA-4500



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 498418

This report has been approved by:

Adam Tam, M.Sc.
Laboratory Director



CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 498418

WORK ORDER RESULTS

Sample Description	Northcell - prior to discharge		
Sample Date	5/9/2023 10:35 AM		
Lab ID	1877882		
Field Parameters	Result	MDL	Units
Field pH	7.62	N/A	pH
Field Temp	19.2	N/A	°C

Sample Description	Northcell - prior to discharge		
Sample Date	5/9/2023 10:35 AM		
Lab ID	1877882		
General Chemistry	Result	MDL	Units
Ammonia (as N)	<0.01	0.01	mg/L
pH	7.78	N/A	pH
Total Phosphorus (as P)	0.354	0.002	mg/L
Un-ionized Ammonia (Calc.)	<0.002	0.002	mg/L

Sample Description	Northcell - prior to discharge		
Sample Date	5/9/2023 10:35 AM		
Lab ID	1877882		
Microbiology	Result	MDL	Units
Escherichia coli	<5	5	CFU/100mL



CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 498418

Sample Description	Northcell - prior to discharge		
Sample Date	5/9/2023 10:35 AM		
Lab ID	1877882		
Oxygen Demand	Result	MDL	Units
Carbonaceous BOD	3.1	1	mg/L

Sample Description	Northcell - prior to discharge		
Sample Date	5/9/2023 10:35 AM		
Lab ID	1877882		
Received Temperature	Result	MDL	Units
Received Temperature	15	N/A	°C

Sample Description	Northcell - prior to discharge		
Sample Date	5/9/2023 10:35 AM		
Lab ID	1877882		
Solids	Result	MDL	Units
Total Suspended Solids	15.00	0.67	mg/L



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 498418

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.

Field Data: Reports containing Field Parameters represent data that has been collected and provided by the client. Testmark is not responsible for the validity of this data which may be used in subsequent calculations.

Sample Condition Deviations: A noted sample condition deviation may affect the validity of the result. Results apply to the sample(s) as received.

Reproduction of Report: Report shall not be reproduced, except in full, without the approval of Testmark Laboratories Ltd.

ICPMS Dustfall Insoluble: The ICPMS Dustfall Insoluble Portion method analyzes only the particulate matter from the Dustfall Sampler which is retained on the analysis filter during the Dustfall method.

Regulation Comparisons: Disclaimer: Please note that regulation criteria are provided for comparative purposes, however the onus on ensuring the validity of this comparison rests with the client.



CERTIFICATE OF ANALYSIS

Client:	Melissa Hoogenhoud	Work Order Number:	499950
Company:	Town of Cochrane - Wastewater	PO #:	11885
Address:	171 Fourth Ave, Box 490 Cochrane, ON, P0L 1C0	Regulation:	Information not provided
Phone:	(705) 272-9093	Project #:	Discharge
Email:	Melissa.Hoogenhoud@cochraneontario.com	DWS #:	
		Sampled By:	Benoit Parent
Date Order Received:	5/23/2023	Analysis Started:	5/23/2023
Arrival Temperature:	16 °C	Analysis Completed:	5/30/2023

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
North Lagoon - 0% Discharge	1883134	Wastewater	Grab		5/23/2023	9:08 AM

METHODS AND INSTRUMENTATION

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

Method	Lab	Description	Reference
Ammonia Water (A42)	Timmins	Determination of Ammonia/Ammonium in Water	Modified from EPA 350.1
CBOD (A3)	Kirkland Lake	Determination of Carbonaceous Biochemical Oxygen Demand (CBOD) 5-Day.	Modified from SM-5210-B
E.coli by MF on mFC-BCIG (A10)	Timmins	Determination of E. coli in water by Membrane Filtration on mFC-BCIG media	Modified from MOE E3371
Field pH (R112)	Timmins	Client Supplied Field Determination of pH of Water	Field Test
Field Temp (R113)	Timmins	Client Supplied Field Determination of Temperature of Water	Field Test
pH of Water (A2.0)	Timmins	Determination of Water pH by Ion Selective Electrode	Modified from APHA-4500H+ B
Received Temperature (A113)	Timmins	Temperature of Sample Upon Receipt	In House
TP Water (A23.2)	Kirkland Lake	Determination of Total Phosphorus in Water.	Modified from EPA 365.3 and ESS 310.2,
TSS (A27)	Timmins	Determination of Total Suspended Solids in water by gravimetry	Modified from SM-2540
Un-ionized NH ₃ (A42.4)	Timmins	Calculation of Un-ionized Ammonia, based on Client Field pH and Temperature	Modified from APHA-4500



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 499950

REPORT COMMENTS

Bacti lot# 2230

This report has been approved by:

Adam Tam, M.Sc.
Laboratory Director



CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 499950

WORK ORDER RESULTS

Sample Description	North Lagoon - 0% Discharge		
Sample Date	5/23/2023 9:08 AM		
Lab ID	1883134		
Field Parameters	Result	MDL	Units
Field pH	8.2	N/A	pH
Field Temp	17.8	N/A	°C

Sample Description	North Lagoon - 0% Discharge		
Sample Date	5/23/2023 9:08 AM		
Lab ID	1883134		
General Chemistry	Result	MDL	Units
Ammonia (as N)	0.09	0.01	mg/L
pH	7.85	N/A	pH
Total Phosphorus (as P)	0.320	0.002	mg/L
Un-ionized Ammonia (Calc.)	0.005	0.002	mg/L

Sample Description	North Lagoon - 0% Discharge		
Sample Date	5/23/2023 9:08 AM		
Lab ID	1883134		
Microbiology	Result	MDL	Units
Escherichia coli	1	1	CFU/100mL



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 499950

Sample Description	North Lagoon - 0% Discharge		
Sample Date	5/23/2023 9:08 AM		
Lab ID	1883134		
Oxygen Demand	Result	MDL	Units
Carbonaceous BOD	1.1	0.5	mg/L

Sample Description	North Lagoon - 0% Discharge		
Sample Date	5/23/2023 9:08 AM		
Lab ID	1883134		
Received Temperature	Result	MDL	Units
Received Temperature	16	N/A	°C

Sample Description	North Lagoon - 0% Discharge		
Sample Date	5/23/2023 9:08 AM		
Lab ID	1883134		
Solids	Result	MDL	Units
Total Suspended Solids	1.70	0.67	mg/L



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 499950

LEGEND

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MDL: Method detection limit or minimum reporting limit.

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Regulation Comparisons: Disclaimer: Please note that regulation criteria are provided for comparative purposes, however the onus on ensuring the validity of this comparison rests with the client.



CERTIFICATE OF ANALYSIS

Client:	Melissa Hoogenhoud	Work Order Number:	500497
Company:	Town of Cochrane - Wastewater	PO #:	11885
Address:	171 Fourth Ave, Box 490 Cochrane, ON, P0L 1C0	Regulation:	Information not provided
Phone:	(705) 272-9093	Project #:	Discharge
Email:	Melissa.Hoogenhoud@cochraneontario.com	DWS #:	
		Sampled By:	Benoit Parent
Date Order Received:	5/26/2023	Analysis Started:	5/26/2023
Arrival Temperature:	20 °C	Analysis Completed:	6/5/2023

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
North Lagoon - 25% Discharge	1885218	Wastewater	Grab		5/26/2023	8:47 AM

METHODS AND INSTRUMENTATION

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

Method	Lab	Description	Reference
Ammonia Water (A42)	Timmins	Determination of Ammonia/Ammonium in Water	Modified from EPA 350.1
CBOD (A3)	Kirkland Lake	Determination of Carbonaceous Biochemical Oxygen Demand (CBOD) 5-Day.	Modified from SM-5210-B
E.coli by MF on mFC-BCIG (A10)	Timmins	Determination of E. coli in water by Membrane Filtration on mFC-BCIG media	Modified from MOE E3371
Field pH (R112)	Timmins	Client Supplied Field Determination of pH of Water	Field Test
Field Temp (R113)	Timmins	Client Supplied Field Determination of Temperature of Water	Field Test
pH of Water (A2.0)	Timmins	Determination of Water pH by Ion Selective Electrode	Modified from APHA-4500H+ B
Received Temperature (A113)	Timmins	Temperature of Sample Upon Receipt	In House
TP Water (A23.2)	Kirkland Lake	Determination of Total Phosphorus in Water.	Modified from EPA 365.3 and ESS 310.2,
TSS (A27)	Timmins	Determination of Total Suspended Solids in water by gravimetry	Modified from SM-2540
Un-ionized NH3 (A42.4)	Timmins	Calculation of Un-ionized Ammonia, based on Client Field pH and Temperature	Modified from APHA-4500



TESTMARK Laboratories Ltd.

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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 500497

REPORT COMMENTS

Bacti lot# 2230

This report has been approved by:

Adam Tam, M.Sc.
Laboratory Director



CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 500497

WORK ORDER RESULTS

Sample Description	North Lagoon - 25% Discharge		
Sample Date	5/26/2023 8:47 AM		
Lab ID	1885218		
Field Parameters	Result	MDL	Units
Field pH	8.12	N/A	pH
Field Temp	16.6	N/A	°C

Sample Description	North Lagoon - 25% Discharge		
Sample Date	5/26/2023 8:47 AM		
Lab ID	1885218		
General Chemistry	Result	MDL	Units
Ammonia (as N)	<0.01	0.01	mg/L
pH	7.61	N/A	pH
Total Phosphorus (as P)	1.48	0.02	mg/L
Un-ionized Ammonia (Calc.)	<0.002	0.002	mg/L

Sample Description	North Lagoon - 25% Discharge		
Sample Date	5/26/2023 8:47 AM		
Lab ID	1885218		
Microbiology	Result	MDL	Units
Escherichia coli	<10 [<10]	10	CFU/100mL



CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 500497

Sample Description	North Lagoon - 25% Discharge		
Sample Date	5/26/2023 8:47 AM		
Lab ID	1885218		
Oxygen Demand	Result	MDL	Units
Carbonaceous BOD	41	6	mg/L

Sample Description	North Lagoon - 25% Discharge		
Sample Date	5/26/2023 8:47 AM		
Lab ID	1885218		
Received Temperature	Result	MDL	Units
Received Temperature	20	N/A	°C

Sample Description	North Lagoon - 25% Discharge		
Sample Date	5/26/2023 8:47 AM		
Lab ID	1885218		
Solids	Result	MDL	Units
Total Suspended Solids	130	4	mg/L



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 500497

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.

Field Data: Reports containing Field Parameters represent data that has been collected and provided by the client. Testmark is not responsible for the validity of this data which may be used in subsequent calculations.

Sample Condition Deviations: A noted sample condition deviation may affect the validity of the result. Results apply to the sample(s) as received.

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ICPMS Dustfall Insoluble: The ICPMS Dustfall Insoluble Portion method analyzes only the particulate matter from the Dustfall Sampler which is retained on the analysis filter during the Dustfall method.

Regulation Comparisons: Disclaimer: Please note that regulation criteria are provided for comparative purposes, however the onus on ensuring the validity of this comparison rests with the client.



CERTIFICATE OF ANALYSIS

Client:	Melissa Hoogenhoud	Work Order Number:	500593
Company:	Town of Cochrane - Wastewater	PO #:	11885
Address:	171 Fourth Ave, Box 490 Cochrane, ON, P0L 1C0	Regulation:	Information not provided
Phone:	(705) 272-9093	Project #:	Discharge
Email:	Melissa.Hoogenhoud@cochraneontario.com	DWS #:	
		Sampled By:	Joel Robin
Date Order Received:	5/29/2023	Analysis Started:	5/29/2023
Arrival Temperature:	16 °C	Analysis Completed:	6/5/2023

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
North Lagoon - 50% Discharge	1885590	Wastewater	Grab		5/28/2023	6:30 PM

METHODS AND INSTRUMENTATION

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

Method	Lab	Description	Reference
Ammonia Water (A42)	Timmins	Determination of Ammonia/Ammonium in Water	Modified from EPA 350.1
CBOD (A3)	Kirkland Lake	Determination of Carbonaceous Biochemical Oxygen Demand (CBOD) 5-Day.	Modified from SM-5210-B
E.coli by MF on mFC-BCIG (A10)	Timmins	Determination of E. coli in water by Membrane Filtration on mFC-BCIG media	Modified from MOE E3371
Field pH (R112)	Timmins	Client Supplied Field Determination of pH of Water	Field Test
Field Temp (R113)	Timmins	Client Supplied Field Determination of Temperature of Water	Field Test
pH of Water (A2.0)	Timmins	Determination of Water pH by Ion Selective Electrode	Modified from APHA-4500H+ B
Received Temperature (A113)	Timmins	Temperature of Sample Upon Receipt	In House
TP Water (A23.2)	Kirkland Lake	Determination of Total Phosphorus in Water.	Modified from EPA 365.3 and ESS 310.2,
TSS (A27)	Timmins	Determination of Total Suspended Solids in water by gravimetry	Modified from SM-2540

REPORT COMMENTS

Bacti Lot # 2230



TESTMARK Laboratories Ltd.

Committed to Quality and Service

CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 500593

This report has been approved by:

Adam Tam, M.Sc.
Laboratory Director



CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 500593

WORK ORDER RESULTS

Sample Description	North Lagoon - 50% Discharge		
Sample Date	5/28/2023 6:30 PM		
Lab ID	1885590		
Field Parameters	Result	MDL	Units
Field pH	7.69	N/A	pH
Field Temp	18.6	N/A	°C

Sample Description	North Lagoon - 50% Discharge		
Sample Date	5/28/2023 6:30 PM		
Lab ID	1885590		
General Chemistry	Result	MDL	Units
Ammonia (as N)	0.07	0.01	mg/L
pH	7.9	N/A	pH
Total Phosphorus (as P)	0.427	0.002	mg/L

Sample Description	North Lagoon - 50% Discharge		
Sample Date	5/28/2023 6:30 PM		
Lab ID	1885590		
Microbiology	Result	MDL	Units
Escherichia coli	4 [6]	2	CFU/100mL



CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 500593

Sample Description	North Lagoon - 50% Discharge		
Sample Date	5/28/2023 6:30 PM		
Lab ID	1885590		
Oxygen Demand	Result	MDL	Units
Carbonaceous BOD	2.4	1	mg/L

Sample Description	North Lagoon - 50% Discharge		
Sample Date	5/28/2023 6:30 PM		
Lab ID	1885590		
Received Temperature	Result	MDL	Units
Received Temperature	16	N/A	°C

Sample Description	North Lagoon - 50% Discharge		
Sample Date	5/28/2023 6:30 PM		
Lab ID	1885590		
Solids	Result	MDL	Units
Total Suspended Solids	38.70	0.67	mg/L



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 500593

LEGEND

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

MDL: Method detection limit or minimum reporting limit.

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Regulation Comparisons: Disclaimer: Please note that regulation criteria are provided for comparative purposes, however the onus on ensuring the validity of this comparison rests with the client.



CERTIFICATE OF ANALYSIS

Client:	Michael Nelson	Work Order Number:	500833
Company:	Town of Cochrane - Wastewater	PO #:	11885
Address:	171 Fourth Ave, Box 490 Cochrane, ON, P0L 1C0	Regulation:	Information not provided
Phone:	(705) 272-9093	Project #:	Discharge
Email:	michael.nelson@cochraneontario.com	DWS #:	
		Sampled By:	Benoit Parent
Date Order Received:	5/30/2023	Analysis Started:	5/30/2023
Arrival Temperature:	26 °C	Analysis Completed:	6/8/2023

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
North Lagoon - 75% Discharge	1886501	Wastewater	Grab		5/30/2023	10:30 AM

METHODS AND INSTRUMENTATION

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

Method	Lab	Description	Reference
Ammonia Water (A42)	Timmins	Determination of Ammonia/Ammonium in Water	Modified from EPA 350.1
CBOD (A3)	Kirkland Lake	Determination of Carbonaceous Biochemical Oxygen Demand (CBOD) 5-Day.	Modified from SM-5210-B
E.coli by MF on mFC-BCIG (A10)	Timmins	Determination of E. coli in water by Membrane Filtration on mFC-BCIG media	Modified from MOE E3371
Field pH (R112)	Timmins	Client Supplied Field Determination of pH of Water	Field Test
Field Temp (R113)	Timmins	Client Supplied Field Determination of Temperature of Water	Field Test
pH of Water (A2.0)	Timmins	Determination of Water pH by Ion Selective Electrode	Modified from APHA-4500H+ B
Received Temperature (A113)	Timmins	Temperature of Sample Upon Receipt	In House
TP Water (A23.2)	Kirkland Lake	Determination of Total Phosphorus in Water.	Modified from EPA 365.3 and ESS 310.2,
TSS (A27)	Timmins	Determination of Total Suspended Solids in water by gravimetry	Modified from SM-2540
Un-ionized NH ₃ (A42.4)	Timmins	Calculation of Un-ionized Ammonia, based on Client Field pH and Temperature	Modified from APHA-4500



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 500833

REPORT COMMENTS

Bacti Lot #2230

This report has been approved by:

Adam Tam, M.Sc.
Laboratory Director



CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 500833

WORK ORDER RESULTS

Sample Description	North Lagoon - 75% Discharge		
Sample Date	5/30/2023 10:30 AM		
Lab ID	1886501		
Field Parameters	Result	MDL	Units
Field pH	7.26	N/A	pH
Field Temp	24	N/A	°C

Sample Description	North Lagoon - 75% Discharge		
Sample Date	5/30/2023 10:30 AM		
Lab ID	1886501		
General Chemistry	Result	MDL	Units
Ammonia (as N)	0.14	0.01	mg/L
pH	7.53	N/A	pH
Total Phosphorus (as P)	0.555	0.002	mg/L
Un-ionized Ammonia (Calc.)	<0.002	0.002	mg/L

Sample Description	North Lagoon - 75% Discharge		
Sample Date	5/30/2023 10:30 AM		
Lab ID	1886501		
Microbiology	Result	MDL	Units
Escherichia coli	2430 [2600]	5	CFU/100mL



CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 500833

Sample Description	North Lagoon - 75% Discharge		
Sample Date	5/30/2023 10:30 AM		
Lab ID	1886501		
Oxygen Demand	Result	MDL	Units
Carbonaceous BOD	2.4	1	mg/L

Sample Description	North Lagoon - 75% Discharge		
Sample Date	5/30/2023 10:30 AM		
Lab ID	1886501		
Received Temperature	Result	MDL	Units
Received Temperature	26	N/A	°C

Sample Description	North Lagoon - 75% Discharge		
Sample Date	5/30/2023 10:30 AM		
Lab ID	1886501		
Solids	Result	MDL	Units
Total Suspended Solids	8.00	0.67	mg/L



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 500833

LEGEND

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CERTIFICATE OF ANALYSIS

Client:	Melissa Hoogenhoud	Work Order Number:	501192
Company:	Town of Cochrane - Wastewater	PO #:	11885
Address:	171 Fourth Ave, Box 490 Cochrane, ON, P0L 1C0	Regulation:	Information not provided
Phone:		Project #:	Discharge
Email:	Melissa.Hoogenhoud@cochraneontario.com	DWS #:	
		Sampled By:	Benoit Parent
Date Order Received:	6/1/2023	Analysis Started:	6/1/2023
Arrival Temperature:	17 °C	Analysis Completed:	6/8/2023

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
North Lagoon - 100% Discharge	1887698	Wastewater	Grab		6/1/2023	1:00 PM

METHODS AND INSTRUMENTATION

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

Method	Lab	Description	Reference
Ammonia Water (A42)	Timmins	Determination of Ammonia/Ammonium in Water	Modified from EPA 350.1
CBOD (A3)	Kirkland Lake	Determination of Carbonaceous Biochemical Oxygen Demand (CBOD) 5-Day.	Modified from SM-5210-B
E.coli by MF on mFC-BCIG (A10)	Timmins	Determination of E. coli in water by Membrane Filtration on mFC-BCIG media	Modified from MOE E3371
Field pH (R112)	Timmins	Client Supplied Field Determination of pH of Water	Field Test
Field Temp (R113)	Timmins	Client Supplied Field Determination of Temperature of Water	Field Test
pH of Water (A2.0)	Timmins	Determination of Water pH by Ion Selective Electrode	Modified from APHA-4500H+ B
Received Temperature (A113)	Timmins	Temperature of Sample Upon Receipt	In House
TP Water (A23.2)	Kirkland Lake	Determination of Total Phosphorus in Water.	Modified from EPA 365.3 and ESS 310.2,
TSS (A27)	Timmins	Determination of Total Suspended Solids in water by gravimetry	Modified from SM-2540
Un-ionized NH3 (A42.4)	Timmins	Calculation of Un-ionized Ammonia, based on Client Field pH and Temperature	Modified from APHA-4500



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 501192

REPORT COMMENTS

Bacti Lot #2230

Bacti Temperature over 10 degrees Celsius

This report has been approved by:

Adam Tam, M.Sc.

Laboratory Director



CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 501192

WORK ORDER RESULTS

Sample Description	North Lagoon - 100% Discharge		
Sample Date	6/1/2023 1:00 PM		
Lab ID	1887698		
Field Parameters	Result	MDL	Units
Field pH	7.42	N/A	pH
Field Temp	27.6	N/A	°C

Sample Description	North Lagoon - 100% Discharge		
Sample Date	6/1/2023 1:00 PM		
Lab ID	1887698		
General Chemistry	Result	MDL	Units
Ammonia (as N)	0.43	0.01	mg/L
pH	7.51	N/A	pH
Total Phosphorus (as P)	1.370	0.006	mg/L
Un-ionized Ammonia (Calc.)	0.008	0.002	mg/L

Sample Description	North Lagoon - 100% Discharge		
Sample Date	6/1/2023 1:00 PM		
Lab ID	1887698		
Microbiology	Result	MDL	Units
Escherichia coli	27600 [30700]	100	CFU/100mL



CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 501192

Sample Description	North Lagoon - 100% Discharge		
Sample Date	6/1/2023 1:00 PM		
Lab ID	1887698		
Oxygen Demand	Result	MDL	Units
Carbonaceous BOD	6.3	1	mg/L

Sample Description	North Lagoon - 100% Discharge		
Sample Date	6/1/2023 1:00 PM		
Lab ID	1887698		
Received Temperature	Result	MDL	Units
Received Temperature	17	N/A	°C

Sample Description	North Lagoon - 100% Discharge		
Sample Date	6/1/2023 1:00 PM		
Lab ID	1887698		
Solids	Result	MDL	Units
Total Suspended Solids	76	2	mg/L



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 501192

LEGEND

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