

COCHRANE

WATER / WASTE WATER SERVICES



GLACKMEYER LAGOON

2021 ANNUAL REPORT

Reference Index

2021 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	98.83 mg/l
SUSPENDED SOLIDS	102.1 mg/l
TOTAL PHOSPHORUS	34.18 mg/l
TKN	4.197 mg/l
AMMONIA	26.73 mg/l
CBOD	96.12 mg/L
pH	7.70 mg/L

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

Test	Prior to Discharge April 26, 2021	Beginning of Discharge May 10, 2021	During Discharge (25%) May 12, 2021	During Discharge (50%) May 14, 2021	During Discharge (75%) May 18, 2021	End of Discharge May 27, 2021
pH	8.78	8.68	8.65	8.68	8.12	8.23
CBOD	3.3	6.1	5.1	4	6.9	3.5
SUSPENDED SOLIDS	19	22.7	21.3	9.67	20	32
PHOSPHORUS	0.301	0.503	0.385	.311	1.46	1.13
E.Coli	2	0	0	3	0	3
Un-Ionized AMMONIA	0.005	0.014	0.008	0.026	0.022	0.684
AMMONIA	0.03	0.08	0.04	0.1	0.14	2.55

- 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 2022.

- 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 2021. 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
Asset Coordinator

ANNUAL SUMMARY

Glackmeyer Lagoon / Lab Results													2021				ID: 120002068	
month	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	TOTAL	AVG.				
Number of Samples																		
BOD (mg/l)	73.5	120	170	57	46	3.7	110	150	120	65.7	120	150	1185.9	98.825	BOD (mg/l)			
SS (mg/l)	132	110	82	58.9	61.4	223	149	86	82	57.3	90	94	1225.6	102.13	SS (mg/l)			
TKN (mg/l)	45.7	45.2	58.1	16.6	19.6	41.3	33.4	29.2	29.8	19.2	27.4	44.6	410.1	34.175	TKN (mg/l)			
Total P. (mg/l)	5.59	5.6	5.67	1.9	2.7	7.6	4	3.94	3.08	2.46	3.36	4.46	50.36	4.1967	Total P. (mg/l)			
Ammonia (mg/l)	34.7	34	45	13.2	14.6	29.4	26	25.7	22.2	17.3	23.5	35.1	320.7	26.725	Ammonia (mg/l)			
CBOD (mg/L)	74.1	110	170	51	32	160	1.6	120	92	62.7	120	160	1153.4	96.117	CBOD (mg/L)			
Number of Samples	4	4	4	5	4	4	4	5	3	5	4	2						
North Lagoon pH						4	7.96	7.99	7.74	7.68	7.65		15.33	7.945				
South Lagoon pH						1	7.64	7.52	7.43	7.45	7.56		15.01	7.5083				
Pumping Station pH	7.82	7.765	7.78	7.57	7.75	8.18	7.41	7.42	7.67	7.646	7.625	7.71	92.346	7.6955				
month	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	TOTAL	AVG.				
Prior To Discharge				26-Apr-21														
CBOD (mg/l)				3.3									3.3	3.3				
SS (mg/l)				19									19	19				
Ammonia (mg/l)				0.03									0.03	0.03				
pH (mg/l)				8.78									8.78	8.78				
Total P. (mg/l)				0.301									0.301	0.301				
h-Ionized Ammonia (mg/l)				0.005									0.005	0.005				
E.Coli				2									2	2				
During Discharge					Beginning 10-May-21	12-May-21 25%	14-May-21 50%	18-May-21 75%	27-May-21 End of Discharge									
CBOD (mg/l)					6.1	5.1	4	6.9	3.5				25.6	5.12				
SS (mg/l)					22.7	21.3	9.67	20	32				105.67	21.134				
Total P. (mg/l)					0.503	0.385	0.311	1.46	1.13				3.789	0.7578				
Ammonia (as N) (mg/l)					0.08	0.04	0.1	0.14	2.55				2.91	0.582				
Un-Ionized Amm (mg/l)					0.014	0.008	0.026	0.022	0.684				0.754	0.1508				
pH					8.68	8.65	8.68	8.12	8.23				42.36	8.472				
Temperature					9.17	9.21	9.07	9.06	9.36				45.87	9.174				
E.Coli (CFU)					0	0	3	0	3				6	1.2				

DISCHARGE

ANALYTICAL

REPORTS



TESTMARK Laboratories Ltd.

Committed to Quality and Service

CERTIFICATE OF ANALYSIS

Client:	Melissa Hoogenhoud	Work Order Number:	428312
Company:	Town of Cochrane - Wastewater	PO #:	
Address:	171 Fourth Ave, Box 490 Cochrane, ON, P0L 1C0	Regulation:	Information not provided
Phone/Fax:	(705) 272-4232 / (705) 272-2634	Project #:	
Email:	Melissa.Hoogenhoud@cochraneontario.com	DWS #:	
		Sampled By:	Mike Nelson
Date Order Received:	4/26/2021	Analysis Started:	4/26/2021
Arrival Temperature:	16 °C	Analysis Completed:	5/4/2021

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 prior to discharge	1635825	Wastewater	Grab		4/26/2021	8:00 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).	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	Modified from APHA-4500



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 428312

This report has been approved by:

Adam Tam, M.Sc.
Laboratory Director



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 428312

WORK ORDER RESULTS

North Lagoon prior to discharge			
Sample Description	Result	MDL	Units
Sample Date	4/26/2021 8:00 AM	N/A	pH
Lab ID	1635825	N/A	°C
Field pH	9.16		
Field Temp	7.3		

North Lagoon prior to discharge			
Sample Description	Result	MDL	Units
Sample Date	4/26/2021 8:00 AM		
Lab ID	1635825		
General Chemistry			
Ammonia (as N)	0.03	0.01	mg/L
pH	8.78	N/A	pH
Total Phosphorus (as P)	0.301	0.002	mg/L
Un-ionized Ammonia (Calc.)	0.005	0.002	mg/L

North Lagoon prior to discharge			
Sample Description	Result	MDL	Units
Sample Date	4/26/2021 8:00 AM		
Lab ID	1635825		
Microbiology			
Escherichia coli	2	1	CFU/100mL



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Town of Cochrane - Wastewater

Work Order Number: 428312

North Lagoon prior to discharge			
Sample Description			
Sample Date	4/26/2021 8:00 AM		
Lab ID	1635825		
Oxygen Demand	Result	MDL	Units
Carbonaceous BOD	3.3	0.5	mg/L

North Lagoon prior to discharge			
Sample Description			
Sample Date	4/26/2021 8:00 AM		
Lab ID	1635825		
Received Temperature	Result	MDL	Units
Received Temperature	16	N/A	°C

North Lagoon prior to discharge			
Sample Description			
Sample Date	4/26/2021 8:00 AM		
Lab ID	1635825		
Solids	Result	MDL	Units
Total Suspended Solids	19	1	mg/L



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 428312

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.



CERTIFICATE OF ANALYSIS

Client:	Melissa Hoogenhoud	Work Order Number:	429731
Company:	Town of Cochrane - Wastewater	PO #:	
Address:	171 Fourth Ave, Box 490 Cochrane, ON, P0L 1C0	Regulation:	Information not provided
Phone/Fax:	(705) 272-4232 / (705) 272-2634	Project #:	Discharge
Email:	Melissa.Hoogenhoud@cochraneontario.com	DWS #:	
		Sampled By:	Mike Nelson
Date Order Received:	5/11/2021	Analysis Started:	5/11/2021
Arrival Temperature:	18 °C	Analysis Completed:	5/19/2021

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	1640980	Wastewater	Grab		5/10/2021	11:45 AM

METHODS AND INSTRUMENTATION

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

Method	Lab	Description	Reference
Ammonia Water (A42)	Timmins	Determination of Ammonial/Ammonium in Water	Modified from EPA 350.1
CBOD (A3)	Kirkland Lake	Determination of Carbonaceous Biochemical Oxygen Demand (CBOD).	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	Modified from APHA-4500



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 429731

This report has been approved by:

Adam Tam, M.Sc.
Laboratory Director



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 429731

WORK ORDER RESULTS

North Lagoon - 0% Discharge			
Sample Description	North Lagoon - 0% Discharge		
Sample Date	5/10/2021 11:45 AM		
Lab ID	1640980		
Field Parameters	Result	MDL	Units
Field pH	9.17	N/A	pH
Field Temp	7.48	N/A	°C

North Lagoon - 0% Discharge			
Sample Description	North Lagoon - 0% Discharge		
Sample Date	5/10/2021 11:45 AM		
Lab ID	1640980		
General Chemistry	Result	MDL	Units
Ammonia (as N)	0.08	0.01	mg/L
pH	8.68	N/A	pH
Total Phosphorus (as P)	0.503	0.002	mg/L
Un-ionized Ammonia (Calc.)	0.014	0.002	mg/L

North Lagoon - 0% Discharge			
Sample Description	North Lagoon - 0% Discharge		
Sample Date	5/10/2021 11:45 AM		
Lab ID	1640980		
Microbiology	Result	MDL	Units
Escherichia coli	0	1	CFU/100mL



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 429731

North Lagoon - 0% Discharge			
Sample Description			
Sample Date	5/10/2021 11:45 AM		
Lab ID	1640980		
Oxygen Demand	Result	MDL	Units
Carbonaceous BOD	6.1	0.5	mg/L

North Lagoon - 0% Discharge			
Sample Description			
Sample Date	5/10/2021 11:45 AM		
Lab ID	1640980		
Received Temperature	Result	MDL	Units
Received Temperature	18	N/A	°C

North Lagoon - 0% Discharge			
Sample Description			
Sample Date	5/10/2021 11:45 AM		
Lab ID	1640980		
Solids	Result	MDL	Units
Total Suspended Solids	22.70	0.67	mg/L



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Town of Cochrane - Wastewater

Work Order Number: 429731

LEGEND

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

MDL: Method detection limit or minimum reporting limit.

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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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<p>Client: Melissa Hoogenhoud Company: Town of Cochrane - Wastewater Address: 171 Fourth Ave, Box 490 Cochrane, ON, P0L 1C0 Phone/Fax: (705) 272-4232 / (705) 272-2634 Email: Melissa.Hoogenhoud@cochraneontario.com</p>	<p>Work Order Number: 429924 PO #: Information not provided Regulation: Discharge Project #: Mike Nelson DWS #: Mike Nelson Sampled By:</p>
<p>Date Order Received: 5/12/2021 Arrival Temperature: 21 °C</p>	<p>Analysis Started: 5/12/2021 Analysis Completed: 5/20/2021</p>

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	1641618	Wastewater	Grab		5/12/2021	8:30 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).	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	Modified from APHA-4500



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 429924

This report has been approved by:

Adam Tam, M.Sc.
Laboratory Director



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 429924

WORK ORDER RESULTS

North Lagoon - 25% Discharge			
Sample Description	North Lagoon - 25% Discharge		
Sample Date	5/12/2021 8:30 AM		
Lab ID	1641618		
Field Parameters	Result	MDL	Units
Field pH	9.21	N/A	pH
Field Temp	7.55	N/A	°C

North Lagoon - 25% Discharge			
Sample Description	North Lagoon - 25% Discharge		
Sample Date	5/12/2021 8:30 AM		
Lab ID	1641618		
General Chemistry	Result	MDL	Units
Ammonia (as N)	0.04	0.01	mg/L
pH	8.65	N/A	pH
Total Phosphorus (as P)	0.385	0.002	mg/L
Un-Ionized Ammonia (Calc.)	0.008	0.002	mg/L

North Lagoon - 25% Discharge			
Sample Description	North Lagoon - 25% Discharge		
Sample Date	5/12/2021 8:30 AM		
Lab ID	1641618		
Microbiology	Result	MDL	Units
Escherichia coli	0	1	CFU/100mL



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Town of Cochrane - Wastewater

Work Order Number: 429924

North Lagoon - 25% Discharge			
Sample Description			
Sample Date	5/12/2021 8:30 AM		
Lab ID	1641618		
Oxygen Demand	Result	MDL	Units
Carbonaceous BOD	5.1	0.5	mg/L

North Lagoon - 25% Discharge			
Sample Description			
Sample Date	5/12/2021 8:30 AM		
Lab ID	1641618		
Received Temperature	Result	MDL	Units
Received Temperature	21	N/A	°C

North Lagoon - 25% Discharge			
Sample Description			
Sample Date	5/12/2021 8:30 AM		
Lab ID	1641618		
Solids	Result	MDL	Units
Total Suspended Solids	21.30	0.67	mg/L



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 429924

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.



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CERTIFICATE OF ANALYSIS

Client:	Melissa Hoogenhoud	Work Order Number:	430132
Company:	Town of Cochrane - Wastewater	PO #:	
Address:	171 Fourth Ave, Box 490 Cochrane, ON, P0L 1C0	Regulation:	Information not provided
Phone/Fax:	(705) 272-4232 / (705) 272-2634	Project #:	Discharge
Email:	Melissa.Hoogenhoud@cochraneontario.com	DWS #:	
Date Order Received:	5/14/2021	Sampled By:	Mike Nelson
Arrival Temperature:	18 °C	Analysis Started:	5/14/2021
		Analysis Completed:	5/24/2021

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	1642360	Wastewater	Grab		5/14/2021	10:00 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).	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	Modified from APHA-4500



TESTMARK Laboratories Ltd.

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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 430132

This report has been approved by:

Adam Tam, M.Sc.
Laboratory Director



TESTMARK Laboratories Ltd.

Committed to Quality and Service

CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 430132

WORK ORDER RESULTS

North Lagoon - 50% Discharge			
Sample Description	North Lagoon - 50% Discharge		
Sample Date	5/14/2021 10:00 AM		
Lab ID	1642360		
Field Parameters	Result	MDL	Units
Field pH	9.07	N/A	pH
Field Temp	16	N/A	°C

North Lagoon - 50% Discharge			
Sample Description	North Lagoon - 50% Discharge		
Sample Date	5/14/2021 10:00 AM		
Lab ID	1642360		
General Chemistry	Result	MDL	Units
Ammonia (as N)	0.10	0.01	mg/L
pH	8.68	N/A	pH
Total Phosphorus (as P)	0.311	0.002	mg/L
Un-ionized Ammonia (Calc.)	0.026	0.002	mg/L

North Lagoon - 50% Discharge			
Sample Description	North Lagoon - 50% Discharge		
Sample Date	5/14/2021 10:00 AM		
Lab ID	1642360		
Microbiology	Result	MDL	Units
Escherichia coli	2 [3]	1	CFU/100mL



TESTMARK Laboratories Ltd.

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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 430132

North Lagoon - 50% Discharge			
Sample Description			
Sample Date	5/14/2021 10:00 AM		
Lab ID	1642360		
Oxygen Demand	Result	MDL	Units
Carbonaceous BOD	4.0	0.5	mg/L

North Lagoon - 50% Discharge			
Sample Description			
Sample Date	5/14/2021 10:00 AM		
Lab ID	1642360		
Received Temperature	Result	MDL	Units
Received Temperature	18	N/A	°C

North Lagoon - 50% Discharge			
Sample Description			
Sample Date	5/14/2021 10:00 AM		
Lab ID	1642360		
Solids	Result	MDL	Units
Total Suspended Solids	9.67	0.67	mg/L



TESTMARK Laboratories Ltd.

Committed to Quality and Service

CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 430132

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.



CERTIFICATE OF ANALYSIS

Client:	Melissa Hoogenhoud	Work Order Number:	430489
Company:	Town of Cochrane - Wastewater	PO #:	
Address:	171 Fourth Ave, Box 490 Cochrane, ON, P0L 1C0	Regulation:	Information not provided
Phone/Fax:	(705) 272-4232 / (705) 272-2634	Project #:	Discharge
Email:	Melissa.Hoogenhoud@cochraneontario.com	DWS #:	
		Sampled By:	Mike Nelson
Date Order Received:	5/18/2021	Analysis Started:	5/19/2021
Arrival Temperature:	20 °C	Analysis Completed:	5/27/2021

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	1643729	Wastewater	Grab		5/18/2021	10:00 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).	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	Modified from APHA-4500



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Town of Cochrane - Wastewater

Work Order Number: 430489

CERTIFICATE OF ANALYSIS

This report has been approved by:

Adam Tam, M.Sc.
Laboratory Director



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 430489

WORK ORDER RESULTS

North Lagoon - 75% Discharge			
Sample Description			
Sample Date	5/18/2021 10:00 AM		
Lab ID	1643729		
Field Parameters	Result	MDL	Units
Field pH	9.06	N/A	pH
Field Temp	7.81	N/A	°C

North Lagoon - 75% Discharge			
Sample Description			
Sample Date	5/18/2021 10:00 AM		
Lab ID	1643729		
General Chemistry	Result	MDL	Units
Ammonia (as N)	0.14	0.01	mg/L
pH	8.12	N/A	pH
Total Phosphorus (as P)	1.46	0.02	mg/L
Un-Ionized Ammonia (Calc.)	0.022	0.002	mg/L

North Lagoon - 75% Discharge			
Sample Description			
Sample Date	5/18/2021 10:00 AM		
Lab ID	1643729		
Microbiology	Result	MDL	Units
Escherichia coli	0	1	CFU/100mL



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 430489

North Lagoon - 75% Discharge			
Sample Description			
Sample Date	5/18/2021 10:00 AM		
Lab ID	1643729		
Oxygen Demand	Result	MDL	Units
Carbonaceous BOD	6.9	3	mg/L

North Lagoon - 75% Discharge			
Sample Description			
Sample Date	5/18/2021 10:00 AM		
Lab ID	1643729		
Received Temperature	Result	MDL	Units
Received Temperature	20	N/A	°C

North Lagoon - 75% Discharge			
Sample Description			
Sample Date	5/18/2021 10:00 AM		
Lab ID	1643729		
Solids	Result	MDL	Units
Total Suspended Solids	20.0	3.9	mg/L



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Town of Cochrane - Wastewater

Work Order Number: 430489

LEGEND

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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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CERTIFICATE OF ANALYSIS

Client: Melissa Hoogenhoud	Work Order Number: 431421
Company: Town of Cochrane - Wastewater	PO #:
Address: 171 Fourth Ave, Box 490 Cochrane, ON, P0L 1C0	Regulation: Information not provided
Phone/Fax: (705) 272-4232 / (705) 272-2634	Project #: Discharge
Email: Melissa.Hoogenhoud@cochraneontario.com	DWS #:
Date Order Received: 5/27/2021	Sampled By: Mike Nelson
Arrival Temperature: 17 °C	Analysis Started: 5/27/2021
	Analysis Completed: 6/2/2021

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 - End of Discharge	1647394	Wastewater	Grab		5/27/2021	9:10 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).	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
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	Modified from APHA-4500



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Town of Cochrane - Wastewater

Work Order Number: 431421

This report has been approved by:

Adam Tam, M.Sc.
Laboratory Director



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CERTIFICATE OF ANALYSIS

Town of Cochrane - Wastewater

Work Order Number: 431421

WORK ORDER RESULTS

North Lagoon - End of Discharge			
Sample Description	Result	MIDL	Units
Sample Date	5/27/2021 9:10 AM		
Lab ID	1647394		
Field Parameters	Result	MIDL	Units
Field pH	9.36	N/A	pH
Field Temp	8.11	N/A	°C

North Lagoon - End of Discharge			
Sample Description	Result	MIDL	Units
Sample Date	5/27/2021 9:10 AM		
Lab ID	1647394		
General Chemistry	Result	MIDL	Units
Ammonia (as N)	2.55	0.01	mg/L
pH	8.23	N/A	pH
Total Phosphorus (as P)	1.130	0.006	mg/L
Un-Ionized Ammonia (Calc.)	0.684	0.002	mg/L

North Lagoon - End of Discharge			
Sample Description	Result	MIDL	Units
Sample Date	5/27/2021 9:10 AM		
Lab ID	1647394		
Microbiology	Result	MIDL	Units
Escherichia coli	3	1	CFU/100mL



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Town of Cochrane - Wastewater

Work Order Number: 431421

North Lagoon - End of Discharge			
Sample Description			
Sample Date	5/27/2021 9:10 AM		
Lab ID	1647394		
Oxygen Demand	Result	MDL	Units
Carbonaceous BOD	3.5	0.5	mg/L
North Lagoon - End of Discharge			
Sample Description			
Sample Date	5/27/2021 9:10 AM		
Lab ID	1647394		
Solids	Result	MDL	Units
Total Suspended Solids	32	4	mg/L

LEGEND

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