WASTEWATER TREATMENT PLANT 2024 ANNUAL REPORT

DISTRICT OF LAKE COUNTRY





Table of Contents

1.0 Authorized Discharges	2
1.1 Authorized Source	2
1.1.1 Authorized Rate of Discharge	2
1.1.2 Characteristics of Discharge	3
2.0 General Requirements	5
2.1 Maintenance of works	5
2.2 Emergency Procedures	5
2.3 Bypasses	5
2.4 Plant Modifications	5
2.5 Facility Classification and Operator Certification	6
2.6 Qualified Professional	6
2.7 Plans-Works	6
2.8 Operation and Maintenance	7
2.9 Contingency Plan	7
2.10 Sludge Management	7
2.10.1 Sludge Volume Measurement	7
2.10.2 Sludge Sampling Program	8
2.11 Infiltration Facilities	8
2.12 Sewage Collection System	8
2.12.1 Infiltration, Inflow and Cross Connections	8
2.13 Domestic Wells	8
2.14 Groundwater Extraction	8
2.15 Irrigation	9
3.0 Monitoring Requirements	9
3.1 Influent and Effluent Monitoring	9
3.2 Groundwater Monitoring	9
3.3 Modification of the Monitoring Program	10
3.4 Sampling Facilities & Procedures	10
3.5 Analytical Procedures	10
3.6 Quality Assurance	10
4.0 Reporting Requirements	10
4.1 Non–Compliance Notification and Reporting	11

4.2 EMS Reporting	11
4.3 Annual Reporting	11
4.3.1 Exceedances	11
4.3.2 Groundwater Reporting	11
4.3.3 Plant Performance Trends	11
4.3.4 Lab reports	11
4.3.5 Quality Assurance Data	11
4.3.6 Sludge Management Recording	11
4.3.7 Evaluation of Authorized works	12
4.3.8 Contingency Plan	12
Appendix A - Total Daily Flows	A
Appendix B – Accredited Laboratory Reports	В
Appendix C – Non-Compliance Reporting	C
Appendix D - Groundwater Monitoring Report	D
Appendix E – Monitoring Wells Locations	E
Appendix F – Plant Performance Trends	F

This annual report for the year 2024 is submitted according to the requirements of the Lake Country Wastewater Treatment Plant (LCWWTP) Operational Certificate – #14651. This report follows the format of the Operational Certificate. The Operational Certificate was first issued in November 1998 and last amended in October 2024. This report will be made available to the public, but its intended audience is the governing agency with the Province of BC.

The LCWWTP, located at 4062 Beaver Lake Road in Lake Country, British Columbia, is a Class IV tertiary treatment plant owned, operated, and maintained by the District of Lake Country.

This document has been reviewed by the Wastewater Crew Leader and shared with wastewater operators and relevant District of Lake Country personnel. I certify that the information in this document and all attachments are correct, accurate, and complete to the best of my knowledge.

Cover image taken on November 2014 after phase III upgrade.

Prepared/Reviewed by:			
Comb Combon Funitorial Task vision		2025-03-14	
Sarah Graham, Engineering Technician		Date	
		2025-03-14	
Davin Larsen AScT, Wastewater Crew Leader		Date	
		2025-03-14	
Mike Mitchell, Utilities Manager	Date		

1.0 Authorized Discharges

1.1 Authorized Source

The Lake Country Wastewater Treatment Plant (LCWWTP) authorized works consist of a biological nutrient removal tertiary treatment plant, effluent filtration, flow monitoring, and a surface to ground disposal system.

The effluent discharge is monitored under the Environmental Monitoring System (EMS) with the reference number E233626. Treated effluent from the LCWWTP is discharged into a ground infiltration system situated south of the treatment plant. The infiltration system consists of 3 open basins and one subsurface disposal field.

The discharge is authorized in accordance with the provisions outlined in Operational Certificate (OC) – #14651, initially issued on November 5, 1998, and last amended on October 8, 2024.



Figure 1: Effluent RI Basin 1

1.1.1 Authorized Rate of Discharge

The authorized rate of discharge is a monthly average of 2000 m³/d, based on daily values averaged on a monthly basis. Effluent totals are calculated by subtracting the recirculated water meter total and the effluent discharged into the Kelowna collection system meter total from the plant's effluent flow meter total. The recirculated effluent, drawn from the effluent discharge line after the effluent flow meter, is used as process water throughout the plant. Due to capacity constraints within Lake Country's disposal systems, some flows are discharged into the Kelowna Collection System for further treatment and disposal at the Kelowna WWTP, as part of an ongoing agreement with City of Kelowna. The connection between Lake Country's WWTP and the City of Kelowna's Collection System was constructed between Fall 2023 and Spring 2024. For more details, see Section 2.4.

In 2024 the annual average discharge was 1,715 m^3/d (compared to 1,892 m^3/d in 2023). The highest monthly average was in February at 1,884 m^3/d , which is below the OC requirement. Detailed monthly flow data is provided in Table 1, with daily flows available in Appendix A.

Table 1: Daily, Monthly, and Average Influent and Effluent Flows

	In	fluent	Effluent Discharge						
2024	DLC Collection System	Regional Septage	Su	Surface to Ground Disposal					
	Flow (m³/month)	Flow (m³/month)	Flow (m³/month)	Minimum (m³/day)	Maximum (m³/day)	Daily Avg (m³/day)	Flow (m³/month)		
January	50,492	414	57,209	1,712	2,046	1,845	0		
February	48,178	338	54,634	1,787	2,040	1,884	0		
March	50,172	678	57,144	1,740	1,963	1,843	0		
April	49,117	1,317	54,462	1,574	2,010	1,815	1,765		
May	49,363	1,346	51,111	1,572	1,802	1,649	5,742		
June	48,470	1,162	49,862	1,565	1,859	1,662	6,385		
July	51,486	1,111	52,991	718	2,284	1,709	5,881		
August	50,810	1,080	50,095	1,493	1,769	1,616	7,914		
September	47,808	1,134	46,334	1,413	1,846	1,544	8,146		
October	50,097	1,513	49,503	1,491	2,041	1,579	8,231		
November	48,274	999	50,899	1,507	1,979	1,697	4,662		
December	50,106	514	52,931	1,459	1,941	1,707	4,406		
Annual	594,373	11,606	627,175	718	2,284	1,715	53,132		

1.1.2 Characteristics of Discharge

Monthly grab samples are taken to an accredited lab for analysis. Listed in <u>Table 2</u> are the accredited lab results from the monthly samples. Daily in-house samples are also taken for process control and operational performance checks using the standard methods listed in the BC Field Sampling Manual (2013 ed.) and the British Columbia Environmental Laboratory Manual (2023 ed.).



Figure 2: In-house Laboratory

Table 2: Effluent Monthly Grab Samples - Accredited Lab Analysis

	CBOD₅ (mg/L)	TSS (mg/L)	Ortho – P (mg/L)	Total Soluble N (mg/L)	рН
Daily OC	10	20	1.5	10	
Maximums					
January	4	<3	0.08	4.22	7.62
February	6	<2	0.06	4.17	7.41
March	2	<2	0.29	4.42	7.66
April	3	<2	0.06	3.76	7.63
May	<5	<2	0.07	4.17	7.67
June	6	2	0.08	5.15	7.73
July	<3	2	0.23	4.44	7.48
August	<5	<2	0.43	2.01	8.06
September	<4	<2	1.00	3.64	7.87
October	<3	<2	0.41	2.87	7.93
November	<4	<2	0.96	5.33	7.97
December	<3	<2	0.18	5.49	7.90
Annual Average	2.9 ¹	1.2 ¹	0.32 ²	4.14	7.74
Annual Average	-	-	0.15	6	
OC Maximums					

¹As per standard practice half the detection limit has been used to calculate the average concentration.

The 2024 effluent discharge sampling results for Carbonaceous Biochemical Oxygen Demand (CBOD₅), Total Suspended Solids (TSS), Ortho-Phosphorus as P, and Soluble Nitrogen as N are discussed in the following subsections.

CARBONACEOUS BOD (CBOD₅)

The monthly CBOD₅ samples are analyzed by an accredited lab (refer to <u>Table 2</u> for results). Detailed results from the accredited laboratory can be found in <u>Appendix B</u>.

 $CBOD_5$ levels have significantly decreased since the installation of effluent filters in 2023, with an average concentration of 3.9 mg/L in 2024 compared to an annual average concentration of 6.7 mg/L in 2022. The maximum of 6 mg/L was observed in June, which is below the OC requirement.

TOTAL SUSPENDED SOLIDS (TSS)

Suspended Solids are analyzed monthly by an accredited lab (refer to <u>Table 2</u> for results). The yearly average was 2 mg/L. There were no occasions in 2024 when TSS was higher than the operational certificate requirement of 20 mg/L, with the maximum concentration for 2024 being 2 mg/L. TSS is also analyzed in-house seven days a week to help inform process control. Effluent disc filters were added to the LCWWTP in 2023 and has improved the TSS results significantly.

ORTHO PHOSPHORUS

Effluent Ortho Phosphorus is analyzed monthly by an external accredited laboratory (refer to <u>Table 2</u> for results). The Ortho Phosphorus annual average was 0.32 mg/L. This was above the operational certificate requirement of 0.15 mg/L for an annual average. <u>Section 4.3.1</u> speaks to this exceedance. Operations is seeing an improvement in Ortho Phosphorus in the winter of 2025, supporting the idea

²Refer to <u>section 4.3.1</u> of this report for explanation of this exceedance.

that it is related to septage, as hauls are lower during this time. A new aerator will be added to the TWAS storage tank in 2025, which may further help reduce Ortho Phosphorus levels.

At no time in 2024 did the effluent Ortho Phosphorus exceed the daily limit of 1.5 mg/L, with the maximum concentration of 1.00 mg/L occurring in September. Ortho Phosphorus is also analyzed inhouse daily to help inform process control.

SOLUBLE NITROGEN

Soluble Nitrogen is measured as the sum of ammonia, nitrite, and nitrate, as per the operational certificate. Samples are analyzed monthly by an accredited lab (refer to <u>Table 2</u> for results), as well as daily in-house to aid in process control.

In 2024, there was no instance where the Soluble Nitrogen limit of 10.0 mg/L was exceeded, with the maximum concentration being 5.49 mg/L measured in December. The yearly average for Soluble Nitrogen was 4.14 mg/L, which is in compliance with the permitted annual average limit of 6.0 mg/L.

2.0 General Requirements

2.1 Maintenance of works

District operators complete daily inspections of authorized works located at 4062 Beaver Lake Road and weekly inspections of authorized works within the collection system; copies of these inspection reports are available upon request.

The District utilizes a Computer Maintenance Management System (CMMS) that schedules and tracks all plant maintenance. All equipment is listed in the maintenance database and all manufacturer data and literature is indexed in binders. At a minimum all maintenance is in accordance with the authorized works manufacturer's recommended maintenance schedule.

2.2 Emergency Procedures

No emergency procedures were required in 2024.

2.3 Bypasses

There was no plant bypasses required in 2024.

2.4 Plant Modifications

In 2024, the connection between the Lake Country Wastewater Treatment Plant and the City of Kelowna collection system was completed. With Lake Country's RI basin nearly at full discharge capacity and facing the added pressure of a growing community, this interconnect was developed to provide relief until an alternative disposal method is approved by the Ministry of Environment and Parks. It allows wastewater to be diverted to Kelowna's collection system for further treatment and disposal at the Kelowna WWTP. A meter is installed to monitor flow; see <u>Table 1</u> for recorded volumes. Constructed

between Fall 2023 and Spring 2024, this interconnect enhances operational flexibility, supports growth, and ensures regulatory compliance and reliable wastewater management.



Figure 3: Installation of the vault housing the meter for the discharge to the City of Kelowna Collection System.



Figure 4: Location of interconnect between Lake Country WWTP and City of Kelowna Collection System

2.5 Facility Classification and Operator Certification

The Environmental Operators Certification Program (EOCP) classifies the LCWWTP as a Class IV facility and the Collection System as a Class I system. All four staff members at the LCWWTP are EOCP-certified as wastewater treatment operators, and the majority also hold certification as wastewater collection operators. The specific levels of certification are displayed in Table 3.

Table 3: EOCP certification level

Operator	Wastewater Treatment Level	Wastewater Collections Level
Davin Larsen (Crew Lead)	IV	II
Mike Davis	IV	II
Shelby McFarlane	III*	-
Jeremy Engelbrecht*	IV	-

^{*}Shelby McFarlane obtained their level 3 EOCP certification in Wastewater Treatment in October 2024.

2.6 Qualified Professional

This report was prepared by the AScT-certified staff at the Wastewater Treatment facility. The necessary data for the report has been collected and analyzed using the appropriate methods outlined in the British Columbia Field Sampling Manual (2013 ed.) and the British Columbia Environmental Laboratory Manual (2023 ed.). Accredited lab services were employed where necessary, and the results have been uploaded to the EMS database. Additionally, a third-party qualified professional has been contracted to review all data and the report itself to enhance transparency.

2.7 Plans-Works

All existing and currently constructed authorized works have been certified by a Qualified Professional and constructed to the appropriate standards, in accordance with the requirement set forth by the Operational Certificate.

2.8 Operation and Maintenance

The District of Lake Country maintains a Wastewater Treatment Operation and Maintenance Manual. This manual encompasses design criteria, process descriptions, maintenance protocols, and standard operating procedures for various functions commonly performed within the facilities.

2.9 Contingency Plan

In 2021, the District finalized a Wastewater Operations Contingency Plan, designed to establish protocols for handling preconceived emergencies as outlined in section 2.9 of the Operational Certificate. This plan serves as supplementary material to guide new operators and assist current operators in responding appropriately in the event of a critical failure at any stage of the wastewater handling processes. The primary objective of this plan is to uphold public health and safety, as well as safeguard the surrounding natural environment. A copy of the Wastewater Operations Contingency Plan is available upon request.

2.10 Sludge Management

The biosolids produced by the wastewater treatment plant process are transported to both the Ogogrow Production Facility and Curtis Farms. There, they undergo beneficial reuse to produce a soil amendment.

2.10.1 Sludge Volume Measurement

<u>Table 4</u> details the total amount of dewatered sludge hauled to the Ogogrow Production Facility and Curtis Farms. Exact dates of sludge disposal, quantities, and disposal locations are available upon request.



Figure 5: Ogogrow Production Facility

Table 4: Dewatered Sludge Quantities

2024	Monthly Totals					
2024	Number of Loads	Dry Weight (Tonnes)*				
January	15	128.4				
February	15	125.3				
March	19	138.7				
April	22	175.4				
May	25	212.6				
June	22	178.7				
July	20	189.3				
August	22	164.3				
September	19	161.5				
October	23	217.0				
November	19	161.9				
December	15	125.2				
Total	236	1,978.3				

^{*}Estimated weights based on solids concentrations of sludge samples.

2.10.2 Sludge Sampling Program

Dewatered sludge samples are sent to an accredited lab monthly. The results of this monitoring are available upon request.

2.11 Infiltration Facilities

The plant effluent is directed to the infiltration works, comprising of three open rapid infiltration basins and two subsurface tile disposal fields. Only one subsurface tile disposal field is currently utilized. The basins are rotated weekly to provide a rest period and are regularly cleaned to eliminate solid build-up on the sacrificial sand layer. Every one to two years, the sand layer is refreshed with prewashed 2- and 3-mm sand. Effluent filters were integrated into the LCWWTP in 2023, following extensive rehabilitation work on the fields in 2022. Consequently, the infiltration works performed exceptionally well in 2024. There were no overflow occurrences in 2024.

2.12 Sewage Collection System

The District of Lake Country's Wastewater Collection system comprises 12 lift stations and 85.6 km of sanitary sewer mains. Additionally, the system features various appurtenances such as air valves, siphon chambers, and odour chemical dosing stations. Recognized as a Level I Collection System by the EOCP, it serves over 4,066 residential sanitary sewer service equivalences.

District operations conduct weekly inspections of the collection lift stations and frequently inspect other major appurtenances. Records of these inspections are available upon request. Furthermore, annual sewer main cleaning is performed in identified vulnerable areas.

2.12.1 Infiltration, Inflow and Cross Connections

While consistent infiltration issues have not been observed, certain sources of inflow from properties grappling with drainage from flood events and a high groundwater table have been identified. The District of Lake Country has been in communication with multiple properties and continues to address these issues on a case-by-case basis.

Additionally, the District utilizes 5 "Smartcovers" to remotely monitor sanitary manholes for variations in flow and level. These tools aid operators in pinpointing sources of infiltration and inflow and serve as an alarm system for sanitary sewer overflows in high-risk areas.

2.13 Domestic Wells

By way of nutrient discharge there has been no evidence of adverse groundwater impact from the wastewater treatment disposal system. In the event there was any impact the District could supply potable water to those affected. Private well data and supporting analysis can be found in the ground water monitoring report in <u>Appendix D</u>, developed by a third-party qualified professional (Quarmby Environmental Ltd.).

2.14 Groundwater Extraction

In March of 2004, the District of Lake Country installed a groundwater extraction well intended to pump groundwater from the southwest corner of the Wastewater Treatment Plant property into Middle Vernon Creek at the south end of Swalwell Park. However, this groundwater well has remained unused since its installation.

The District is working with the Ministry of Environment and Parks and the Ministry of Water, Land, and Resource Stewardship to explore potential uses for the well, including supporting Lake Country's reclaimed water reuse strategy and augmenting flows in Middle Vernon Creek.

2.15 Irrigation

Treated effluent is only used for wastewater treatment plant process water and not used in the irrigation of any property.

3.0 Monitoring Requirements

3.1 Influent and Effluent Monitoring

The District's monitoring program adheres to the guidelines outlined in sections 3.1 and 3.2 of the Operational Certificate. Plant influent and effluent samples are sent to an accredited laboratory on a monthly basis. Effluent flow meter readings are automatically recorded and stored in the wastewater lab data management system, Hach Wims, with daily checks conducted. Table 1 provides a summary of the LCWWTP influent and effluent flows, while Table 2 tabulates the accredited lab data for effluent samples. Additionally, Table 5 presents the influent accredited lab data. Copies of the accredited lab reports are available in Appendix B.

Table	5.2023	Influent	accredited	lah data

	CBOD5 (mg/L)	TSS (mg/L)	Total P (mg/L)	Total Nitrogen (mg/L)	рН
January	297	236	10.00	80.00	8.07
February	480	496	13.90	90.40	7.97
March	306	336	9.88	81.20	7.99
April	282	282	10.80	100.00	8.23
May	333	357	13.50	113.00	7.84
June	390	310	14.50	102.00	7.79
July	494	428	13.30	107.00	7.96
August	385	312	15.80	85.70	7.77
September	372	332	14.10	114.00	7.86
October	423	380	15.20	120.00	8.09
November	324	322	12.90	88.30	8.20
December	546	300	9.02	99.60	8.24
Annual Average	386	341	12.74	98.43	8.00

3.2 Groundwater Monitoring

The groundwater monitoring program has been developed by a third-party qualified professional (Quarmby Environmental Ltd.) and encompasses the monitoring of various aspects, including:

- Groundwater flow patterns
- Groundwater quality

- Nutrient removal capability of the soil
- Groundwater levels
- Advanced notice of impending high groundwater issues
- Elevated phosphorus or nitrate levels potentially attributed to effluent disposal

The groundwater monitoring program is detailed in Section 3.2 of the Operational Certificate. A map illustrating the locations of monitoring wells can be referenced in <u>Appendix E</u>, while the summarized data is presented in a memorandum from Quarmby Environmental, available in <u>Appendix D</u>.

3.3 Modification of the Monitoring Program

The current monitoring program was developed as part of the 2021 Operational Certificate amendment. In October 2024, the Operational Certificate was further amended to remove the H6 Domestic Well at 9719 McCarthy Road from the groundwater monitoring program, following a request submitted by the District on June 27, 2023. The well was no longer accessible after the property was sold and repurposed for an industrial marijuana operation with enhanced security measures.

3.4 Sampling Facilities & Procedures

The District has installed and maintains sampling facilities for all sample sites. All procedures for the sampling, storing, and transporting of samples are in accordance with the BC Field Sampling Manual and the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples, 2013 Edition.

3.5 Analytical Procedures

The District follows and submits samples for laboratory analysis in accordance with the British Columbia Environmental Laboratory Manual, 2023 Edition.

3.6 Quality Assurance

The District of Lake Country engages Caro Analytical Services for their accredited lab testing needs. In addition to providing sample results, Caro includes a copy of their quality assurance/quality control report with each submission, which incorporates an equipment blank. Caro is certified by the Canadian Accredited Laboratories Association (CALA) and accredited by the International Standards Organization (ISO).

In-house testing conducted at the LCWWTP lab strictly adheres to the BC Field Sampling Manual, 2013 edition, for water and wastewater analysis. Operators routinely calibrate lab equipment and employ various quality control measures such as blanks, duplicates, and split samples during sampling procedures. Although this lab is not accredited, the data generated is solely utilized for operational purposes and is not used for reporting purposes.

4.0 Reporting Requirements

All data from LCWWTP analysis and flow measurements required under the operational certificate is collected and stored within the web-based software program Hach Wims. This information is readily accessible for review upon request.

4.1 Non-Compliance Notification and Reporting

All instances of non-compliance are promptly communicated to the Director via email within the specified 30-day period. These notifications include an explanation of the most probable cause(s) of the non-compliance, and a description of the remedial action planned and/or taken to prevent similar non-compliance(s) in the future. Additionally, any lab data, photographs, and supporting documents are included in the report. Reports of non-compliance can be located in Appendix C.

4.2 EMS Reporting

All laboratory data analyzed by a qualified laboratory is inputted into the Environmental Monitoring System (EMS) by the accredited laboratory within 30 days from the date of sample collection.

4.3 Annual Reporting

4.3.1 Exceedances

The LCWWTP experienced 1 non-compliances in 2024. A Non-Compliance Report was sent to Ministry of Environment and Parks and can be found in <u>Appendix C</u>. A summary of this exceedance/non compliance is below:

Ortho Phosphorus exceedance (1) — The 2024 annual average for Ortho-Phosphorus was 0.32 mg/L, exceeding the Operational Certificate requirement of 0.15 mg/L. However, levels remained below the maximum daily limit of 1.5 mg/L throughout the year, with a peak concentration of 1.00 mg/L recorded in September. The increase in the annual average is attributed to additional nutrient loading from the septage receiving station, which is released to the plant's headworks during the centrifuge process. The District of Lake Country has engaged process engineering firms to assess the issue, and upgrades to the sludge storage aeration system are being investigated to help reduce phosphorus release during centrifuging.

4.3.2 Groundwater Reporting

Refer to Appendix D for a report on the groundwater conditions at the LCWWTP and surrounding area.

4.3.3 Plant Performance Trends

Refer to Appendix F for plant trends performance depicted as annual graphs.

4.3.4 Lab reports

Please refer to <u>Table 2</u> for summarized accredited lab data. Copies of the accredited lab reports can be found in Appendix B.

4.3.5 Quality Assurance Data

The CARO test results, along with their respective quality assurance/quality control reports, can be found in Appendix B.

4.3.6 Sludge Management Recording

Please refer to section 2.10 of this report

4.3.7 Evaluation of Authorized works

The LCWWTP is currently in good overall condition, having undergone upgrades in 2015 and 2023, with another upgrade scheduled within the next 3 to 5 years. The District is proactively identifying components for both current and future upgrade and replacement needs, strategically addressing the challenges posed by community growth and increasing flows. One key measure involves exploring alternative methods of effluent disposal to manage these demands effectively.

The District is also in the final stages of its Liquid Waste Management Plan (LWMP), which outlines a long-term strategy for wastewater treatment, effluent disposal, and environmental protection. The plan aims to ensure regulatory compliance, support sustainable community growth, and protect public and environmental health.

4.3.8 Contingency Plan

A contingency plan for the LCWWTP and collection system was created in 2021 and submitted to the Ministry of Environment and Parks on January 12th, 2022. There have been no further updates to the plan since its submission.

Appendix A - Total Daily Flows

Effluent Discharge (m3)

	Janu	arv	Feb	ruary	Ma	ırch	A	pril	N	lay	Ju	ıne
Date	To City of	to Basins	To City of	to Basins	To City of	to Basins	To City of	to Basins	To City of	to Basins	To City of	to Basins
	Kelowna	(m3)	Kelowna	(m3)	Kelowna	(m3)	Kelowna	(m3)	Kelowna	(m3)	Kelowna	(m3)
	Colletion		Colletion		Colletion		Colletion		Colletion		Colletion	
	System (m3)		System									
			(m3)									
1	0	1,781	0	1,871	0	1,871	0	1,894	230	1,615	186	1,579
2	0	1,797	0	1,816	0	1,878	0	1,825	194	1,596	228	1,661
3	0	1,819	0	1,889	0	1,945	0	1,851	151	1,624	257	1,712
4	0	1,817	0	2,040	0	1,963	0	1,901	162	1,667	213	1,612
5	0	1,719	0	1,877	0	1,827	0	1,856	208	1,703	240	1,606
6	0	1,770	0	1,898	0	1,831	0	1,883	157	1,655	214	1,592
7	0	1,880	0	1,896	0	1,877	0	2,009	124	1,644	190	1,585
8	0	1,824	0	1,897	0	1,816	0	1,898	150	1,686	232	1,565
9	0	1,825	0	1,859	0	1,875	0	1,854	135	1,672	299	1,626
10	0	1,803	0	1,878	0	1,917	0	1,904	159	1,644	279	1,617
11	0	1,827	0	1,960	0	1,851	0	1,890	135	1,639	254	1,586
12	0	1,790	0	1,929	0	1,837	0	1,902	177	1,731	231	1,664
13	0	1,882	0	1,930	0	1,856	0	1,922	150	1,728	200	1,657
14	0	1,985	0	1,902	0	1,871	0	2,010	137	1,688	216	1,676
15	0	1,902	0	1,864	0	1,847	0	1,947	200	1,625	204	1,646
16	0	1,846	0	1,844	0	1,862	0	1,900	202	1,628	244	1,716
17	0	1,777	0	1,851	0	1,925	0	1,897	203	1,620	260	1,711
18	0	1,790	0	1,924	0	1,779	0	1,827	190	1,576	266	1,714
19	0	1,759	0	1,964	0	1,745	0	1,878	194	1,573	224	1,740
20	0	1,712	0	1,928	0	1,740	0	1,872	241	1,662	206	1,726
21	0	1,862	0	1,805	0	1,744	0	1,898	233	1,632	206	1,723
22	0	1,823	0	1,806	0	1,768	0	1,850	223	1,802	177	1,628
23	0	2,046	0	1,787	0	1,795	197	1,591	122	1,719	204	1,685
24	0	1,849	0	1,859	0	1,878	207	1,574	173	1,591	194	1,655
25	0	1,843	0	1,947	0	1,833	213	1,613	228	1,646	183	1,658
26	0	1,838	0	1,816	0	1,806	197	1,585	272	1,679	205	1,674
27	0	1,922	0	1,892	0	1,848	221	1,577	214	1,653	178	1,694
28	0	2,039	0	1,841	0	1,784	276	1,647	178	1,604	182	1,688
29	0	1,935	0	1,864	0	1,870	233	1,603	206	1,612	175	1,607
30	0	1,879			0	1,831	221	1,604	221	1,625	38	1,859
31	0	1,868			0	1874			173	1572		
Min	0	1,712	0	1,787	0	1,740	0	1,574	122	1,572	38	1,565
Max	0	2,046	0	2,040	0	1,963	276	2,010	272	1,802	299	1,859
Average	0	1,845	0	1,884	0	1,843	59	1,815	185	1,649	213	1,662
Total	0	57,209	0	54,634	0	57,144	1,765	54,462	5,742	51,111	6,385	49,862

	Ju	ly	Auç	gust	Septe	ember	Oct	ober	Noev	ember	Dece	ember
Date	To City of Kelowna Colletion System (m3)	to Basins (m3)	To City of Kelowna Colletion System (m3)	to Basins (m3)								
1	0	2,006	278	1,694	274	1,481	273	1,639	281	1,507	0	1,941
2	208	1,705	249	1,665	297	1,673	346	1,551	57	1,794	0	1,848
3	240	1,681	252	1,633	0	1,846	340	1,572	0	1,979	163	1,737
4	239	1,674	242	1,657	233	1,527	314	1,568	187	1,730	246	1,620
5	236	1,674	291	1,679	292	1,502	308	1,506	195	1,680	251	1,592
6	226	1,628	258	1,683	256	1,479	338	1,524	281	1,574	209	1,555
7	252	1,643	243	1,647	286	1,435	358	1,595	301	1,543	48	1,750
8	253	1,636	212	1,683	340	1,535	319	1,523	289	1,521	0	1,908
9	214	1,661	184	1,673	338	1,518	291	1,492	45	1,773	248	1,641
10	201	1,721	185	1,640	306	1,489	278	1,575	0	1,828	244	1,570
11	179	1,684	232	1,703	279	1,516	258	1,549	0	1,905	253	1,606
12	173	1,668	254	1,738	238	1,531	273	1,567	0	1,853	274	1,600
13	185	1,668	186	1,769	237	1,529	290	1,560	133	1,724	285	1,531
14	195	1,686	242	1,672	269	1,524	120	1,811	225	1,555	53	1,767
15	191	1,681	248	1,620	316	1,578	195	1,688	227	1,544	0	1,909
16	156	1,765	265	1,608	275	1,566	264	1,568	70	1,775	0	1,802
17	214	1,636	278	1,576	256	1,545	258	1,578	0	1,970	211	1,602
18	225	1,680	309	1,590	268	1,581	319	1,517	224	1,681	461	1,510
19	211	1,643	265	1,493	254	1,536	282	1,540	230	1,591	414	1,491
20	223	1,622	273	1,549	213	1,493	264	1,736	225	1,584	406	1,459
21	252	1,662	219	1,601	233	1,509	0	1,854	235	1,609	129	1,825
22	245	1,721	184	1,614	309	1,575	279	1,555	236	1,608	0	1,868
23	98	718	221	1,607	268	1,584	280	1,554	58	1,748	135	1,696
24	68	2,231	333	1,562	251	1,555	297	1,491	0	1,908	81	1,773
25	0	2,284	337	1,547	256	1,556	327	1,495	213	1,623	0	1,705
26	102	1,997	287	1,541	345	1,533	78	1,780	239	1,623	0	1,762
27	210	1,711	293	1,559	348	1,457	0	2,041	233	1,602	0	1,781
28	224	1,731	284	1,523	345	1,413	333	1,537	232	1,617	0	1,859
29	237	1,733	255	1,527	380	1,446	334	1,497	218	1,569	0	1,835
30	221	1,746	282	1,537	184	1,822	340	1,529	28	1,881	228	1,597
31	203	1,695	273	1,505			275	1,511			67	1,791
Min	0	718	184	1,493	0	1,413	0	1,491	0	1,507	0	1,459
Max	253	2,284	337	1,769	380	1,846	358	2,041	301	1,979	461	1,941
Average	190	1,709	255	1,616	272	1,544	266	1,597	155	1,697	142	1,707
Total	5,881	52,991	7,914	50,095	8,146	46,334	8,231	49,503	4,662	50,899	4,406	52,931

Appendix B – Accredited Laboratory Reports





CERTIFICATE OF ANALYSIS

You know that the sample you collected after

snowshoeing to site, digging 5 meters, and

racing to get it on a plane so you can submit it

to the lab for time sensitive results needed to

make important and expensive decisions

(whew) is VERY important. We know that too.

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen WORK ORDER 24D0503

PO NUMBER RECEIVED / TEMP 2024-04-03 11:37 / 12.1°C

PROJECTFinal Effluent- PE14651REPORTED2024-04-10 09:49PROJECT INFOLake Country WWTPCOC NUMBER45385.36309

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager M undbud



TEST RESULTS

REPORTED TO Lake Country PROJECT Final Effluent	, District of (Wastewater) - PE14651		WORK ORDER REPORTED	24D0503 2024-04-1		
Analyte	Result	RL	Units	Analyzed	Qualifier	
Final Effluent (E233626) (24D050	03-01) Matrix: Wastewater Sample	d: 2024-04-03 09:00				
Anions						
Chloride	152	0.10	mg/L	2024-04-05		
Nitrate (as N)	1.39	0.010		2024-04-05		
Nitrite (as N)	0.173	0.010	mg/L	2024-04-05		
Phosphate (as P)	0.0620	0.0050	mg/L	2024-04-05		
Calculated Parameters						
Nitrate+Nitrite (as N)	1.57	0.0100	mg/L	N/A		
Nitrogen, Total	5.27	0.0500		N/A		
Nitrogen, Organic	1.50	0.0500		N/A		
General Parameters						
Alkalinity, Total (as CaCO3)	189	1.0	mg/L	2024-04-05		
Alkalinity, Phenolphthalein (as CaC			mg/L	2024-04-05		
Alkalinity, Bicarbonate (as CaCO3)	<u> </u>		mg/L	2024-04-05		
Alkalinity, Carbonate (as CaCO3)	< 1.0		mg/L	2024-04-05		
Alkalinity, Hydroxide (as CaCO3)	< 1.0		mg/L	2024-04-05		
Ammonia, Total (as N)	2.20	0.050		2024-04-09		
BOD, 5-day Carbonaceous	3.1	2.0	mg/L	2024-04-09		
Nitrogen, Total Kjeldahl	3.70	0.050	mg/L	2024-04-09		
pH	7.63	0.10	pH units	2024-04-05	HT2	
Phosphorus, Total (as P)	0.213	0.0050	mg/L	2024-04-05		
Solids, Total Suspended	< 2.0	2.0	mg/L	2024-04-06		
Microbiological Parameters						
Coliforms, Total (Q-Tray)	199000	1	MPN/100 mL	2024-04-04		
Coliforms, Fecal (Q-Tray)	17300	1	MPN/100 mL	2024-04-04		
Trip Blank (24D0503-02) Matrix Anions	:: Wastewater Sampled: 2024-04-03	08:45				
Chloride	< 0.10	0.10	mg/L	2024-04-05		
Nitrate (as N)	< 0.010	0.010		2024-04-05		
Nitrite (as N)	< 0.010	0.010		2024-04-05		
Phosphate (as P)	< 0.0050	0.0050		2024-04-05		
Calculated Parameters						
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A		
Nitrogen, Total	< 0.0500	0.0500		N/A		
Nitrogen, Organic	< 0.0500	0.0500		N/A		
General Parameters						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L	2024-04-05		
Alkalinity, Phenolphthalein (as CaC	· · · · · · · · · · · · · · · · · · ·					
Alkalifility, Frieffolpfillfaleiff (as CaC	CO3) < 1.0	1.0	mg/L	2024-04-05		



TEST RESULTS

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED 24D0503

2024-04-10 09:49

Analyte	Result	RL	Units	Analyzed	Qualifie
rip Blank (24D0503-02) Matrix: Waste	ewater Sampled: 2024-04-03	08:45, Continued			
General Parameters, Continued					
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2024-04-05	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-04-05	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2024-04-09	
BOD, 5-day Carbonaceous	< 3.1	2.0	mg/L	2024-04-09	
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L	2024-04-09	
pH	5.48	0.10	pH units	2024-04-05	HT2
Phosphorus, Total (as P)	< 0.0050	0.0050	mg/L	2024-04-05	
Solids, Total Suspended	< 4.3	2.0	mg/L	2024-04-06	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	< 1	1	MPN/100 mL	2024-04-04	
Coliforms, Fecal (Q-Tray)	< 1	1	MPN/100 mL	2024-04-04	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED 24D0503

RTED 2024-04-10 09:49

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Coliforms, Total in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

MPN/100 mL Most Probable Number per 100 millilitres

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



Blank (B4D1594-BLK3)

Phosphorus, Total (as P)

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED 24D0503 2024-04-10 09:49

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
Anions, Batch B4D1558									
Blank (B4D1558-BLK1)			Prepared	I: 2024-04-0	05, Analyze	ed: 2024-0	04-05		
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4D1558-BS1)			Prepared	I: 2024-04-0	05, Analyze	ed: 2024-0	04-05		
Chloride	16.1	0.10 mg/L	16.0		101	90-110			
Nitrate (as N)	4.13	0.010 mg/L	4.00		103	90-110			
Nitrite (as N)	2.09	0.010 mg/L	2.00		105	85-115			
Phosphate (as P) LCS (B4D1673-BS1)	< 0.0050	0.0050 mg/L		l: 2024-04-0			04-05		
Phosphate (as P)	0.106	0.0050 mg/L	0.100	1. 2024-04-0	106	80-120	J4-05		
Duplicate (B4D1673-DUP1)		urce: 24D0503-01	Prepared	I: 2024-04-0)5, Analyze	ed: 2024-0	04-05		
Phosphate (as P)	0.0620	0.0050 mg/L		0.0620			< 1	20	
General Parameters, Batch B4D1556									
Blank (B4D1556-BLK1)			Prepared	I: 2024-04-0	04, Analyze	ed: 2024-0	04-09		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B4D1556-BS1)			Prepared	I: 2024-04-0	04, Analyze	ed: 2024-0	04-09		
BOD, 5-day Carbonaceous	191	50.8 mg/L	198		97	85-115			
General Parameters, Batch B4D1594									
Blank (B4D1594-BLK2)			Prepared	I: 2024-04-0	04, Analyze	ed: 2024-0	04-05		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
· · ·									

0.0050 mg/L

< 0.0050

Prepared: 2024-04-04, Analyzed: 2024-04-05



REPORTED TO Lake Country, Dist PROJECT Final Effluent- PE1	•	ater)			WORK REPOR	ORDER RTED		0503 I-04-10	09:49
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameters, Batch B4D1594, C	ontinued								
Blank (B4D1594-BLK4)			Prepared	: 2024-04-0	4, Analyze	ed: 2024-0	04-05		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
LCS (B4D1594-BS2)			Prepared	: 2024-04-0	4. Analvze	ed: 2024-0	04-05		
Phosphorus, Total (as P)	0.103	0.0050 mg/L	0.100		103	85-115			
			Droparad	: 2024-04-0	M Analyza	.d. 2024 (04.05		
LCS (B4D1594-BS3) Phosphorus, Total (as P)	0.103	0.0050 mg/L	0.100	. 2024-04-0	103	85-115	04-05		
	0.103	0.0000 Hig/L		0004.04.0					
LCS (B4D1594-BS4)	0.400	0.0050 #		: 2024-04-0)4-05		
Phosphorus, Total (as P)	0.103	0.0050 mg/L	0.100		103	85-115			
General Parameters, Batch B4D1654									
Blank (B4D1654-BLK1)			Prepared	: 2024-04-0	5, Analyze	ed: 2024-0	04-05		
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO3) Alkalinity, Carbonate (as CaCO3)	< 1.0 < 1.0	1.0 mg/L 1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
pH	5.37	0.10 pH units							
Blank (B4D1654-BLK2)		·	Prepared	: 2024-04-0	5, Analyze	ed: 2024-0	04-05		
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
pH	5.44	0.10 pH units							
Blank (B4D1654-BLK3)			Prepared	: 2024-04-0	5, Analyze	ed: 2024-0	04-05		
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0 5.45	1.0 mg/L							
рН	0.40	0.10 pH units							
LCS (B4D1654-BS1)				: 2024-04-0)4-05		
Alkalinity, Total (as CaCO3)	102	1.0 mg/L	100		102	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	74.5	1.0 mg/L	50.0		149	0-200			
LCS (B4D1654-BS2)			•	: 2024-04-0			04-05		
Alkalinity, Total (as CaCO3)	102	1.0 mg/L	100		102	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	67.0	1.0 mg/L	50.0		134	0-200			
LCS (B4D1654-BS3)			•	: 2024-04-0	•)4-05		
Alkalinity, Total (as CaCO3)	100	1.0 mg/L	100		100	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	53.9	1.0 mg/L	50.0		108	0-200			
Reference (B4D1654-SRM1)			Prepared	: 2024-04-0	5, Analyze	ed: 2024-0	04-05		
рН	7.03	0.10 pH units	7.01		100	98-102			
Reference (B4D1654-SRM2)			Prepared	: 2024-04-0	5, Analyze	ed: 2024-0	04-05		
pH	7.03	0.10 pH units	7.01		100	98-102			
Reference (B4D1654-SRM3)			Prenared	: 2024-04-0	5 Analyza	d· 2024-0	04-05		
. ,	7.03	0.10 pH units	7.01	. 2027-04-0	100	98-102	, , ,,,		
рН	1.03	o. to pri utilits	7.01		100	90-102			



REPORTED TO Lake Country, Distr PROJECT Final Effluent- PE1	•	ater)			WORK (ORDER TED		0503 I-04-10	09:49
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameters, Batch B4D1782									
Blank (B4D1782-BLK1)			Prepared	: 2024-04-0	6, Analyze	d: 2024-0	4-06		
Solids, Total Suspended	< 2.0	2.0 mg/L							
LCS (B4D1782-BS1)			Prepared	: 2024-04-0	6, Analyze	d: 2024-0	4-06		
Solids, Total Suspended	89.9	10.1 mg/L	100		90	85-115			
General Parameters, Batch B4D1911									
Blank (B4D1911-BLK1)			Prepared	: 2024-04-0	8, Analyze	d: 2024-0	4-09		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
Blank (B4D1911-BLK2)			Prepared	: 2024-04-0	8, Analyze	d: 2024-0	4-09		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
LCS (B4D1911-BS1)			Prepared	: 2024-04-0	8, Analyze	d: 2024-0	4-09		
Nitrogen, Total Kjeldahl	1.02	0.050 mg/L	1.00		102	85-115			
LCS (B4D1911-BS2)			Prepared	: 2024-04-0	8, Analyze	d: 2024-0	4-09		
Nitrogen, Total Kjeldahl	1.04	0.050 mg/L	1.00		104	85-115			
Ammonia, Total (as N) Blank (B4D1946-BLK2)	< 0.050	0.050 mg/L	Prepared	: 2024-04-0	9. Analvze	d: 2024-0	4-09		
Blank (B4D1946-BLK2)			Prepared	: 2024-04-0	9, Analyze	d: 2024-0	4-09		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B4D1946-BLK3)	4.0.050	0.050	Prepared	: 2024-04-0	9, Analyze	d: 2024-0	4-09		
Ammonia, Total (as N)	< 0.050	0.050 mg/L		0004.04.0	~ A I	1 0004 0	4.00		
Ammonia, Total (as N)	< 0.050	0.050 mg/L	Prepared	: 2024-04-0	9, Analyze	d: 2024-0	4-09		
· · ·	< 0.030	0.030 Hig/L	Duamanad	. 2024 04 0	2 A	4. 2024 0	4.00		
LCS (B4D1946-BS1) Ammonia, Total (as N)	0.972	0.050 mg/L	1.00	: 2024-04-0	9, Anaiyze	a: 2024-0 85-115	4-09		
	0.912	0.030 Hig/L		: 2024-04-0			4.00		
LCS (B4D1946-BS2) Ammonia, Total (as N)	0.978	0.050 mg/L	1.00	. 2024-04-0	98 98	85-115	4-09		
LCS (B4D1946-BS3)	0.0.0	0.000g, _		: 2024-04-0			<i>4</i> _00		
Ammonia, Total (as N)	0.984	0.050 mg/L	1.00	. 2024-04-0	98	85-115	4-03		
LCS (B4D1946-BS4)				: 2024-04-0	9 Analyze		4-09		
Ammonia, Total (as N)	0.990	0.050 mg/L	1.00		99	85-115			
Duplicate (B4D1946-DUP3)	Sou	rce: 24D0503-01	Prepared	: 2024-04-0	9, Analyze	d: 2024-0	4-09		
Ammonia, Total (as N)	2.20	0.050 mg/L		2.20			< 1	15	
Matrix Spike (B4D1946-MS3)	Sou	rce: 24D0503-01	Prepared	: 2024-04-0	9, Analyze	d: 2024-0	4-09		
Ammonia, Total (as N)	2.39	0.050 mg/L	0.204	2.20	95	75-125			
Microbiological Parameters, Batch B4D1	1518								
Blank (B4D1518-BLK1)			Prepared	: 2024-04-0	4, Analyze	d: 2024-0	4-04		
Coliforms, Fecal (Q-Tray)	< 1	1 MPN/100							



REPORTED TO PROJECT	Lake Country, District Final Effluent- PE146	` ,				WORK REPOR	ORDER RTED	24D0 2024)503 04-10	09:49
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
J	rameters, Batch B4D151	8, Continued		Droporod	. 2024 04 0	M Analyzo	.d. 2024 (04.04		
Microbiological Pal Blank (B4D1518-B Coliforms, Total (Q-Tr	LK2)	8, Continued	1 MPN/100	<u> </u>	: 2024-04-0)4, Analyze	ed: 2024-0	04-04		
Blank (B4D1518-B	L K2) ay)	,	1 MPN/100	mL .	: 2024-04-0 : 2024-04-0					





CERTIFICATE OF ANALYSIS

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen **WORK ORDER** 24D0501

2024-04-03 11:37 / 12.1°C **PO NUMBER RECEIVED / TEMP**

Raw Influent- PE14651 **REPORTED** 2024-04-10 15:17 **PROJECT** Lake Country WWTP 45385.36309 **PROJECT INFO COC NUMBER**

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

We've Got Chemistry

fun and Ahead of the Curve



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

It's simple. We figure the more you enjoy with working our engaged team the more members; likely you are to give us continued opportunities to support you.

Through research, regulation and instrumentation, knowledge, are your analytical centre the knowledge technical you BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager What



TEST RESULTS

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER REPORTED

24D0501

D 2024-04-10 15:17

Analyte	Result	RL	Units	Analyzed	Qualifie
Raw Influent (E233627) (24D0501-01) Ma	trix: Wastewater Sample	d: 2024-04-03 09:30			
Anions					
Nitrate (as N)	< 0.010	0.010	mg/L	2024-04-05	
Nitrite (as N)	< 0.010	0.010	mg/L	2024-04-05	
Phosphate (as P)	6.45	0.0050	mg/L	2024-04-05	
Calculated Parameters					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	100	2.00	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	406	1.0	mg/L	2024-04-05	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2024-04-05	
Alkalinity, Bicarbonate (as CaCO3)	406	1.0	mg/L	2024-04-05	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2024-04-05	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-04-05	
Ammonia, Total (as N)	64.9	0.050	mg/L	2024-04-09	
BOD, 5-day	293	2.0	mg/L	2024-04-10	
BOD, 5-day Carbonaceous	282	2.0	mg/L	2024-04-09	
Nitrogen, Total Kjeldahl	100	0.050	mg/L	2024-04-09	
pH	8.23	0.10	pH units	2024-04-05	HT2
Phosphorus, Total (as P)	10.8	0.0050	mg/L	2024-04-05	
Solids, Total Suspended	282	2.0	mg/L	2024-04-06	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER

24D0501

REPORTED 2024-04-10 15:17

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



REPORTED TO Lake Country, District of (Wastewater) **PROJECT**

Raw Influent- PE14651

WORK ORDER REPORTED

24D0501 2024-04-10 15:17

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- Duplicate (Dup): An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B4D1558									
Blank (B4D1558-BLK1)			Prepared	I: 2024-04-0	05, Analyze	ed: 2024-0	04-05		
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4D1558-BS1)			Prepared	I: 2024-04-0	05, Analyze	ed: 2024-0	04-05		
Nitrate (as N)	4.13	0.010 mg/L	4.00		103	90-110			
Nitrite (as N)	2.09	0.010 mg/L	2.00		105	85-115			
Anions, Batch B4D1673									
Blank (B4D1673-BLK1)			Prepared	I: 2024-04-0	05, Analyze	ed: 2024-0	04-05		
Phosphate (as P)	< 0.0050	0.0050 mg/L							
LCS (B4D1673-BS1)			Prepared	I: 2024-04-0	05, Analyze	ed: 2024-0	04-05		
Phosphate (as P)	0.106	0.0050 mg/L	0.100		106	80-120			
General Parameters, Batch B4D1556									
Blank (B4D1556-BLK1)			Prepared	I: 2024-04-0	04, Analyze	ed: 2024-0	04-09		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B4D1556-BS1)			Prepared	I: 2024-04-0	04, Analyze	ed: 2024-0	04-09		
BOD, 5-day Carbonaceous	191	50.8 mg/L	198		97	85-115			
General Parameters, Batch B4D1594									
Blank (B4D1594-BLK2)			Prepared	I: 2024-04-0	04, Analyze	ed: 2024-0	04-05		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L	•						
Blank (B4D1594-BLK3)			Prepared	I: 2024-04-0	04, Analyze	ed: 2024-0	04-05		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B4D1594-BLK4)			Prepared	I: 2024-04-0	04, Analyze	ed: 2024-0	04-05		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							



	ke Country, Distric w Influent- PE146	•	ater)			WORK REPOR	ORDER RTED	24D0 2024	0501 I-04-10	15:17
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Ba	atch B4D1594, Con	tinued								
LCS (B4D1594-BS2)				Prepared	l: 2024-04-0	4, Analyze	ed: 2024-0	4-05		
Phosphorus, Total (as P)		0.103	0.0050 mg/L	0.100		103	85-115			
LCS (B4D1594-BS3)				Prepared	l: 2024-04-0	4 Analyze	ed: 2024-0	4-05		
Phosphorus, Total (as P)		0.103	0.0050 mg/L	0.100	1. 202+ 0+ 0	103	85-115	7 00		
		0.100	0.0000 mg/L							
LCS (B4D1594-BS4)				•	l: 2024-04-0			14-05		
Phosphorus, Total (as P)		0.103	0.0050 mg/L	0.100		103	85-115			
General Parameters, Ba	atch B4D1654									
Blank (B4D1654-BLK1)				Prepared	l: 2024-04-0	5, Analyze	ed: 2024-0	4-05		
Alkalinity, Total (as CaCO3		< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein		< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as Alkalinity, Carbonate (as C		< 1.0 < 1.0	1.0 mg/L 1.0 mg/L							
Alkalinity, Hydroxide (as C		< 1.0	1.0 mg/L							
pH		5.37	0.10 pH units							
Blank (B4D1654-BLK2)				Prepared	l: 2024-04-0	5 Analyze	ed: 2024-0	4-05		
Alkalinity, Total (as CaCO3)	<u> </u>	< 1.0	1.0 mg/L	1 Toparou	2021 010	0,7 thaty20	, a. 202 i o			
Alkalinity, Phenolphthalein		< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as		< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as C		< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as C	aCO3)	< 1.0	1.0 mg/L							
pH		5.44	0.10 pH units							
Blank (B4D1654-BLK3)				Prepared	l: 2024-04-0	5, Analyze	ed: 2024-0	4-05		
Alkalinity, Total (as CaCO3)		< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein Alkalinity, Bicarbonate (as	· ,	< 1.0 < 1.0	1.0 mg/L							
Alkalinity, Carbonate (as C		< 1.0	1.0 mg/L 1.0 mg/L							
Alkalinity, Hydroxide (as C	,	< 1.0	1.0 mg/L							
pH	,	5.45	0.10 pH units							
LCS (B4D1654-BS1)				Prepared	l: 2024-04-0	5, Analyze	ed: 2024-0	4-05		
Alkalinity, Total (as CaCO3))	102	1.0 mg/L	100		102	80-120			
Alkalinity, Phenolphthalein	(as CaCO3)	74.5	1.0 mg/L	50.0		149	0-200			
LCS (B4D1654-BS2)				Prepared	I: 2024-04-0	5, Analyze	ed: 2024-0	4-05		
Alkalinity, Total (as CaCO3)		102	1.0 mg/L	100		102	80-120			
Alkalinity, Phenolphthalein	(as CaCO3)	67.0	1.0 mg/L	50.0		134	0-200			
LCS (B4D1654-BS3)				Prepared	l: 2024-04-0	5, Analyze	ed: 2024-0	4-05		
Alkalinity, Total (as CaCO3)	·	100	1.0 mg/L	100		100	80-120			
Alkalinity, Phenolphthalein	(as CaCO3)	53.9	1.0 mg/L	50.0		108	0-200			
Reference (B4D1654-SI	RM1)			Prepared	l: 2024-04-0	5, Analyze	ed: 2024-0	4-05		
рН		7.03	0.10 pH units	7.01		100	98-102			
Reference (B4D1654-SI	RM2)			Prepared	l: 2024-04-0	5, Analyze	ed: 2024-0	4-05		
pH		7.03	0.10 pH units	7.01		100	98-102			
Reference (B4D1654-SI	DM3)		•		l: 2024-04-0	5 Analyza		M_05		
		7.03	0.10 pH units	7.01	<u>2</u> 02 7 -04 - 0	100	98-102			
pH		1.03	v. iv pri uniis	7.01		100	90-1UZ			



REPORTED TO PROJECT	Lake Country, Dis Raw Influent- PE		ter)			WORK REPOR	ORDER RTED		0501 I-04-10	15:17
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	s, Batch B4D1677, C	Continued								
Blank (B4D1677-Bl	LK1)			Prepared	: 2024-04-0	5, Analyze	ed: 2024-0	04-10		
BOD, 5-day		< 2.0	2.0 mg/L							
LCS (B4D1677-BS	1)			Prepared	: 2024-04-0	5, Analyze	ed: 2024-0	04-10		
BOD, 5-day		187	54.1 mg/L	198		95	85-115			
General Parameters	s, Batch B4D1782									
Blank (B4D1782-B	LK1)			Prepared	: 2024-04-0	6, Analyze	ed: 2024-0	04-06		
Solids, Total Suspend	ed	< 2.0	2.0 mg/L							
LCS (B4D1782-BS	1)			Prepared	: 2024-04-0	6, Analyze	ed: 2024-0	04-06		
Solids, Total Suspend	ed	89.9	10.1 mg/L	100		90	85-115			
General Parameters	s, Batch B4D1911									
Blank (B4D1911-Bl	LK1)			Prepared	: 2024-04-0	8, Analyze	ed: 2024-0	04-09		
Nitrogen, Total Kjelda	•	< 0.050	0.050 mg/L	· · ·						
Blank (B4D1911-Bl	LK2)			Prepared	: 2024-04-0	8, Analyze	ed: 2024-0	04-09		
Nitrogen, Total Kjelda	hl	< 0.050	0.050 mg/L	,		•				
LCS (B4D1911-BS1	1)			Prepared	: 2024-04-0	8, Analyze	ed: 2024-0	04-09		
Nitrogen, Total Kjelda	hl	1.02	0.050 mg/L	1.00		102	85-115			
LCS (B4D1911-BS2	2)			Prepared	: 2024-04-0	8, Analyze	ed: 2024-0	04-09		
Nitrogen, Total Kjelda	hl	1.04	0.050 mg/L	1.00		104	85-115			
General Parameters	s, Batch B4D1946									
Blank (B4D1946-Bl	LK1)			Prepared	: 2024-04-0	9, Analyze	ed: 2024-0	04-09		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B4D1946-Bl	LK2)			Prepared	: 2024-04-0	9, Analyze	ed: 2024-0	04-09		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B4D1946-Bl	LK3)			Prepared	: 2024-04-0	9, Analyze	ed: 2024-0	04-09		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B4D1946-Bl	LK4)			Prepared	: 2024-04-0	9, Analyze	ed: 2024-0	04-09		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
LCS (B4D1946-BS	1)			Prepared	: 2024-04-0	9, Analyze	ed: 2024-0	04-09		
Ammonia, Total (as N)	0.972	0.050 mg/L	1.00		97	85-115			
LCS (B4D1946-BS2	2)			Prepared	: 2024-04-0	9, Analyze	ed: 2024-0	04-09		
Ammonia, Total (as N)	0.978	0.050 mg/L	1.00		98	85-115			
LCS (B4D1946-BS	3)			Prepared	: 2024-04-0	9, Analyze	ed: 2024-0	04-09		
Ammonia, Total (as N)	0.984	0.050 mg/L	1.00		98	85-115			
LCS (B4D1946-BS4	4)			Prepared	: 2024-04-0	9, Analyze	ed: 2024-0	04-09		
Ammonia, Total (as N)	0.990	0.050 mg/L	1.00		99	85-115			





CERTIFICATE OF ANALYSIS

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen **WORK ORDER** 24H2595

2024-08-20 11:48 / 19.6°C **PO NUMBER RECEIVED / TEMP**

Final Effluent- PE14651 **REPORTED** 2024-08-29 16:24 **PROJECT** Lake Country WWTP 45524.36690 **PROJECT INFO COC NUMBER**

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

We've Got Chemistry

fun and the more

Ahead of the Curve



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

It's simple. We figure the more you enjoy with working our engaged team members; likely you are to give us continued opportunities to support you.

regulation Through research, knowledge, and instrumentation, are your analytical centre the technical knowledge you BEFORE you need it, so you can stay up to date and in the know.

Work Order Comments:

This is a revised report; please refer to Appendix 3 for details.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager What

1-888-311-8846 | www.caro.ca



TEST RESULTS

REPORTED TO Lake Country, PROJECT Final Effluent-	District of (Wastewater) PE14651		WORK ORDER REPORTED	24H2595 2024-08-2	9 16:24
Analyte	Result	RL	Units	Analyzed	Qualifier
Final Effluent (E233626) (24H259	5-01) Matrix: Wastewater Sampled	l: 2024-08-20 09:56			
Anions					
Chloride	129	0.10	mg/L	2024-08-22	
Nitrate (as N)	1.65	0.010		2024-08-22	
Nitrite (as N)	0.143	0.010		2024-08-22	
Calculated Parameters					
Nitrate+Nitrite (as N)	1.79	0.0100	ma/l	N/A	
Nitrogen, Total	3.24	0.0500		N/A	
Nitrogen, Organic	1.23	0.0500		N/A	
General Parameters			<u> </u>		
Alkalinity, Total (as CaCO3)	161	1.0	mg/L	2024-08-23	
Alkalinity, Phenolphthalein (as CaCo		1.0		2024-08-23	
Alkalinity, Bicarbonate (as CaCO3)	161	1.0		2024-08-23	
Alkalinity, Carbonate (as CaCO3)	< 1.0		mg/L	2024-08-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0		mg/L	2024-08-23	
Ammonia, Total (as N)	0.223	0.050		2024-08-23	
BOD, 5-day Carbonaceous	< 4.7		mg/L	2024-08-26	
Nitrogen, Total Kjeldahl	1.45	0.050		2024-08-24	
pH	8.06	0.10	pH units	2024-08-23	HT2
Phosphorus, Total (as P)	0.609	0.0050	mg/L	2024-08-22	
Phosphorus, Dissolved Reactive	0.431	0.0050	mg/L	2024-05-22	HT1
Solids, Total Suspended	< 2.0	2.0	mg/L	2024-08-23	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	> 242000	1	MPN/100 mL	2024-08-21	
Coliforms, Fecal (Q-Tray)	81600	1	MPN/100 mL	2024-08-21	
Trip Blank (24H2595-02) Matrix:	Wastewater Sampled: 2024-08-20	10:45			
Chloride	0.25	0.10	mg/L	2024-08-22	RE2
Nitrate (as N)	< 0.010	0.010		2024-08-22	
Nitrite (as N)	< 0.010	0.010		2024-08-22	
Calculated Parameters					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	< 0.0500	0.0500		N/A	
Nitrogen, Organic	< 0.0500	0.0500		N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	1.2	1.0	mg/L	2024-08-23	RE2
Alkalinity, Phenolphthalein (as CaCo			mg/L	2024-08-23	RE2
Alkalinity, Bicarbonate (as CaCO3)	1.2		mg/L	2024-08-23	RE2
Alkalinity, Carbonate (as CaCO3)	< 1.0		mg/L	2024-08-23	RE2



TEST RESULTS

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER

24H2595

REPORTED 2024-08-29 16:24

Result	RL	Units	Analyzed	Qualifier
ewater Sampled: 2024-08-20	10:45, Continued			
< 1.0	1.0	mg/L	2024-08-23	RE2
< 0.050	0.050	mg/L	2024-08-23	
< 4.7	2.0	mg/L	2024-08-26	
< 0.050	0.050	mg/L	2024-08-24	
6.79	0.10	pH units	2024-08-23	HT2, RE2
< 0.0050	0.0050	mg/L	2024-08-22	
< 0.0050	0.0050	mg/L	2024-08-22	
< 10.0	2.0	mg/L	2024-08-23	
<1	1	MPN/100 mL	2024-08-21	
< 1	1	MPN/100 mL	2024-08-21	
	<pre>ewater Sampled: 2024-08-20 < 1.0 < 0.050 < 4.7 < 0.050 6.79 < 0.0050 < 0.0050 < 10.0</pre>	ewater Sampled: 2024-08-20 10:45, Continued < 1.0	ewater Sampled: 2024-08-20 10:45, Continued < 1.0	ewater Sampled: 2024-08-20 10:45, Continued < 1.0

Sample Qualifiers:

HT1 The sample was prepared and/or analyzed past the recommended holding time.

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is

recommended.

RE2 Result was confirmed by re-analysis prior to reporting.



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED 24H2595

D 2024-08-29 16:24

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Coliforms, Total in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Dissolved Reactive in Water	SM 4500-P F (2021)	Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

< Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

> Greater than the specified Result

mg/L Milligrams per litre

MPN/100 mL Most Probable Number per 100 millilitres

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER

24H2595

REPORTED

2024-08-29 16:24

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



Blank (B4H3540-BLK1)

Phosphorus, Dissolved Reactive

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED 24H2595 2024-08-29 16:24

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
Anions, Batch B4H3451									
Blank (B4H3451-BLK1)			Prepared	d: 2024-08-2	21, Analyze	ed: 2024-0	08-21		
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4H3451-BS1)			Prepared	d: 2024-08-2	21, Analyze	ed: 2024-0	08-21		
Chloride	16.0	0.10 mg/L	16.0		100	90-110			
Nitrate (as N)	3.96	0.010 mg/L	4.00		99	90-110			
Nitrite (as N)	2.06	0.010 mg/L	2.00		103	85-115			
General Parameters, Batch B4H3447									
Blank (B4H3447-BLK1)			Prepared	d: 2024-08-2	21, Analyze	ed: 2024-0	08-26		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B4H3447-BS1)			Prepared	d: 2024-08-2	21, Analyze	ed: 2024-0	08-26		
BOD, 5-day Carbonaceous	225	55.4 mg/L	198		114	85-115			
General Parameters, Batch B4H3506									
Blank (B4H3506-BLK1)			Prepared	d: 2024-08-2	22, Analyze	ed: 2024-0	08-22		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B4H3506-BLK2)			Prepared	d: 2024-08-2	22, Analyze	ed: 2024-0	08-22		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L	•		<u> </u>				
LCS (B4H3506-BS1)			Prepared	d: 2024-08-2	22, Analyze	ed: 2024-0	08-22		
Phosphorus, Total (as P)	0.104	0.0050 mg/L	0.100		104	85-115			
			Prepared	d: 2024-08-2	22, Analyze	ed: 2024-0	08-22		
LCS (B4H3506-BS2)									

0.0050 mg/L

< 0.0050

Prepared: 2024-08-22, Analyzed: 2024-08-22



	Lake Country, Distric Final Effluent- PE14	•	ater)			WORK O			2595 1-08-29	16:24
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters,	Batch B4H3540, Con	tinued								
LCS (B4H3540-BS1)				Prepared	: 2024-08-22	2, Analyzed	l: 2024-08	3-22		
Phosphorus, Dissolved	Reactive	0.0970	0.0050 mg/L	0.100		97	84-115			
General Parameters,	Batch B4H3654									
Blank (B4H3654-BLI	K 1)			Prepared	: 2024-08-23	3, Analyzed	l: 2024-08	3-23		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B4H3654-BLI	K2)			Prepared	: 2024-08-23	B, Analyzed	1: 2024-08	3-23		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B4H3654-BLI	K3)			Prepared	: 2024-08-23	3, Analyzed	1: 2024-08	3-23		
Ammonia, Total (as N)		< 0.050	0.050 mg/L	<u> </u>						
Blank (B4H3654-BLI	K4)			Prepared	: 2024-08-23	3, Analyzed	1: 2024-08	3-23		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B4H3654-BLI	K5)			Prepared	: 2024-08-23	3, Analyzed	1: 2024-08	3-23		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
LCS (B4H3654-BS1)				Prepared	: 2024-08-23	3, Analyzed	1: 2024-08	3-23		
Ammonia, Total (as N)		1.00	0.050 mg/L	1.00		100	85-115			
LCS (B4H3654-BS2)				Prepared	: 2024-08-23	3, Analyzed	1: 2024-08	3-23		
Ammonia, Total (as N)		1.05	0.050 mg/L	1.00		105	85-115			
LCS (B4H3654-BS3)				Prepared	: 2024-08-23	3, Analyzed	1: 2024-08	3-23		
Ammonia, Total (as N)		1.02	0.050 mg/L	1.00		102	85-115			
LCS (B4H3654-BS4)				Prepared	: 2024-08-23	3, Analyzed	1: 2024-08	3-23		
Ammonia, Total (as N)		1.02	0.050 mg/L	1.00		102	85-115			
LCS (B4H3654-BS5)				Prepared	: 2024-08-23	3, Analyzed	1: 2024-08	3-23		
Ammonia, Total (as N)		1.01	0.050 mg/L	1.00		101	85-115			
General Parameters,	Batch B4H3672									
Blank (B4H3672-BLI	K1)			Prepared	: 2024-08-23	3, Analyzed	1: 2024-08	3-23		
Solids, Total Suspender	d	< 2.0	2.0 mg/L							
LCS (B4H3672-BS1)				Prepared	: 2024-08-23	3, Analyzed	1: 2024-08	3-23		
Solids, Total Suspender	d	114	5.1 mg/L	100		114	85-115			
General Parameters,	Batch B4H3711									
Blank (B4H3711-BL	K1)			Prepared	: 2024-08-23	3, Analyzed	: 2024-08	3-24		
Nitrogen, Total Kjeldahl		< 0.050	0.050 mg/L							
Blank (B4H3711-BL	(2)			Prepared	: 2024-08-23	3, Analyzed	l: 2024-08	3-24		
Nitrogen, Total Kjeldahl		< 0.050	0.050 mg/L							
LCS (B4H3711-BS1)				Prepared	: 2024-08-23	3, Analyzed	1: 2024-08	3-24		
Nitrogen, Total Kjeldahl		1.01	0.050 mg/L	1.00		101	85-115			
LCS (B4H3711-BS2)				Prepared	: 2024-08-23	3, Analyzed	1: 2024-08	3-24		
Nitrogen, Total Kjeldahl		0.961	0.050 mg/L	1.00		96	85-115			



Level Result Limit		ake Country, District inal Effluent- PE146	•	ter)			WORK REPOR	ORDER RTED	24H2 2024	2595 I-08-29	16:24
Prepared: 2024-08-23, Analyzed: 2024-08-23 Alkalinty, Total (as CaCO3)	Analyte		Result	RL Units	-		% REC		% RPD		Qualifier
Alkalinity, Total (as CaCO3)	General Parameters, E	Batch B4H3716									
Michalinity, Phenolphthalein (as CaCO3)	Blank (B4H3716-BLK1	1)			Prepared	l: 2024-08-2	23, Analyze	d: 2024-0	8-23		
Akkalinity, Bicarbonate (as CaCO3)	Alkalinity, Total (as CaCO	3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)			< 1.0								
Alkalinity, Hydroxide (as CaCO3) 4.1.0 mg/L											
Blank (B4H3716-BLK2)											
Alkalinity, Total (as CaCO3)	Alkalinity, Hydroxide (as	CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	Blank (B4H3716-BLK2	2)			Prepared	l: 2024-08-2	23, Analyze	d: 2024-0	8-23		
Alkalinity, Carbonate (as CaCO3)		,									
Alkalinity, Carbonate (as CaCO3)											
Alkalinity, Hydroxide (as CaCO3)											
LCS (B4H3716-BS1) Prepared: 2024-08-23, Analyzed: 2024-08-23 Alkalinity, Total (as CaCO3) 95.7 1.0 mg/L 100 96 80-120 Alkalinity, Phenolphthalein (as CaCO3) 38.2 1.0 mg/L 50.0 76 0-200 LCS (B4H3716-BS3) Prepared: 2024-08-23, Analyzed: 2024-08-23 Alkalinity, Phenolphthalein (as CaCO3) 94.8 1.0 mg/L 50.0 72 0-200 Reference (B4H3716-SRM1) Prepared: 2024-08-23, Analyzed: 2024-08-23 PH 7.01 0.10 pH units 7.01 100 98-102 Reference (B4H3716-SRM2) Prepared: 2024-08-23, Analyzed: 2024-08-23 PH 7.01 0.10 pH units 7.01 100 98-102 Microbiological Parameters, Batch B4H3396 Blank (B4H3396-BLK1) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Total (Q-Tray) <1 1 MPN/100 mL Prepared: 2024-08-21, Analyzed: 2024-08-21 Blank (B4H3396-BLK3) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) <1 1 MPN/100 mL											
Alkalinity, Total (as CaCO3) 95.7 1.0 mg/L 100 96 80-120 Alkalinity, Phenolphthalein (as CaCO3) 38.2 1.0 mg/L 50.0 76 0-200 LCS (B4H3716-BS3) Prepared: 2024-08-23, Analyzed: 2024-08-23 Alkalinity, Phenolphthalein (as CaCO3) 94.8 1.0 mg/L 100 95 80-120 Alkalinity, Phenolphthalein (as CaCO3) 94.8 1.0 mg/L 50.0 72 0-200 Reference (B4H3716-SRM1) Prepared: 2024-08-23, Analyzed: 2024-08-23 pH 7.01 0.10 pH units 7.01 100 98-102 Reference (B4H3716-SRM2) Prepared: 2024-08-23, Analyzed: 2024-08-23 pH 7.02 0.10 pH units 7.01 100 98-102 Microbiological Parameters, Batch B4H3396 Blank (B4H3396-BLK1) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Total (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK3) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK4) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Focal (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK4) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK4) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK5) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK5) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) <1 1 MPN/100 mL	Alkalifility, riyufoxide (as	CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3) 38.2 1.0 mg/L 50.0 76 0-200 LCS (B4H3716-BS3) Prepared: 2024-08-23, Analyzed: 2024-08-23 Alkalinity, Total (as CaCO3) 94.8 1.0 mg/L 100 95 80-120 Alkalinity, Phenolphthalein (as CaCO3) 35.8 1.0 mg/L 50.0 72 0-200 Reference (B4H3716-SRM1) Prepared: 2024-08-23, Analyzed: 2024-08-23 PH 7.01 0.10 pH units 7.01 100 98-102 Reference (B4H3716-SRM2) Prepared: 2024-08-23, Analyzed: 2024-08-23 Microbiological Parameters, Batch B4H3396 Blank (B4H3396-BLK1) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Total (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK4) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Total (Q-Tray) <1 1 MPN/100 mL	LCS (B4H3716-BS1)				Prepared	l: 2024-08-2	23, Analyze	d: 2024-0	8-23		
Prepared: 2024-08-23, Analyzed: 2024-08-23	• • • • • • • • • • • • • • • • • • • •										
Alkalinity, Total (as CaCO3) 94.8 1.0 mg/L 100 95 80-120 Alkalinity, Phenolphthalein (as CaCO3) 35.8 1.0 mg/L 50.0 72 0-200 Reference (B4H3716-SRM1) Prepared: 2024-08-23, Analyzed: 2024-08-23 pH 7.01 0.10 pH units 7.01 100 98-102 Reference (B4H3716-SRM2) Prepared: 2024-08-23, Analyzed: 2024-08-23 pH 7.02 0.10 pH units 7.01 100 98-102 Microbiological Parameters, Batch B4H3396 Blank (B4H3396-BLK1) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Total (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK2) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK3) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK4) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK4) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK4) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK5) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK5) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK6) Prepared: 2024-08-21, Analyzed: 2024-08-21	Alkalinity, Phenolphthale	in (as CaCO3)	38.2	1.0 mg/L	50.0		76	0-200			
Alkalinity, Phenolphthalein (as CaCO3) 35.8 1.0 mg/L 50.0 72 0-200 Reference (B4H3716-SRM1) Prepared: 2024-08-23, Analyzed: 2024-08-23 pH 7.01 0.10 pH units 7.01 100 98-102 Reference (B4H3716-SRM2) Prepared: 2024-08-23, Analyzed: 2024-08-23 pH 7.02 0.10 pH units 7.01 100 98-102 Microbiological Parameters, Batch B4H3396 Blank (B4H3396-BLK1) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Total (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK2) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK3) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK4) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK4) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Total (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK5) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK5) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK5) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK5) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL	LCS (B4H3716-BS3)				Prepared	l: 2024-08-2	23, Analyze	d: 2024-0	8-23		
Reference (B4H3716-SRM1) Prepared: 2024-08-23, Analyzed: 2024-08-23 pH 7.01 0.10 pH units 7.01 100 98-102 Reference (B4H3716-SRM2) Prepared: 2024-08-23, Analyzed: 2024-08-23 pH 7.02 0.10 pH units 7.01 100 98-102 Microbiological Parameters, Batch B4H3396 Blank (B4H3396-BLK1) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Total (Q-Tray) <1	Alkalinity, Total (as CaCO	3)	94.8	1.0 mg/L	100		95	80-120			
PH 7.01 0.10 pH units 7.01 100 98-102	Alkalinity, Phenolphthale	in (as CaCO3)	35.8	1.0 mg/L	50.0		72	0-200			
Reference (B4H3716-SRM2) Prepared: 2024-08-23, Analyzed: 2024-08-23 pH 7.02 0.10 pH units 7.01 100 98-102 Microbiological Parameters, Batch B4H3396 Blank (B4H3396-BLK1) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Total (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK2) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK3) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK4) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Total (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK5) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) <1 1 MPN/100 mL Blank (B4H3396-BLK5) Prepared: 2024-08-21, Analyzed: 2024-08-21 Blank (B4H3396-BLK6) Prepared: 2024-08-21, Analyzed: 2024-08-21	Reference (B4H3716-S	SRM1)			Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	8-23		
Microbiological Parameters, Batch B4H3396 Blank (B4H3396-BLK1)	pH		7.01	0.10 pH units	7.01		100	98-102			
Microbiological Parameters, Batch B4H3396 Blank (B4H3396-BLK1) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Total (Q-Tray) < 1	Reference (B4H3716-S	SRM2)			Prepared	l: 2024-08-2	23, Analyze	d: 2024-0	8-23		
Blank (B4H3396-BLK1) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Total (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK2) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK3) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK4) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Total (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK5) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK6) Prepared: 2024-08-21, Analyzed: 2024-08-21	pH		7.02	0.10 pH units	7.01		100	98-102			
Blank (B4H3396-BLK2) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK3) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK4) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Total (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK5) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK6) Prepared: 2024-08-21, Analyzed: 2024-08-21	Blank (B4H3396-BLK1			1 MDN/400 r		l: 2024-08-2	21, Analyze	ed: 2024-0	8-21		
Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK3) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK4) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Total (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK5) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK6) Prepared: 2024-08-21, Analyzed: 2024-08-21			<u> </u>	1 IVIF1N/1001							
Blank (B4H3396-BLK3) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1		•				I: 2024-08-2	21, Analyze	d: 2024-0	8-21		
Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK4) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Total (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK5) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK6) Prepared: 2024-08-21, Analyzed: 2024-08-21	Coliforms, Fecal (Q-Tray)		< 1	1 MPN/100 r	mL						
Blank (B4H3396-BLK4) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Total (Q-Tray) < 1	Blank (B4H3396-BLK3	3)			Prepared	l: 2024-08-2	21, Analyze	d: 2024-0	8-21		
Coliforms, Total (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK5) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK6) Prepared: 2024-08-21, Analyzed: 2024-08-21	Coliforms, Fecal (Q-Tray)		< 1	1 MPN/100 r	mL						
Coliforms, Total (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK5) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK6) Prepared: 2024-08-21, Analyzed: 2024-08-21	Blank (B4H3396-BLK4	l)			Prepared	l: 2024-08-2	21, Analyze	d: 2024-0	8-21		
Blank (B4H3396-BLK5) Prepared: 2024-08-21, Analyzed: 2024-08-21 Coliforms, Fecal (Q-Tray) < 1	Coliforms, Total (Q-Tray)	•	< 1	1 MPN/100 r							
Coliforms, Fecal (Q-Tray) < 1 1 MPN/100 mL Blank (B4H3396-BLK6) Prepared: 2024-08-21, Analyzed: 2024-08-21		5)				I: 2024-08-2	21, Analyze	ed: 2024-0	8-21		
		·	< 1	1 MPN/100 r			, ,==				
	Blank (B4H3396-BI Ke	5)			Prepared	l: 2024-08-2	21. Analyze	ed: 2024-0	8-21		
	· · · · · · · · · · · · · · · · · · ·	•	<i>-</i> 1	1 MDN/100 r	•		, ,	LUZ-T-U	<u> </u>		





REPORTED TO PROJECT		ry, District of (Waste nt- PE14651	water)	WORK ORDER REPORTED	24H2595 2024-08-29 16:24
Sample ID	Changed	Change	Analysis	Analyte(s)	
24H2595-01	2024-08-29	Result Revised	Phosphorus, Dissolved Reactive	Phosphorus, Diss	olved Reactive





CERTIFICATE OF ANALYSIS

You know that the sample you collected after

snowshoeing to site, digging 5 meters, and

racing to get it on a plane so you can submit it

to the lab for time sensitive results needed to

make important and expensive decisions

(whew) is VERY important. We know that too.

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen WORK ORDER 24H2595

PO NUMBER RECEIVED / TEMP 2024-08-20 11:48 / 19.6°C

PROJECTFinal Effluent- PE14651REPORTED2024-08-28 09:03PROJECT INFOLake Country WWTPCOC NUMBER45524.36690

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager M what



TEST RESULTS

REPORTED TO Lake Countr PROJECT Final Effluen	y, District of (Wastewater) tt- PE14651		WORK ORDER REPORTED	24H2595 2024-08-2	8 09:03
Analyte	Result	RL	Units	Analyzed	Qualifier
Final Effluent (E233626) (24H2	595-01) Matrix: Wastewater Sampled	: 2024-08-20 09:56			
Anions					
Chloride	129	0.10	mg/L	2024-08-22	
Nitrate (as N)	1.65	0.010		2024-08-22	
Nitrite (as N)	0.143	0.010		2024-08-22	
Calculated Parameters					
Nitrate+Nitrite (as N)	1.79	0.0100	ma/l	N/A	
Nitrogen, Total	3.24	0.0500		N/A	
Nitrogen, Organic	1.23	0.0500		N/A	
General Parameters				i	
Alkalinity, Total (as CaCO3)	161	1.0	mg/L	2024-08-23	
Alkalinity, Phenolphthalein (as Ca		1.0		2024-08-23	
Alkalinity, Bicarbonate (as CaCO3	<u> </u>	1.0		2024-08-23	
Alkalinity, Carbonate (as CaCO3)	•		mg/L	2024-08-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0		mg/L	2024-08-23	
Ammonia, Total (as N)	0.223	0.050		2024-08-23	
BOD, 5-day Carbonaceous	< 4.7		mg/L	2024-08-26	
Nitrogen, Total Kjeldahl	1.45	0.050		2024-08-24	
pH	8.06	0.10	pH units	2024-08-23	HT2
Phosphorus, Total (as P)	0.609	0.0050	mg/L	2024-08-22	
Phosphorus, Dissolved Reactive	0.0050	0.0050	mg/L	2024-05-22	HT1
Solids, Total Suspended	< 2.0	2.0	mg/L	2024-08-23	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	> 242000	1	MPN/100 mL	2024-08-21	
Coliforms, Fecal (Q-Tray)	81600	1	MPN/100 mL	2024-08-21	
Trip Blank (24H2595-02) Matri	x: Wastewater Sampled: 2024-08-20 1	0:45			
Chloride	0.25	0 10	mg/L	2024-08-22	RE2
Nitrate (as N)	< 0.010	0.010		2024-08-22	
Nitrite (as N)	< 0.010	0.010		2024-08-22	
Calculated Parameters					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	< 0.0500	0.0500		N/A	
Nitrogen, Organic	< 0.0500	0.0500		N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	1.2	1 0	mg/L	2024-08-23	RE2
Alkalinity, Phenolphthalein (as Ca			mg/L	2024-08-23	RE2
Alkalinity, Bicarbonate (as CaCO3	<u>'</u>		mg/L	2024-08-23	RE2
,, := (-:- z ::000	,				



TEST RESULTS

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER

24H2595

REPORTED 2024-08-28 09:03

Analyte	Result	RL	Units	Analyzed	Qualifier
Trip Blank (24H2595-02) Matrix: Wast	ewater Sampled: 2024-08-20	10:45, Continued			
General Parameters, Continued					
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-08-23	RE2
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2024-08-23	
BOD, 5-day Carbonaceous	< 4.7	2.0	mg/L	2024-08-26	
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L	2024-08-24	
pH	6.79	0.10	pH units	2024-08-23	HT2, RE2
Phosphorus, Total (as P)	< 0.0050	0.0050	mg/L	2024-08-22	
Phosphorus, Dissolved Reactive	< 0.0050	0.0050	mg/L	2024-08-22	
Solids, Total Suspended	< 10.0	2.0	mg/L	2024-08-23	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	< 1	1	MPN/100 mL	2024-08-21	
Coliforms, Fecal (Q-Tray)	< 1	1	MPN/100 mL	2024-08-21	

Sample Qualifiers:

HT1 The sample was prepared and/or analyzed past the recommended holding time.

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

RE2 Result was confirmed by re-analysis prior to reporting.



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED 24H2595

2024-08-28 09:03

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Coliforms, Total in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Dissolved Reactive in Water	SM 4500-P F (2021)	Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

< Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

> Greater than the specified Result

mg/L Milligrams per litre

MPN/100 mL Most Probable Number per 100 millilitres

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER
REPORTED

24H2595

TED 2024-08-28 09:03

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



Blank (B4H3540-BLK1)

Phosphorus, Dissolved Reactive

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED

24H2595 2024-08-28 09:03

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
Anions, Batch B4H3451									
Blank (B4H3451-BLK1)			Prepared	l: 2024-08-21	l, Analyze	d: 2024-0	08-21		
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4H3451-BS1)			Prepared	l: 2024-08-21	l, Analyze	d: 2024-0	08-21		
Chloride	16.0	0.10 mg/L	16.0		100	90-110			
Nitrate (as N)	3.96	0.010 mg/L	4.00		99	90-110			
Nitrite (as N)	2.06	0.010 mg/L	2.00		103	85-115			
General Parameters, Batch B4H3447									
Blank (B4H3447-BLK1)			Prepared	l: 2024-08-21	l, Analyze	d: 2024-(08-26		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B4H3447-BS1)			Prepared	l: 2024-08-21	l, Analyze	d: 2024-0	08-26		
BOD, 5-day Carbonaceous	225	55.4 mg/L	198		114	85-115			
General Parameters, Batch B4H3506									
Blank (B4H3506-BLK1)			Prepared	l: 2024-08-22	2, Analyze	d: 2024-0	08-22		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B4H3506-BLK2)			Prepared	l: 2024-08-22	2, Analyze	d: 2024-(08-22		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L	•		-				
LCS (B4H3506-BS1)			Prepared	l: 2024-08-22	2, Analyze	d: 2024-0	08-22		
Phosphorus, Total (as P)	0.104	0.0050 mg/L	0.100		104	85-115			
LCS (B4H3506-BS2)			Prepared	l: 2024-08-22	2, Analyze	d: 2024-0	08-22		
Phosphorus, Total (as P)	0.105	0.0050 mg/L	0.100		105	85-115			

0.0050 mg/L

< 0.0050

Prepared: 2024-08-22, Analyzed: 2024-08-22



REPORTED TO PROJECT	Lake Country, Dis Final Effluent- PE	•	ater)			WORK REPOR	ORDER TED		2595 I-08-28	09:03
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameters	Batch B4H3540, C	Continued								
LCS (B4H3540-BS1))			Prepared	: 2024-08-2	2, Analyze	d: 2024-0	8-22		
Phosphorus, Dissolved	Reactive	0.0970	0.0050 mg/L	0.100		97	84-115			
General Parameters	Batch B4H3654									
Blank (B4H3654-BL	K1)			Prepared	: 2024-08-2	3, Analyze	d: 2024-0	8-23		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B4H3654-BL	K2)			Prepared	: 2024-08-2	3, Analyze	d: 2024-0	8-23		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B4H3654-BL	K3)			Prepared	: 2024-08-2	3, Analyze	d: 2024-0	8-23		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B4H3654-BL	K4)			Prepared	: 2024-08-2	3, Analyze	d: 2024-0	8-23		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B4H3654-BL	K5)			Prepared	: 2024-08-2	3, Analyze	d: 2024-0	8-23		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
LCS (B4H3654-BS1))			Prepared	: 2024-08-2	3, Analyze	d: 2024-0	8-23		
Ammonia, Total (as N)		1.00	0.050 mg/L	1.00		100	85-115			
LCS (B4H3654-BS2))			Prepared	: 2024-08-2	3, Analyze	d: 2024-0	8-23		
Ammonia, Total (as N)		1.05	0.050 mg/L	1.00		105	85-115			
LCS (B4H3654-BS3))			Prepared	: 2024-08-2	3, Analyze	d: 2024-0	8-23		
Ammonia, Total (as N)		1.02	0.050 mg/L	1.00		102	85-115			
LCS (B4H3654-BS4)			Prepared	: 2024-08-2	3, Analyze	d: 2024-0	8-23		
Ammonia, Total (as N)		1.02	0.050 mg/L	1.00		102	85-115			
LCS (B4H3654-BS5)			Prepared	: 2024-08-2	3, Analyze	d: 2024-0	8-23		
Ammonia, Total (as N)		1.01	0.050 mg/L	1.00		101	85-115			
General Parameters	Batch B4H3672									
Blank (B4H3672-BL	K1)			Prepared	: 2024-08-2	3, Analyze	d: 2024-0	8-23		
Solids, Total Suspende	d	< 2.0	2.0 mg/L							
LCS (B4H3672-BS1))			Prepared	: 2024-08-2	3, Analyze	d: 2024-0	8-23		
Solids, Total Suspende	d	114	5.1 mg/L	100		114	85-115			
General Parameters	Batch B4H3711									
Blank (B4H3711-BL	K1)			Prepared	: 2024-08-2	3, Analyze	d: 2024-0	8-24		
Nitrogen, Total Kjeldah	l	< 0.050	0.050 mg/L			•				
Blank (B4H3711-BL	K2)			Prepared	: 2024-08-2	3, Analyze	d: 2024-0	8-24		
Nitrogen, Total Kjeldah	I	< 0.050	0.050 mg/L							
LCS (B4H3711-BS1)				Prepared	: 2024-08-2	3, Analyze	d: 2024-0	8-24		
Nitrogen, Total Kjeldah		1.01	0.050 mg/L	1.00		101	85-115			
LCS (B4H3711-BS2)	· · · · · · · · · · · · · · · · · · ·			Prepared	: 2024-08-2	3, Analyze	d: 2024-0	8-24		
Nitrogen, Total Kjeldah	·	0.961	0.050 mg/L	1.00		96	85-115			



•	,				WORK REPOR	ORDER RTED		24H2595 2024-08-28 0		
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie	
General Parameters, Batch B4H3716										
Blank (B4H3716-BLK1)			Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	08-23			
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L								
Blank (B4H3716-BLK2)			Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	08-23			
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L								
LCS (B4H3716-BS1)			Prepared	l: 2024-08-2	23, Analyze	d: 2024-0	08-23			
Alkalinity, Total (as CaCO3)	95.7	1.0 mg/L	100		96	80-120				
Alkalinity, Phenolphthalein (as CaCO3)	38.2	1.0 mg/L	50.0		76	0-200				
LCS (B4H3716-BS3)			Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	08-23			
Alkalinity, Total (as CaCO3)	94.8	1.0 mg/L	100		95	80-120				
Alkalinity, Phenolphthalein (as CaCO3)	35.8	1.0 mg/L	50.0		72	0-200				
Reference (B4H3716-SRM1)			Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	08-23			
рН	7.01	0.10 pH units	7.01		100	98-102				
Reference (B4H3716-SRM2)			Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	08-23			
pH	7.02	0.10 pH units	7.01		100	98-102				
Microbiological Parameters, Batch B4H Blank (B4H3396-BLK1)	3396		Prepared	l: 2024-08-2	21, Analyze	ed: 2024-	08-21			
Coliforms, Total (Q-Tray)	< 1	1 MPN/100	mL							
Blank (B4H3396-BLK2)			Prepared	l: 2024-08-2	21, Analyze	ed: 2024-0	08-21			
Coliforms, Fecal (Q-Tray)	< 1	1 MPN/100	mL							
Blank (B4H3396-BLK3)			Prepared	I: 2024-08-2	21, Analyze	ed: 2024-0	08-21			
Coliforms, Fecal (Q-Tray)	< 1	1 MPN/100	mL							
Blank (B4H3396-BLK4)			Prepared	l: 2024-08-2	21, Analyze	ed: 2024-0	08-21			
Coliforms, Total (Q-Tray)	< 1	1 MPN/100	mL							
Blank (B4H3396-BLK5)			Prepared	l: 2024-08-2	21, Analyze	ed: 2024-0	08-21			
Coliforms, Fecal (Q-Tray)	< 1	1 MPN/100	mL		-					
Blank (B4H3396-BLK6)			Prepared	l: 2024-08-2	21, Analyze	ed: 2024-0	08-21			
Coliforms, Fecal (Q-Tray)	< 1	1 MPN/100	mL							





CERTIFICATE OF ANALYSIS

You know that the sample you collected after

snowshoeing to site, digging 5 meters, and

racing to get it on a plane so you can submit it

to the lab for time sensitive results needed to

make important and expensive decisions

(whew) is VERY important. We know that too.

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen WORK ORDER 24H2594

PO NUMBER RECEIVED / TEMP 2024-08-20 11:48 / 19.6°C

PROJECTRaw Influent- PE14651REPORTED2024-08-27 11:30PROJECT INFOLake Country WWTPCOC NUMBER45524.36690

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager M what



TEST RESULTS

Sample Qualifiers:

recommended.

HT2

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER REPORTED

24H2594

ED 2024-08-27 11:30

Analyte	Result	RL	Units	Analyzed	Qualifie
Raw Influent (E233627) (24H2594-01) Ma	trix: Wastewater Sam	npled: 2024-08-20 09:45			
Anions					
Nitrate (as N)	< 0.010	0.010	mg/L	2024-08-22	
Nitrite (as N)	< 0.010	0.010	mg/L	2024-08-22	
Calculated Parameters					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	85.7	2.00	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	423	1.0	mg/L	2024-08-23	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2024-08-23	
Alkalinity, Bicarbonate (as CaCO3)	423	1.0	mg/L	2024-08-23	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2024-08-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-08-23	
Ammonia, Total (as N)	72.9	0.050	mg/L	2024-08-23	
BOD, 5-day	338	2.0	mg/L	2024-08-26	
BOD, 5-day Carbonaceous	385	2.0	mg/L	2024-08-26	
Nitrogen, Total Kjeldahl	85.7	0.050	mg/L	2024-08-24	
pH	7.77	0.10	pH units	2024-08-23	HT2
Phosphorus, Total (as P)	15.8	0.0050	mg/L	2024-08-22	
Phosphorus, Dissolved Reactive	9.96	0.0050	mg/L	2024-08-22	
Solids, Total Suspended	312	2.0	mg/L	2024-08-23	

The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER
REPORTED

24H2594

2024-08-27 11:30

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Dissolved Reactive in Water	SM 4500-P F (2021)	Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



REPORTED TO Lake Country, District of (Wastewater) **PROJECT**

Raw Influent- PE14651

WORK ORDER REPORTED

24H2594 2024-08-27 11:30

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- Duplicate (Dup): An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B4H3451									
Blank (B4H3451-BLK1)			Prepared	I: 2024-08-2	21, Analyze	ed: 2024-0	08-21		
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4H3451-BS1)			Prepared	I: 2024-08-2	21, Analyze	ed: 2024-0	08-21		
Nitrate (as N)	3.96	0.010 mg/L	4.00		99	90-110			
Nitrite (as N)	2.06	0.010 mg/L	2.00		103	85-115			
General Parameters, Batch B4H3444									
Blank (B4H3444-BLK1)			Prepared	I: 2024-08-2	21, Analyze	ed: 2024-0	08-26		
BOD, 5-day	< 2.0	2.0 mg/L							
LCS (B4H3444-BS1)			Prepared	I: 2024-08-2	21, Analyze	ed: 2024-0	08-26		
BOD, 5-day	225	36.6 mg/L	198		114	85-115			
General Parameters, Batch B4H3447									
Blank (B4H3447-BLK1)			Prepared	I: 2024-08-2	21, Analyze	ed: 2024-0	08-26		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B4H3447-BS1)			Prepared	I: 2024-08-2	21, Analyze	ed: 2024-0	08-26		
BOD, 5-day Carbonaceous	225	55.4 mg/L	198		114	85-115			
General Parameters, Batch B4H3506									
Blank (B4H3506-BLK1)			Prepared	I: 2024-08-2	22, Analyze	ed: 2024-0	08-22		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B4H3506-BLK2)			Prepared	I: 2024-08-2	22, Analyze	ed: 2024-0	08-22		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
LCS (B4H3506-BS1)			Prepared	I: 2024-08-2	22, Analyze	ed: 2024-0	08-22		
Phosphorus, Total (as P)	0.104	0.0050 mg/L	0.100		104	85-115			



REPORTED TO PROJECT	Lake Country, Di Raw Influent- PE	istrict of (Wastewa E14651	ater)						24H2594 2024-08-27 11:3		
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier	
General Parameter	rs, Batch B4H3506,	Continued									
LCS (B4H3506-BS	(2)			Prepared	l: 2024-08-2	22, Analyze	ed: 2024-0	08-22			
Phosphorus, Total (as	s P)	0.105	0.0050 mg/L	0.100		105	85-115				
General Parameter	rs, Batch B4H3540										
Blank (B4H3540-B	BLK1)			Prepared	l: 2024-08-2	22, Analyze	ed: 2024-0	08-22			
Phosphorus, Dissolve	ed Reactive	< 0.0050	0.0050 mg/L	·		· ·					
LCS (B4H3540-BS	s 1)			Prepared	l: 2024-08-2	22, Analyze	ed: 2024-0	08-22			
Phosphorus, Dissolve	•	0.0970	0.0050 mg/L	0.100		97	84-115				
General Parameter	rs, Batch B4H3654										
Blank (B4H3654-B	BLK1)			Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	08-23			
Ammonia, Total (as N	١)	< 0.050	0.050 mg/L								
Blank (B4H3654-B	BLK2)			Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	08-23			
Ammonia, Total (as N	١)	< 0.050	0.050 mg/L	-		-					
Blank (B4H3654-B	BLK3)			Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	08-23			
Ammonia, Total (as N	١)	< 0.050	0.050 mg/L	•		•					
Blank (B4H3654-B	BLK4)			Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	08-23			
Ammonia, Total (as N	•	< 0.050	0.050 mg/L	·		•					
Blank (B4H3654-B	BLK5)			Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	08-23			
Ammonia, Total (as N	١)	< 0.050	0.050 mg/L								
LCS (B4H3654-BS	:1)			Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	08-23			
Ammonia, Total (as N	1)	1.00	0.050 mg/L	1.00		100	85-115				
LCS (B4H3654-BS	(2)			Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	08-23			
Ammonia, Total (as N		1.05	0.050 mg/L	1.00		105	85-115				
LCS (B4H3654-BS	3)			Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	08-23			
Ammonia, Total (as N	•	1.02	0.050 mg/L	1.00		102	85-115				
LCS (B4H3654-BS	(4)			Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	08-23			
Ammonia, Total (as N		1.02	0.050 mg/L	1.00		102	85-115				
LCS (B4H3654-BS	(5)			Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	08-23			
Ammonia, Total (as N	١)	1.01	0.050 mg/L	1.00		101	85-115				
General Parameter	rs, Batch B4H3672										
Blank (B4H3672-B				Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	08-23			
Solids, Total Suspend	ded	< 2.0	2.0 mg/L								
LCS (B4H3672-BS	31)			Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	08-23			
Solids, Total Suspend	ded	114	5.1 mg/L	100		114	85-115				
Duplicate (B4H367	72-DUP1)	Sou	rce: 24H2594-01	Prepared	l: 2024-08-2	23, Analyze	ed: 2024-0	08-23			
Solids, Total Suspend	ded	356	2.0 mg/L		312			13	20		

General Parameters, Batch B4H3711



	e Country, District of Influent- PE14651	•	ater)			WORK REPOR		24H2594 2024-08-27 11:30		
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameters, Bat	ch B4H3711, Contin	ued								
Blank (B4H3711-BLK1)				Prepared	d: 2024-08-2	23, Analyze	d: 2024-	08-24		
Nitrogen, Total Kjeldahl		< 0.050	0.050 mg/L							
Blank (B4H3711-BLK2)				Prepared	d: 2024-08-2	23, Analyze	d: 2024-	08-24		
Nitrogen, Total Kjeldahl		< 0.050	0.050 mg/L	· · · · · · · · · · · · · · · · · · ·						
LCS (B4H3711-BS1)				Prepared	d: 2024-08-2	23. Analvze	d: 2024-	08-24		
Nitrogen, Total Kjeldahl		1.01	0.050 mg/L	1.00	0 00 _	101	85-115			
			g		d: 2024-08-2			ng 24		
LCS (B4H3711-BS2) Nitrogen, Total Kjeldahl		0.961	0.050 mg/L	1.00	1. 2024-00-2	96	85-115	JU-24		
General Parameters, Bat	ch B4H3716									
Blank (B4H3716-BLK1)	=			Prepared	d: 2024-08-2	23. Analvze	d: 2024-	08-23		
Alkalinity, Total (as CaCO3)		< 1.0	1.0 mg/L			-, ,				
Alkalinity, Phenolphthalein (a	as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as C		< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as Ca		< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as Cat		< 1.0	1.0 mg/L							
Blank (B4H3716-BLK2)	,			Prepared	d: 2024-08-2	23. Analvze	d: 2024-	08-23		
Alkalinity, Total (as CaCO3)		< 1.0	1.0 mg/L		0 00 _	-0,7				
Alkalinity, Phenolphthalein (a	as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as C		< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as Ca		< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as Cat		< 1.0	1.0 mg/L							
LCS (B4H3716-BS1)				Prepared	d: 2024-08-2	23, Analyze	d: 2024-	08-23		
Alkalinity, Total (as CaCO3)		95.7	1.0 mg/L	100		96	80-120			
Alkalinity, Phenolphthalein (a	as CaCO3)	38.2	1.0 mg/L	50.0		76	0-200			
LCS (B4H3716-BS3)				Prepared	d: 2024-08-2	23, Analyze	d: 2024-	08-23		
Alkalinity, Total (as CaCO3)		94.8	1.0 mg/L	100		95	80-120			
Alkalinity, Phenolphthalein (a	as CaCO3)	35.8	1.0 mg/L	50.0		72	0-200			
Reference (B4H3716-SRI	M1)			Prepared	d: 2024-08-2	23, Analyze	d: 2024-	08-23		
рН		7.01	0.10 pH units	7.01		100	98-102			
Reference (B4H3716-SRI	/12)			Prepared	d: 2024-08-2	23, Analyze	d: 2024-	08-23		
		7.02	0.10 pH units	7.01		100	98-102			





CERTIFICATE OF ANALYSIS

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen WORK ORDER 24L0959

PO NUMBER RECEIVED / TEMP 2024-12-09 11:43 / 11.9°C

PROJECTFinal Effluent- PE14651REPORTED2024-12-16 13:15PROJECT INFOLake Country WWTPCOC NUMBER45635.29696

Introduction:

You

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

know that the sample you

after snowshoeing to site, digging 5 meters,

and racing to get it on a plane so you can

submit it to the lab for time sensitive results

needed to make important and

decisions (whew) is VERY important. We

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

collected

expensive

If you have any questions or concerns, please contact me at hhannaoui@caro.ca

Authorized By:

Hanane El Hannaoui Junior Account Manager Flo

1-888-311-8846 | www.caro.ca



TEST RESULTS

Final Effluent (24L0959-01) Matrix: Wastewater Sampled: 2024-12-09 09:25 Anions Chloride 136 0.10 mg/L 2024-12-10 Nitrate (as N) 2.92 0.010 mg/L 2024-12-10 Nitrite (as N) 0.273 0.010 mg/L 2024-12-10 Calculated Parameters Nitrate+Nitrite (as N) 3.20 0.0100 mg/L N/A Nitrogen, Total 7.05 0.0500 mg/L N/A Nitrogen, Organic 1.55 0.0500 mg/L N/A Seneral Parameters Alkalinity, Total (as CaCO3) 165 1.0 mg/L 2024-12-09 Alkalinity, Carbonate (as CaCO3) 1 165 1.0 mg/L 2024-12-09 Alkalinity, Carbonate (as CaCO3) 1 10 1.0 mg/L 2024-12-09 Alkalinity, Carbonate (as CaCO3) 1.0 1.0 mg/L 2024-12-09 Alkalinity, Hydroxide (as CaCO3) 1.0 1.0 mg/L 2024-12-09 Alkalinity, Hydroxide (as CaCO3) 1.0 1.0 mg/L 2024-12-09 Alkalinity, Hydroxide (as CaCO3) 1.0 1.0 mg/L 2024-12-09 Almonia, Total (as N) 2.30 0.050 mg/L 2024-12-10 BOD, 5-day Carbonaceous 3.4 2.0 mg/L 2024-12-16 Nitrogen, Total Kjeldahl 3.85 0.050 mg/L 2024-12-11 Phosphorus, Total (as P) 0.325 0.0050 mg/L 2024-12-10 Phosphorus, Dissolved Reactive 0.182 0.0050 mg/L 2024-12-10 Solids, Total Suspended 4.2.0 2.0 mg/L 2024-12-13	REPORTED TO PROJECT	Lake Country, District of Final Effluent- PE1465			WORK ORDER REPORTED	24L0959 2024-12-1	6 13:15
Chloride	Analyte		Result	RL	Units	Analyzed	Qualifie
Chloride	Final Effluent (24L	.0959-01) Matrix: Was	tewater Sampled: 2024-12	2-09 09:25			
Nitrite (as N) 2.92 0.010 mg/L 2024-12-10 Nitrite (as N) 0.273 0.010 mg/L 2024-12-10 Calculated Parameters	Anions						
Nitrate (as N)	Chloride		136	0.10	ma/L	2024-12-10	
Nitrite (as N) 0.273 0.010 mg/L 2024-12-10	Nitrate (as N)						
Nitrate + Nitrite (as N) 3.20 0.0100 mg/L N/A						2024-12-10	
Nitrogen, Total 7.05 0.0500 mg/L N/A Nitrogen, Organic 1.55 0.0500 mg/L N/A Nitrogen, Organic 1.55 0.0500 mg/L N/A Robertal Parameters Alkalinity, Total (as CaCO3) 165 1.0 mg/L 2024-12-09 Alkalinity, Total (as CaCO3) 4.10 1.0 mg/L 2024-12-09 Alkalinity, Bicarbonate (as CaCO3) 4.10 1.0 mg/L 2024-12-09 Alkalinity, Carbonate (as CaCO3) 4.10 1.0 mg/L 2024-12-09 Alkalinity, Hydroxide (as CaCO3) 4.10 1.0 mg/L 2024-12-10 Alkalinity, Hydroxide (as CaCO3) 4.10 1.0 mg/L 2024-12-09 Alkalinity, Hydroxide (as CaCO3) 4.10 1.0		ers					
Nitrogen, Total			3 20	0.0100	ma/l	N/A	
Nitrogen, Organic 1.55 0.0500 mg/L N/A		.,					
Alkalinity, Total (as CaCO3)							
Alkalinity, Phenolphthalein (as CaCO3) < 1.0						-	
Alkalinity, Phenolphthalein (as CaCO3) < 1.0			165	1.0	ma/l	2024-12-09	
Alkalinity, Bicarbonate (as CaCO3) 165 1.0 mg/L 2024-12-09 Alkalinity, Carbonate (as CaCO3) < 1.0 1.0 mg/L 2024-12-09 Alkalinity, Hydroxide (as CaCO3) < 1.0 1.0 mg/L 2024-12-09 Alkalinity, Hydroxide (as CaCO3) < 1.0 1.0 mg/L 2024-12-09 Ammonia, Total (as N) 2.30 0.055 mg/L 2024-12-12 BOD, 5-day Carbonaceous < 3.4 2.0 mg/L 2024-12-16 Nitrogen, Total Kjeldahl 3.85 0.050 mg/L 2024-12-11 pH 7.90 0.10 pH units 2024-12-09 HT Phosphorus, Total (as P) 0.325 0.0050 mg/L 2024-12-11 Phosphorus, Dissolved Reactive 0.182 0.0050 mg/L 2024-12-11 Phosphorus, Dissolved Reactive 0.182 0.0050 mg/L 2024-12-13 Solids, Total Suspended < 2.0 2.0 mg/L 2024-12-13 Microbiological Parameters Coliforms, Total (Q-Tray) 141000 1 MPN/100 mL 2024-12-09 Coliforms, Fecal (Q-Tray) 18500 1 MPN/100 mL 2024-12-09 Trip Blank (24L0959-02) Matrix: Wastewater Sampled: 2024-12-09 09:40 Anions Chloride < 0.10 0.10 mg/L 2024-12-10 Nitrate (as N) < 0.010 0.010 mg/L 2024-12-10 Alkalinity, Total (as CaCO3) < 1.0 mg/L 2024-12-09 Alkalinity, Total (as CaCO3) < 1.0 mg/L 2024-12-09 Alkalinity, Phenolphthalein (as CaCO3) < 1.0 mg/L 2024-12-09 Alkalinity, Phenolphthalein (as CaCO3) < 1.0 mg/L 2024-12-09 Alkalinity, Phenolphthalein (as CaCO3) < 1.0 mg/L 2024-12-09		· · · · · · · · · · · · · · · · · · ·					
Alkalinity, Carbonate (as CaCO3) < 1.0		· · · · · · · · · · · · · · · · · · ·					
Alkalinity, Hydroxide (as CaCO3) < 1.0							
Ammonia, Total (as N)		· · · · · · · · · · · · · · · · · · ·					
BOD, 5-day Carbonaceous		· · · · · · · · · · · · · · · · · · ·					
Nitrogen, Total Kjeldahl 3.85	· · · · · · · · · · · · · · · · · · ·	•					
pH 7.90 0.10 pH units 2024-12-09 hT Phosphorus, Total (as P) 0.325 0.0050 mg/L 2024-12-11 Phosphorus, Dissolved Reactive 0.182 0.0050 mg/L 2024-12-10 2024-12-10 Solids, Total Suspended < 2.0 2.0 mg/L 2024-12-10 2024-12-13 Microbiological Parameters Coliforms, Total (Q-Tray) 141000 1 MPN/100 mL 2024-12-09 2024-12-09 2024-12-09 2024-12-09 2024-12-09 2024-12-09 2024-12-09 2024-12-09 2024-12-09 2024-12-09 2024-12-09 2024-12-09 2024-12-09 2024-12-09 2024-12-09 2024-12-09 2024-12-09 2024-12-10 2024-12							
Phosphorus, Total (as P)		udi ii					HT2
Phosphorus, Dissolved Reactive 0.182 0.0050 mg/L 2024-12-10		as P)			•		
Solids, Total Suspended < 2.0 2.0 mg/L 2024-12-13		· · ·					
Microbiological Parameters Coliforms, Total (Q-Tray) 141000 1 MPN/100 mL 2024-12-09 Coliforms, Fecal (Q-Tray) 18500 1 MPN/100 mL 2024-12-09 Trip Blank (24L0959-02) Matrix: Wastewater Sampled: 2024-12-09 09:40 Anions Chloride < 0.10							
Coliforms, Total (Q-Tray) 18500 1 MPN/100 mL 2024-12-09 Coliforms, Fecal (Q-Tray) 18500 1 MPN/100 mL 2024-12-09 Trip Blank (24L0959-02) Matrix: Wastewater Sampled: 2024-12-09 09:40 Anions Chloride color: 0.10 mg/L 2024-12-10 Nitrate (as N) color: 0.010 mg/L 2024-12-10 Nitrite (as N) color: 0.010 mg/L 2024-12-10 Nitrite (as N) color: 0.010 mg/L 2024-12-10 Calculated Parameters Nitrate+Nitrite (as N) o.0100 mg/L N/A Nitrogen, Total o.0500 mg/L N/A Nitrogen, Organic o.0500 mg/L N/A Calculated Parameters Alkalinity, Total (as CaCO3) o.0500 mg/L N/A Calculated Parameters Alkalinity, Total (as CaCO3) o.0500 mg/L N/A Calculated Parameters Alkalinity, Phenolphthalein (as CaCO3) o.0500 mg/L N/A Calculated Parameters Alkalinity, Phenolphthalein (as CaCO3) o.0500 mg/L N/A Calculated Parameters Alkalinity, Phenolphthalein (as CaCO3) o.0500 mg/L N/A Calculated Parameters Alkalinity, Phenolphthalein (as CaCO3) o.0500 mg/L N/A Calculated Parameters Alkalinity, Bicarbonate (as CaCO3) o.0500 mg/L N/A Calculated Parameters Alkalinity, Bicarbonate (as CaCO3) 							



TEST RESULTS

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED 24L0959

2024-12-16 13:15

Analyte	Result	RL	Units	Analyzed	Qualifier
Trip Blank (24L0959-02) Matrix: Was	tewater Sampled: 2024-12-09	09:40, Continued			
General Parameters, Continued					
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-12-09	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2024-12-12	
BOD, 5-day Carbonaceous	< 3.4	2.0	mg/L	2024-12-16	
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L	2024-12-11	
рН	6.09	0.10	pH units	2024-12-09	HT2
Phosphorus, Total (as P)	< 0.0050	0.0050	mg/L	2024-12-11	
Phosphorus, Dissolved Reactive	< 0.0050	0.0050	mg/L	2024-12-10	
Solids, Total Suspended	< 2.0	2.0	mg/L	2024-12-13	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	< 1	1	MPN/100 mL	2024-12-09	
Coliforms, Fecal (Q-Tray)	< 1	1	MPN/100 mL	2024-12-09	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED 24L0959

D 2024-12-16 13:15

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Coliforms, Total in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Dissolved Reactive in Water	SM 4500-P F (2021)	Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

MPN/100 mL Most Probable Number per 100 millilitres

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED 24L0959

2024-12-16 13:15

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



PROJECT

APPENDIX 2: QUALITY CONTROL RESULTS

Lake Country, District of (Wastewater) REPORTED TO

Final Effluent- PE14651

WORK ORDER **REPORTED**

24L0959 2024-12-16 13:15

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- · Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- Duplicate (Dup): An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B4L2140									
Blank (B4L2140-BLK1)			Prepared	: 2024-12-1	I0, Analyze	d: 2024-	12-10		
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4L2140-BS1)			Prepared	: 2024-12-1	I0, Analyze	d: 2024-	12-10		
Chloride	16.0	0.10 mg/L	16.0		100	90-110			
Nitrate (as N)	4.03	0.010 mg/L	4.00		101	90-110			
Nitrite (as N)	2.10	0.010 mg/L	2.00		105	85-115			

General Parameters, Batch B4L2160						
Blank (B4L2160-BLK1)			Prepared: 202	24-12-09, Analyz	ed: 2024-12-09	
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L				
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L				
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L				
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L				
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L				
Blank (B4L2160-BLK2)			Prepared: 202	24-12-09, Analyz	ed: 2024-12-09	
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L				
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L				
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L				
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L				
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L				
LCS (B4L2160-BS1)			Prepared: 202	24-12-09, Analyz	ed: 2024-12-09	
Alkalinity, Total (as CaCO3)	90.1	1.0 mg/L	100	90	80-120	
Alkalinity, Phenolphthalein (as CaCO3)	38.6	1.0 mg/L	50.0	77	0-200	
LCS (B4L2160-BS3)			Prepared: 202	24-12-09, Analyz	ed: 2024-12-09	
Alkalinity, Total (as CaCO3)	90.6	1.0 mg/L	100	91	80-120	
Alkalinity, Phenolphthalein (as CaCO3)	35.8	1.0 mg/L	50.0	72	0-200	



REPORTED TO Lake Country, Distr PROJECT Final Effluent- PE1	•	ater)			WORK REPOR)959 I-12-16	13:15
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameters, Batch B4L2160, Co	ntinued								
Reference (B4L2160-SRM1)			Prepared	: 2024-12-09), Analyze	d: 2024-	12-09		
рН	7.02	0.10 pH units	7.01		100	98-102			
Reference (B4L2160-SRM2)			Prepared	: 2024-12-09), Analyze	d: 2024-	12-09		
рН	7.02	0.10 pH units	7.01		100	98-102			
General Parameters, Batch B4L2231									
Blank (B4L2231-BLK1)			Prepared	: 2024-12-10), Analyze	d: 2024-	12-11		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
Blank (B4L2231-BLK2)			Prepared	: 2024-12-10), Analyze	d: 2024-	12-11		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
LCS (B4L2231-BS1)			Prepared	: 2024-12-10), Analyze	d: 2024-	12-11		
Nitrogen, Total Kjeldahl	1.06	0.050 mg/L	1.00		106	85-115			
LCS (B4L2231-BS2)			Prepared	: 2024-12-10), Analyze	d: 2024-	12-11		
Nitrogen, Total Kjeldahl	1.07	0.050 mg/L	1.00		107	85-115			
Blank (B4L2242-BLK1) Phosphorus, Dissolved Reactive	< 0.0050	0.0050 mg/L	Prepared	: 2024-12-10), Analyze	d: 2024-	12-10		
LCS (B4L2242-BS1)			Prenared	: 2024-12-10) Analyze	d. 2024-	12-10		
Phosphorus, Dissolved Reactive	0.100	0.0050 mg/L	0.100	. 2024 12 10	100	84-115	12 10		
General Parameters, Batch B4L2302 Blank (B4L2302-BLK1)			Prepared	: 2024-12-10), Analyze	d: 2024-	12-11		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B4L2302-BLK2)			Prepared	: 2024-12-10), Analyze	d: 2024-	12-11		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B4L2302-BLK3)			Prepared	: 2024-12-10), Analyze	d: 2024-	12-11		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
LCS (B4L2302-BS1)			Prepared	: 2024-12-10), Analyze	d: 2024-	12-11		
Phosphorus, Total (as P)	0.101	0.0050 mg/L	0.100		101	85-115			
LCS (B4L2302-BS2)			Prepared	: 2024-12-10), Analyze	d: 2024-	12-11		
Phosphorus, Total (as P)	0.101	0.0050 mg/L	0.100		101	85-115			
LCS (B4L2302-BS3)			Prepared	: 2024-12-10), Analyze	d: 2024-	12-11		
Phosphorus, Total (as P)	0.100	0.0050 mg/L	0.100		100	85-115			
General Parameters, Batch B4L2410									
Blank (B4L2410-BLK1)			Prepared	: 2024-12-11	, Analyze	d: 2024-	12-16		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B4L2410-BS1)			Prepared	: 2024-12-11	, Analyze	d: 2024-	12-16		
BOD, 5-day Carbonaceous	219	56.5 mg/L	198		111	85-115			



	Lake Country, Distric Final Effluent- PE14	`	ater)			WORK REPOR	ORDER TED	24L0 2024)959 I-12-16	13:15
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters,	Batch B4L2525									
Blank (B4L2525-BLK	(1)			Prepared	l: 2024-12-1	2, Analyze	d: 2024-1	2-12		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							SPK1
Blank (B4L2525-BLK	(2)			Prepared	l: 2024-12-1	2, Analyze	d: 2024-1	2-12		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							SPK1
Blank (B4L2525-BLK	(3)			Prepared	l: 2024-12-1	2, Analyze	d: 2024-1	2-12		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							SPK1
Blank (B4L2525-BLK	(4)			Prepared	l: 2024-12-1	2, Analyze	d: 2024-1	2-12		
Ammonia, Total (as N)	•	< 0.050	0.050 mg/L			-				SPK1
LCS (B4L2525-BS1)				Prepared	l: 2024-12-1	2, Analyze	d: 2024-1	2-12		
Ammonia, Total (as N)		0.977	0.050 mg/L	1.00		98	85-115			
LCS (B4L2525-BS2)				Prepared	l: 2024-12-1	2, Analyze	d: 2024-1	2-12		
Ammonia, Total (as N)		1.04	0.050 mg/L	1.00		104	85-115			
LCS (B4L2525-BS3)				Prepared	l: 2024-12-1	2, Analyze	d: 2024-1	2-12		
Ammonia, Total (as N)		1.05	0.050 mg/L	1.00		105	85-115			
LCS (B4L2525-BS4)				Prepared	l: 2024-12-1	2. Analvze	d: 2024-1	2-12		
Ammonia, Total (as N)		1.04	0.050 mg/L	1.00		104	85-115			
Duplicate (B4L2525-	DUP2)	Sou	rce: 24L0959-01	Prepared	l: 2024-12-1	2, Analyze	d: 2024-1	2-12		
Ammonia, Total (as N)		2.30	0.050 mg/L		2.30			< 1	15	
Matrix Spike (B4L25)	25-MS2)	Sou	rce: 24L0959-01	Prepared	l: 2024-12-1	2, Analyze	d: 2024-1	2-12		
Ammonia, Total (as N)	•	2.41	0.050 mg/L	0.204	2.30	55	75-125			MS2
General Parameters, Blank (B4L2647-BLK Solids, Total Suspended	(1)	< 2.0	2.0 mg/L	Prepared	l: 2024-12-1	3, Analyze	d: 2024-1	2-13		
1 00 (D4) 0047 D04)			-	D=======	. 0004 40 4	O A l	4. 2024 4	2.42		
LCS (B4L2647-BS1)	1	02.5	5.0 mg/l	•	l: 2024-12-1			2-13		
LCS (B4L2647-BS1) Solids, Total Suspended Microbiological Parad		92.5 80	5.0 mg/L	Prepared 100	l: 2024-12-1	3, Analyze 92	d: 2024-1; 85-115	2-13		
Solids, Total Suspended	meters, Batch B4L21		5.0 mg/L	100	l: 2024-12-1 l: 2024-12-0	92	85-115			
Solids, Total Suspended Microbiological Paral	meters, Batch B4L21		5.0 mg/L 1 MPN/100	100 Prepared		92	85-115			
Solids, Total Suspended Microbiological Paral Blank (B4L2180-BLK	meters, Batch B4L21 (1) y)	80	Ţ	100 Prepared		92 9, Analyze	85-115 d: 2024-12	2-09		
Solids, Total Suspended Microbiological Paral Blank (B4L2180-BLK Coliforms, Fecal (Q-Tra	meters, Batch B4L21 (1) y)	80	Ţ	Prepared mL Prepared	l: 2024-12-0	92 9, Analyze	85-115 d: 2024-12	2-09		
Solids, Total Suspended Microbiological Paral Blank (B4L2180-BLK Coliforms, Fecal (Q-Trail Blank (B4L2180-BLK	meters, Batch B4L21 (1) (y) (2)	80 < 1	1 MPN/100	Prepared mL Prepared mL	l: 2024-12-0	92 9, Analyze 9, Analyze	85-115 d: 2024-1: d: 2024-1:	2-09 2-09		
Solids, Total Suspended Microbiological Paral Blank (B4L2180-BLK Coliforms, Fecal (Q-Tray Blank (B4L2180-BLK Coliforms, Total (Q-Tray	meters, Batch B4L21 (1) (y) (2) (3)	80 < 1	1 MPN/100	Prepared mL Prepared mL Prepared	l: 2024-12-0 l: 2024-12-0	92 9, Analyze 9, Analyze	85-115 d: 2024-1: d: 2024-1:	2-09 2-09		
Solids, Total Suspended Microbiological Paral Blank (B4L2180-BLK Coliforms, Fecal (Q-Tray Blank (B4L2180-BLK Coliforms, Total (Q-Tray Blank (B4L2180-BLK	meters, Batch B4L21 (1) (2) (2) (3)	<pre>80 <1 <1 <1 <1</pre>	1 MPN/100	Prepared mL Prepared mL Prepared mL Prepared	l: 2024-12-0 l: 2024-12-0	92 9, Analyze 9, Analyze 9, Analyze	85-115 d: 2024-12 d: 2024-12 d: 2024-12	2-09 2-09 2-09		



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED 24L0959

ORTED 2024-12-16 13:15

QC Qualifiers:

MS2 The native sample concentration is greater than the spike concentration hence the matrix spike limits do not

apply.

SPK1 The recovery of this analyte was outside of established control limits. The data was accepted based on

performance of other batch QC.





CERTIFICATE OF ANALYSIS

You know that the sample you collected after

snowshoeing to site, digging 5 meters, and

racing to get it on a plane so you can submit it

to the lab for time sensitive results needed to

make important and expensive decisions

(whew) is VERY important. We know that too.

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen WORK ORDER 24L0958

PO NUMBER RECEIVED / TEMP 2024-12-09 11:43 / 11.9°C

PROJECTRaw Influent- PE14651REPORTED2024-12-16 13:21PROJECT INFOLake Country WWTPCOC NUMBER45635.39696

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

✓ We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at hhannaoui@caro.ca

Authorized By:

Hanane El Hannaoui Junior Account Manager 717

1-888-311-8846 | www.caro.ca



TEST RESULTS

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER

24L0958

REPORTED 2024-12-16 13:21

Analyte	Result	RL	Units	Analyzed	Qualifie
Raw Influent (24L0958-01) Matrix: Water	Sampled: 2024-12-09 10:20				
Anions					
Nitrate (as N)	< 0.010	0.010	mg/L	2024-12-10	
Nitrite (as N)	< 0.010	0.010	mg/L	2024-12-10	
Calculated Parameters					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	99.6	2.00	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	361	1.0	mg/L	2024-12-09	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2024-12-09	
Alkalinity, Bicarbonate (as CaCO3)	361	1.0	mg/L	2024-12-09	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2024-12-09	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-12-09	
Ammonia, Total (as N)	66.5	0.050	mg/L	2024-12-12	
BOD, 5-day	623	2.0	mg/L	2024-12-16	
BOD, 5-day Carbonaceous	546	2.0	mg/L	2024-12-16	
Nitrogen, Total Kjeldahl	99.6	0.050	mg/L	2024-12-11	
pH	8.24	0.10	pH units	2024-12-09	HT2
Phosphorus, Total (as P)	9.02	0.0050	mg/L	2024-12-11	
Phosphorus, Dissolved Reactive	6.28	0.0050	mg/L	2024-12-10	
Solids, Total Suspended	300		mg/L	2024-12-13	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER
REPORTED

24L0958

TED 2024-12-16 13:21

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Dissolved Reactive in Water	SM 4500-P F (2021)	Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	√	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER REPORTED

24L0958 2024-12-16 13:21

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B4L2140									
Blank (B4L2140-BLK1)			Prepared	I: 2024-12-	I0, Analyze	ed: 2024-	12-10		
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4L2140-BS1)			Prepared	I: 2024-12-	I0, Analyze	ed: 2024-	12-10		
Nitrate (as N)	4.03	0.010 mg/L	4.00		101	90-110			
Nitrite (as N)	2.10	0.010 mg/L	2.00		105	85-115			
General Parameters, Batch B4L2160									
Blank (B4L2160-BLK1)			Prepared	I: 2024-12-0)9, Analyze	ed: 2024-	12-09		
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L	•						
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
Blank (B4L2160-BLK2)			Prepared	I: 2024-12-0	9, Analyze	ed: 2024-	12-09		
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
LCS (B4L2160-BS1)			Prepared	I: 2024-12-0	9, Analyze	ed: 2024-	12-09		
Alkalinity, Total (as CaCO3)	90.1	1.0 mg/L	100		90	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	38.6	1.0 mg/L	50.0		77	0-200			
LCS (B4L2160-BS3)			Prepared	I: 2024-12-0	9, Analyze	ed: 2024-	12-09		
Alkalinity, Total (as CaCO3)	90.6	1.0 mg/L	100		91	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	35.8	1.0 mg/L	50.0		72	0-200			
Reference (B4L2160-SRM1)			Prepared: 2024-12-09, Analyzed: 2024-12-09						
рН	7.02	0.10 pH units	7.01		100	98-102			
Reference (B4L2160-SRM2)			Prepared	I: 2024-12-(9, Analyze	ed: 2024-	12-09		
	7.00	0.40 11 "			_				

7.01

100

98-102

0.10 pH units

7.02



REPORTED TO Lake Country, Raw Influent- I		District of (Wastewater) PE14651				WORK ORDER REPORTED		24L0958 2024-12-1		6 13:21	
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier	
General Parameter	rs, Batch B4L2231										
Blank (B4L2231-B	LK1)			Prepared	l: 2024-12-10	0, Analyze	ed: 2024-1	2-11			
Nitrogen, Total Kjelda	ahl	< 0.050	0.050 mg/L	•		-					
Blank (B4L2231-B	LK2)			Prepared	l: 2024-12-10	0, Analyze	ed: 2024-1	2-11			
Nitrogen, Total Kjelda	ahl	< 0.050	0.050 mg/L								
LCS (B4L2231-BS	1)			Prepared	l: 2024-12-10	0, Analyze	ed: 2024-1	2-11			
Nitrogen, Total Kjelda	ahl	1.06	0.050 mg/L	1.00		106	85-115				
LCS (B4L2231-BS	2)			Prepared	l: 2024-12-10	0, Analyze	ed: 2024-1	2-11			
Nitrogen, Total Kjelda	ahl	1.07	0.050 mg/L	1.00		107	85-115				
General Parameter Blank (B4L2242-B	•			Prepared	l: 2024-12-1	0, Analyze	ed: 2024-1	2-10			
Phosphorus, Dissolve		< 0.0050	0.0050 mg/L								
LCS (B4L2242-BS	1)			Prepared	l: 2024-12-10	0, Analyze	ed: 2024-1	2-10			
Phosphorus, Dissolve	,	0.100	0.0050 mg/L	0.100		100	84-115				
Blank (B4L2302-B Phosphorus, Total (as	LK1)	< 0.0050	0.0050 mg/L	Prepared	l: 2024-12-1	0, Analyze	ed: 2024-1	2-11			
Blank (B4L2302-B	LK2)			Prepared	: 2024-12-1	0, Analyze	ed: 2024-1	2-11			
Phosphorus, Total (as	s P)	< 0.0050	0.0050 mg/L								
Blank (B4L2302-B	LK3)			Prepared	: 2024-12-10	0, Analyze	ed: 2024-1	2-11			
Phosphorus, Total (as	s P)	< 0.0050	0.0050 mg/L								
LCS (B4L2302-BS	1)			Prepared	: 2024-12-10	0, Analyze	ed: 2024-1	2-11			
Phosphorus, Total (as	s P)	0.101	0.0050 mg/L	0.100		101	85-115				
LCS (B4L2302-BS	2)			Prepared	: 2024-12-1	0, Analyze	ed: 2024-1	2-11			
Phosphorus, Total (as	s P)	0.101	0.0050 mg/L	0.100		101	85-115				
LCS (B4L2302-BS	3)			Prepared	: 2024-12-1	0, Analyze	ed: 2024-1	2-11			
Phosphorus, Total (as	s P)	0.100	0.0050 mg/L	0.100		100	85-115				
General Parameter				_							
Blank (B4L2410-B		.00	0.0	Prepared	l: 2024-12-1 ²	ı, Analyze	ed: 2024-1	2-16			
BOD, 5-day Carbona		< 2.0	2.0 mg/L								
LCS (B4L2410-BS	•				l: 2024-12-1 ²			2-16			
BOD, 5-day Carbona		219	56.5 mg/L	198		111	85-115				
General Parameter Blank (B4L2411-B				Prenared	l: 2024-12-1	1 Analyze	ed: 2024-1	2-16			
BOD, 5-day	,	< 2.0	2.0 mg/L	. ropareu		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	. G. EULT-1	0			
LCS (B4L2411-BS	1)		<i>y</i> g . <u>=</u>	Prenared	l: 2024-12-1	1 Analyze	d· 2024-1	2-16			
BOD, 5-day	'/	208	47.0 mg/L	198	2027-12-1	105	85-115	2-10			
, , , , , , , , , , , , , , , , , ,			mg/L	100		100	55 110				



REPORTED TO PROJECT	Lake Country, Distr Raw Influent- PE14	Country, District of (Wastewater) nfluent- PE14651				WORK ORDER REPORTED		24L0958 2024-12-16		6 13:21	
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier	
General Parameter	rs, Batch B4L2525										
Blank (B4L2525-B	LK1)			Prepared	l: 2024-12-1	12, Analyze	ed: 2024-1	2-12			
Ammonia, Total (as N	N)	< 0.050	0.050 mg/L	-		-				SPK1	
Blank (B4L2525-B	LK2)			Prepared	l: 2024-12-1	12, Analyze	ed: 2024-1	2-12			
Ammonia, Total (as N	N)	< 0.050	0.050 mg/L	•		-				SPK1	
Blank (B4L2525-B	LK3)			Prepared	l: 2024-12-1	12, Analyze	ed: 2024-1	2-12			
Ammonia, Total (as N	N)	< 0.050	0.050 mg/L							SPK1	
Blank (B4L2525-B	LK4)			Prepared	l: 2024-12-1	12, Analyze	ed: 2024-1	2-12			
Ammonia, Total (as N	N)	< 0.050	0.050 mg/L	•		-				SPK1	
LCS (B4L2525-BS	1)			Prepared	l: 2024-12-1	12, Analyze	ed: 2024-1	2-12			
Ammonia, Total (as N	N)	0.977	0.050 mg/L	1.00		98	85-115				
LCS (B4L2525-BS	2)			Prepared	l: 2024-12-1	12, Analyze	ed: 2024-1	2-12			
Ammonia, Total (as N	N)	1.04	0.050 mg/L	1.00		104	85-115				
LCS (B4L2525-BS	3)			Prepared	l: 2024-12-1	12, Analyze	ed: 2024-1	2-12			
Ammonia, Total (as N	N)	1.05	0.050 mg/L	1.00		105	85-115				
LCS (B4L2525-BS	4)			Prepared	l: 2024-12-1	12, Analyze	ed: 2024-1	2-12			
Ammonia, Total (as N	N)	1.04	0.050 mg/L	1.00		104	85-115				
General Parameter	rs, Batch B4L2647										
Blank (B4L2647-B	LK1)			Prepared	l: 2024-12-1	13, Analyze	ed: 2024-1	2-13			
Solids, Total Suspend	ded	< 2.0	2.0 mg/L								
LCS (B4L2647-BS	1)			Prepared	l: 2024-12-1	13, Analyze	ed: 2024-1	2-13			
Solids, Total Suspend	ded	92.5	5.0 mg/L	100		92	85-115				
Duplicate (B4L264	17-DUP1)	Sou	rce: 24L0958-01	Prepared	l: 2024-12-1	13, Analyze	ed: 2024-1	2-13			
Solids, Total Suspend	ded	294	2.0 mg/L		300			2	20		

QC Qualifiers:

SPK1 The recovery of this analyte was outside of established control limits. The data was accepted based on performance of other batch QC.





CERTIFICATE OF ANALYSIS

You know that the sample you collected after

snowshoeing to site, digging 5 meters, and

racing to get it on a plane so you can submit it

to the lab for time sensitive results needed to

make important and expensive decisions

(whew) is VERY important. We know that too.

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen WORK ORDER 24B2888

PO NUMBER RECEIVED / TEMP 2024-02-27 14:19 / 7.1°C

PROJECTFinal Effluent- PE14651REPORTED2024-03-04 13:33PROJECT INFOLake Country WWTPCOC NUMBER45349.45435

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued

opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager M undbed



REPORTED TO Lake Country, District of Final Effluent- PE1465	,		WORK ORDER REPORTED	24B2888 2024-03-0	4 13:33	
Analyte	Result	RL	Units	Analyzed	Qualifier	
Final Effluent (E233626) (24B2888-01) M	atrix: Wastewater Sample	ed: 2024-02-27 10:45				
Anions						
Chloride	133	0.10	mg/L	2024-03-01		
Nitrate (as N)	3.28	0.010		2024-03-01		
Nitrite (as N)	0.083	0.010		2024-03-01		
Phosphate (as P)	0.0640	0.0050	mg/L	2024-02-29		
Calculated Parameters			-			
Nitrate+Nitrite (as N)	3.36	0.0100	mg/L	N/A		
Nitrogen, Total	5.41	0.0500	mg/L	N/A		
Nitrogen, Organic	1.32	0.0500	mg/L	N/A		
General Parameters						
Alkalinity, Total (as CaCO3)	178	1.0	mg/L	2024-02-29		
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0		mg/L	2024-02-29		
Alkalinity, Bicarbonate (as CaCO3)	178	1.0		2024-02-29		
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0		2024-02-29		
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0		2024-02-29		
Ammonia, Total (as N)	0.725	0.050		2024-03-02		
BOD, 5-day Carbonaceous	5.8		mg/L	2024-03-04		
Nitrogen, Total Kjeldahl	2.04	0.050		2024-03-01		
pH	7.41		pH units	2024-02-29	HT2	
Phosphorus, Total (as P)	0.175	0.0050	•	2024-02-29		
Solids, Total Suspended	< 2.0		mg/L	2024-03-01		
Microbiological Parameters						
Coliforms, Total (Q-Tray)	43500	1	MPN/100 mL	2024-02-28		
Coliforms, Fecal (Q-Tray)	7260	1	MPN/100 mL	2024-02-28		
Trip Blank (24B2888-02) Matrix: Wastew Anions	ater Sampled: 2024-02-27					
Chloride	< 0.10		mg/L	2024-03-01		
Nitrate (as N)	< 0.010	0.010		2024-03-01		
Nitrite (as N)	< 0.010	0.010		2024-03-01		
Phosphate (as P)	< 0.0050	0.0050	mg/L	2024-02-29		
Calculated Parameters						
Nitrate+Nitrite (as N)	< 0.0100	0.0100		N/A		
Nitrogen, Total	< 0.0500	0.0500	mg/L	N/A		
Nitrogen, Organic	< 0.0500	0.0500	mg/L	N/A		
General Parameters						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L	2024-02-29		
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2024-02-29		



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER

24B2888

REPORTED 2024-03-04 13:33

Analyte	Result	RL	Units	Analyzed	Qualifie
Trip Blank (24B2888-02) Matrix: Wast	ewater Sampled: 2024-02-27	7 10:55, Continued			
General Parameters, Continued					
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2024-02-29	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-02-29	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2024-03-02	
BOD, 5-day Carbonaceous	< 4.5	2.0	mg/L	2024-03-04	
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L	2024-03-01	
рН	5.50	0.10	pH units	2024-02-29	HT2
Phosphorus, Total (as P)	< 0.0050	0.0050	mg/L	2024-02-29	
Solids, Total Suspended	< 5.0	2.0	mg/L	2024-03-01	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	< 1	1	MPN/100 mL	2024-02-28	
Coliforms, Fecal (Q-Tray)	< 1	1	MPN/100 mL	2024-02-28	

Sample Qualifiers:



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED 24B2888

2024-03-04 13:33

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Coliforms, Total in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

MPN/100 mL Most Probable Number per 100 millilitres

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



PROJECT

BOD, 5-day Carbonaceous

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO Lake Country, District of (Wastewater)

Final Effluent- PE14651

WORK ORDER REPORTED

24B2888 2024-03-04 13:33

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
Anions, Batch B4B3627									
Blank (B4B3627-BLK1)			Prepared	d: 2024-03-0)1, Analyze	d: 2024-	03-01		
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Blank (B4B3627-BLK2)			Prepared	d: 2024-03-0)1, Analyze	d: 2024-	03-01		
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4B3627-BS1)			Prepared	d: 2024-03-0)1, Analyze	d: 2024-	03-01		
Chloride	16.1	0.10 mg/L	16.0		100	90-110			
Nitrate (as N)	3.92	0.010 mg/L	4.00		98	90-110			
Nitrite (as N)	2.20	0.010 mg/L	2.00		110	85-115			
LCS (B4B3627-BS2)			Prepared	d: 2024-03-0)1, Analyze	d: 2024-	03-01		
Chloride	15.7	0.10 mg/L	16.0		98	90-110			
Nitrate (as N)	4.02	0.010 mg/L	4.00		100	90-110			
Nitrite (as N)	2.10	0.010 mg/L	2.00		105	85-115			
Anions, Batch B4B3672									
Blank (B4B3672-BLK1)			Prepared	d: 2024-02-2	29, Analyze	d: 2024-	02-29		
Phosphate (as P)	< 0.0050	0.0050 mg/L							
LCS (B4B3672-BS1)			Prepared	d: 2024-02-2	29, Analyze	d: 2024-	02-29		
Phosphate (as P)	0.102	0.0050 mg/L	0.100		102	80-120			
General Parameters, Batch B4B3614									
Blank (B4B3614-BLK1)			Prepared	d: 2024-02-2	28, Analyze	d: 2024-	03-04		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B4B3614-BS1)			Prepared	d: 2024-02-2	28, Analyze	d: 2024-	03-04		
	222	07.7 "				05.445			

198

106

85-115

37.7 mg/L

209



					-					
REPORTED TO PROJECT	Lake Country, Distr Final Effluent- PE1	•	ater)			WORK REPOR	ORDER TED	24B2 2024	2888 I-03-04	13:33
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameter	s, Batch B4B3622									
Blank (B4B3622-B	LK1)			Prepared	: 2024-02-2	8, Analyze	d: 2024-0	2-29		
Phosphorus, Total (as	s P)	< 0.0050	0.0050 mg/L							
Blank (B4B3622-B	LK2)			Prepared	: 2024-02-2	8. Analyze	d: 2024-0	2-29		
Phosphorus, Total (as	•	< 0.0050	0.0050 mg/L	'		<u>-, , , , , , , , , , , , , , , , , , , </u>				
LCS (B4B3622-BS				Drenared	: 2024-02-2	· Ω Δnalvze	v4· 2034-0	12-20		
Phosphorus, Total (as	•	0.105	0.0050 mg/L	0.100	. 2024-02-2	105	85-115	12-29		
	,	0.103	0.0030 Hig/L							
LCS (B4B3622-BS	•				: 2024-02-2			12-29		
Phosphorus, Total (as	s P)	0.105	0.0050 mg/L	0.100		105	85-115			
General Parameter	s, Batch B4B3656									
Blank (B4B3656-B	LK1)			Prepared	: 2024-02-2	9, Analyze	:d: 2024-0)2-29		
Alkalinity, Total (as Ca		< 1.0	1.0 mg/L							
Alkalinity, Phenolphti Alkalinity, Bicarbona	, ,	< 1.0 < 1.0	1.0 mg/L 1.0 mg/L							
Alkalinity, Carbonate		< 1.0	1.0 mg/L							
Alkalinity, Hydroxide	· ,	< 1.0	1.0 mg/L							
рН		5.60	0.10 pH units							HT2
Blank (B4B3656-B	LK2)			Prepared	: 2024-02-2	9, Analyze	d: 2024-0	2-29		
Alkalinity, Total (as Ca	•	< 1.0	1.0 mg/L	<u>'</u>		<u>-, , , </u>				
Alkalinity, Phenolpht		< 1.0	1.0 mg/L							
Alkalinity, Bicarbona	te (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate	· ,	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide pH	(as CaCO3)	< 1.0 5.57	1.0 mg/L 0.10 pH units							HT2
		0.07	0.10 pri unito							1112
LCS (B4B3656-BS	•				: 2024-02-2	<u>.</u>		12-29		
Alkalinity, Total (as Ca		102	1.0 mg/L	100		102	80-120			
Alkalinity, Phenolpht	naiein (as CaCO3)	68.8	1.0 mg/L	50.0		138	0-200			
LCS (B4B3656-BS	2)			Prepared	: 2024-02-2	9, Analyze	d: 2024-0	2-29		
Alkalinity, Total (as Ca		102	1.0 mg/L	100		102	80-120			
Alkalinity, Phenolpht	halein (as CaCO3)	52.4	1.0 mg/L	50.0		105	0-200			
Reference (B4B36	56-SRM1)			Prepared	: 2024-02-2	9, Analyze	d: 2024-0	2-29		
pH		7.03	0.10 pH units	7.01		100	98-102			
Reference (B4B36	56-SRM2)			Prepared	: 2024-02-2	9, Analyze	ed: 2024-0	2-29		
pH	, , , , , , , , , , , , , , , , , , ,	7.03	0.10 pH units	7.01		100	98-102			
General Parameter	s, Batch B4B3687									
Blank (B4B3687-B	LK1)			Prepared	: 2024-03-0	1, Analyze	d: 2024-0	3-01		
Solids, Total Suspend	ded	< 2.0	2.0 mg/L							
LCS (B4B3687-BS	1)		-	Prepared	: 2024-03-0	1. Analyze	d: 2024-0	3-01		
Solids, Total Suspend	•	92.1	9.9 mg/L	100		92	85-115			
General Parameter	s, Batch B4B3704									
Blank (B4B3704-B	LK1)			Prepared	: 2024-02-2	9. Analyze	d: 2024-0	3-01		
Nitrogen, Total Kjelda	•	< 0.050	0.050 mg/L		· 	-, ,	3			
		3.000	0.000 mg/L							



REPORTED TO PROJECT	Lake Country, District of Final Effluent- PE1465		ater)			WORK REPOR	ORDER 24B2888 RTED 2024-03-04 13:			13:33
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameters,	Batch B4B3704, Contir	nued								
Blank (B4B3704-BL	K2)			Prepared	I: 2024-02-29	, Analyze	d: 2024-0	3-01		
Nitrogen, Total Kjeldah	1	< 0.050	0.050 mg/L							
LCS (B4B3704-BS1))			Prepared	I: 2024-02-29	, Analyze	ed: 2024-0	3-01		
Nitrogen, Total Kjeldah		0.968	0.050 mg/L	1.00		97	85-115			
LCS (B4B3704-BS2))			Prepared	I: 2024-02-29	, Analyze	d: 2024-0	3-01		
Nitrogen, Total Kjeldah		0.969	0.050 mg/L	1.00		97	85-115			
General Parameters,	Batch B4C1367									
Blank (B4C1367-BL	K1)			Prepared	I: 2024-03-02	. Analyze	ed: 2024-0	3-02		
Ammonia, Total (as N)		< 0.050	0.050 mg/L	•						
Blank (B4C1367-BL	K2)			Prepared	I: 2024-03-02	. Analvze	d: 2024-0	3-02		
Ammonia, Total (as N)	- ,	< 0.050	0.050 mg/L	<u>'</u>		<u>, , , , , , , , , , , , , , , , , , , </u>				
Blank (B4C1367-BL	K3)			Prepared	I: 2024-03-02	Analyze	ed: 2024-0	3-02		
Ammonia, Total (as N)	,	< 0.050	0.050 mg/L		0 0 0 0 0	.,,,,		0 02		
Blank (B4C1367-BL	K4)		J	Prepared	I: 2024-03-02	Analyze	ed: 2024-0	3-02		
Ammonia, Total (as N)	,	< 0.050	0.050 mg/L			·,···· ,				
LCS (B4C1367-BS1)			-	Prepared	I: 2024-03-02	Analyze	ed: 2024-0	3-02		
Ammonia, Total (as N)	<u> </u>	1.03	0.050 mg/L	1.00	0 0 0 0 0	103	85-115	0 02		
LCS (B4C1367-BS2)	1		<u> </u>	Prepared	I: 2024-03-02	Analyze	ed: 2024-0	3-02		
Ammonia, Total (as N)	<u> </u>	1.04	0.050 mg/L	1.00	202 1 00 02	104	85-115	0 02		
LCS (B4C1367-BS3)	1			Prenared	I: 2024-03-02	Analyze		3-02		
Ammonia, Total (as N)		1.05	0.050 mg/L	1.00	1. 202+ 00 02	105	85-115	0 02		
LCS (B4C1367-BS4)			J .		I: 2024-03-02	Δnalvze		3-02		
Ammonia, Total (as N)		1.05	0.050 mg/L	1.00	1. 202+ 00 02	105	85-115	0 02		
, ,	_DI ID3)	So		Prenared	I· 2024_03_02	Δnalvze	d. 2024-0	3-02		
	-501 0)			Tropulou		., 7 (1101)20	.u. 202+ 0		15	
	267 MC2\			Dranarad		Analyze	vq. 3034-0			
·	307-IVI33)							J-02		
Duplicate (B4C1367 Ammonia, Total (as N) Matrix Spike (B4C13 Ammonia, Total (as N) Microbiological Para Blank (B4B3539-BL	367-MS3) nmeters, Batch B4B3539	0.722 So 0.967	0.050 mg/L 0.050 mg/L urce: 24B2888-01 0.050 mg/L	Prepared 0.204	I: 2024-03-02 0.725 I: 2024-03-02 0.725 I: 2024-02-28	ł, Analyze 119	ed: 2024-0 75-125	< 1 3-02	15	
Coliforms, Total (Q-Tra	y)	< 1	1 MPN/100	mL						
Blank (B4B3539-BL	K2)			Prepared	I: 2024-02-28	s, Analyze	d: 2024-0	2-28		
Coliforms, Fecal (Q-Tra	•	< 1	1 MPN/100	mL		-				
Blank (B4B3539-BL	K3)			Prepared	I: 2024-02-28	s, Analyze	d: 2024-0	2-28		
Coliforms, Total (Q-Tra	•	< 1	1 MPN/100							

QC Qualifiers:





CERTIFICATE OF ANALYSIS

You know that the sample you collected after

snowshoeing to site, digging 5 meters, and

racing to get it on a plane so you can submit it

to the lab for time sensitive results needed to

make important and expensive decisions

(whew) is VERY important. We know that too.

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen WORK ORDER 24B2888

PO NUMBER RECEIVED / TEMP 2024-02-27 14:19 / 7.1°C

PROJECTFinal Effluent- PE14651REPORTED2024-03-04 13:33PROJECT INFOLake Country WWTPCOC NUMBER45349.45435

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued

opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager M undbed



REPORTED TO Lake Country, District of Final Effluent- PE1465	,		WORK ORDER REPORTED	24B2888 2024-03-0	4 13:33	
Analyte	Result	RL	Units	Analyzed	Qualifier	
Final Effluent (E233626) (24B2888-01) M	atrix: Wastewater Sample	ed: 2024-02-27 10:45				
Anions						
Chloride	133	0.10	mg/L	2024-03-01		
Nitrate (as N)	3.28	0.010		2024-03-01		
Nitrite (as N)	0.083	0.010		2024-03-01		
Phosphate (as P)	0.0640	0.0050	mg/L	2024-02-29		
Calculated Parameters			-			
Nitrate+Nitrite (as N)	3.36	0.0100	mg/L	N/A		
Nitrogen, Total	5.41	0.0500	mg/L	N/A		
Nitrogen, Organic	1.32	0.0500	mg/L	N/A		
General Parameters						
Alkalinity, Total (as CaCO3)	178	1.0	mg/L	2024-02-29		
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0		mg/L	2024-02-29		
Alkalinity, Bicarbonate (as CaCO3)	178	1.0		2024-02-29		
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0		2024-02-29		
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0		2024-02-29		
Ammonia, Total (as N)	0.725	0.050		2024-03-02		
BOD, 5-day Carbonaceous	5.8		mg/L	2024-03-04		
Nitrogen, Total Kjeldahl	2.04	0.050		2024-03-01		
pH	7.41		pH units	2024-02-29	HT2	
Phosphorus, Total (as P)	0.175	0.0050	•	2024-02-29		
Solids, Total Suspended	< 2.0		mg/L	2024-03-01		
Microbiological Parameters						
Coliforms, Total (Q-Tray)	43500	1	MPN/100 mL	2024-02-28		
Coliforms, Fecal (Q-Tray)	7260	1	MPN/100 mL	2024-02-28		
Trip Blank (24B2888-02) Matrix: Wastew Anions	ater Sampled: 2024-02-27					
Chloride	< 0.10		mg/L	2024-03-01		
Nitrate (as N)	< 0.010	0.010		2024-03-01		
Nitrite (as N)	< 0.010	0.010		2024-03-01		
Phosphate (as P)	< 0.0050	0.0050	mg/L	2024-02-29		
Calculated Parameters						
Nitrate+Nitrite (as N)	< 0.0100	0.0100		N/A		
Nitrogen, Total	< 0.0500	0.0500	mg/L	N/A		
Nitrogen, Organic	< 0.0500	0.0500	mg/L	N/A		
General Parameters						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L	2024-02-29		
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2024-02-29		



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER

24B2888

REPORTED 2024-03-04 13:33

Analyte	Result	RL	Units	Analyzed	Qualifie
Trip Blank (24B2888-02) Matrix: Wast	ewater Sampled: 2024-02-27	7 10:55, Continued			
General Parameters, Continued					
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2024-02-29	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-02-29	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2024-03-02	
BOD, 5-day Carbonaceous	< 4.5	2.0	mg/L	2024-03-04	
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L	2024-03-01	
рН	5.50	0.10	pH units	2024-02-29	HT2
Phosphorus, Total (as P)	< 0.0050	0.0050	mg/L	2024-02-29	
Solids, Total Suspended	< 5.0	2.0	mg/L	2024-03-01	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	< 1	1	MPN/100 mL	2024-02-28	
Coliforms, Fecal (Q-Tray)	< 1	1	MPN/100 mL	2024-02-28	

Sample Qualifiers:



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED 24B2888

2024-03-04 13:33

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Coliforms, Total in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

MPN/100 mL Most Probable Number per 100 millilitres

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



PROJECT

BOD, 5-day Carbonaceous

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO Lake Country, District of (Wastewater)

Final Effluent- PE14651

WORK ORDER REPORTED

24B2888 2024-03-04 13:33

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
Anions, Batch B4B3627									
Blank (B4B3627-BLK1)			Prepared	d: 2024-03-0)1, Analyze	d: 2024-	03-01		
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Blank (B4B3627-BLK2)			Prepared	d: 2024-03-0)1, Analyze	d: 2024-	03-01		
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4B3627-BS1)			Prepared	d: 2024-03-0)1, Analyze	d: 2024-	03-01		
Chloride	16.1	0.10 mg/L	16.0		100	90-110			
Nitrate (as N)	3.92	0.010 mg/L	4.00		98	90-110			
Nitrite (as N)	2.20	0.010 mg/L	2.00		110	85-115			
LCS (B4B3627-BS2)			Prepared	d: 2024-03-0)1, Analyze	d: 2024-	03-01		
Chloride	15.7	0.10 mg/L	16.0		98	90-110			
Nitrate (as N)	4.02	0.010 mg/L	4.00		100	90-110			
Nitrite (as N)	2.10	0.010 mg/L	2.00		105	85-115			
Anions, Batch B4B3672									
Blank (B4B3672-BLK1)			Prepared	d: 2024-02-2	29, Analyze	d: 2024-	02-29		
Phosphate (as P)	< 0.0050	0.0050 mg/L							
LCS (B4B3672-BS1)			Prepared	d: 2024-02-2	29, Analyze	d: 2024-	02-29		
Phosphate (as P)	0.102	0.0050 mg/L	0.100		102	80-120			
General Parameters, Batch B4B3614									
Blank (B4B3614-BLK1)			Prepared	d: 2024-02-2	28, Analyze	d: 2024-	03-04		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B4B3614-BS1)			Prepared	d: 2024-02-2	28, Analyze	d: 2024-	03-04		
	222	07.7 "				05.445			

198

106

85-115

37.7 mg/L

209



					-					
REPORTED TO PROJECT	Lake Country, Distr Final Effluent- PE1	•	ater)			WORK REPOR	ORDER TED	24B2 2024	2888 I-03-04	13:33
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameter	s, Batch B4B3622									
Blank (B4B3622-B	LK1)			Prepared	: 2024-02-2	8, Analyze	d: 2024-0	2-29		
Phosphorus, Total (as	s P)	< 0.0050	0.0050 mg/L							
Blank (B4B3622-B	LK2)			Prepared	: 2024-02-2	8. Analyze	d: 2024-0	2-29		
Phosphorus, Total (as	•	< 0.0050	0.0050 mg/L	'		<u>-, , , , , , , , , , , , , , , , , , , </u>				
LCS (B4B3622-BS				Drenared	: 2024-02-2	· Ω Δnalvze	v4· 2034-0	12-20		
Phosphorus, Total (as	•	0.105	0.0050 mg/L	0.100	. 2024-02-2	105	85-115	12-29		
	,	0.103	0.0030 Hig/L							
LCS (B4B3622-BS	•				: 2024-02-2			12-29		
Phosphorus, Total (as	s P)	0.105	0.0050 mg/L	0.100		105	85-115			
General Parameter	s, Batch B4B3656									
Blank (B4B3656-B	LK1)			Prepared	: 2024-02-2	9, Analyze	:d: 2024-0)2-29		
Alkalinity, Total (as Ca		< 1.0	1.0 mg/L							
Alkalinity, Phenolphti Alkalinity, Bicarbona	, ,	< 1.0 < 1.0	1.0 mg/L 1.0 mg/L							
Alkalinity, Carbonate		< 1.0	1.0 mg/L							
Alkalinity, Hydroxide	· ,	< 1.0	1.0 mg/L							
рН		5.60	0.10 pH units							HT2
Blank (B4B3656-B	LK2)			Prepared	: 2024-02-2	9, Analyze	d: 2024-0	2-29		
Alkalinity, Total (as Ca	•	< 1.0	1.0 mg/L	<u>'</u>		<u>-, , , </u>				
Alkalinity, Phenolpht		< 1.0	1.0 mg/L							
Alkalinity, Bicarbona	te (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate	· ,	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide pH	(as CaCO3)	< 1.0 5.57	1.0 mg/L 0.10 pH units							HT2
		0.07	0.10 pri unito							1112
LCS (B4B3656-BS	•				: 2024-02-2	<u>.</u>		12-29		
Alkalinity, Total (as Ca		102	1.0 mg/L	100		102	80-120			
Alkalinity, Phenolpht	naiein (as CaCO3)	68.8	1.0 mg/L	50.0		138	0-200			
LCS (B4B3656-BS	2)			Prepared	: 2024-02-2	9, Analyze	d: 2024-0	2-29		
Alkalinity, Total (as Ca		102	1.0 mg/L	100		102	80-120			
Alkalinity, Phenolpht	halein (as CaCO3)	52.4	1.0 mg/L	50.0		105	0-200			
Reference (B4B36	56-SRM1)			Prepared	: 2024-02-2	9, Analyze	d: 2024-0	2-29		
pH		7.03	0.10 pH units	7.01		100	98-102			
Reference (B4B36	56-SRM2)			Prepared	: 2024-02-2	9, Analyze	ed: 2024-0	2-29		
pH	, , , , , , , , , , , , , , , , , , ,	7.03	0.10 pH units	7.01		100	98-102			
General Parameter	s, Batch B4B3687									
Blank (B4B3687-B	LK1)			Prepared	: 2024-03-0	1, Analyze	d: 2024-0	3-01		
Solids, Total Suspend	ded	< 2.0	2.0 mg/L							
LCS (B4B3687-BS	1)		-	Prepared	: 2024-03-0	1. Analyze	d: 2024-0	3-01		
Solids, Total Suspend	•	92.1	9.9 mg/L	100		92	85-115			
General Parameter	s, Batch B4B3704									
Blank (B4B3704-B	LK1)			Prepared	: 2024-02-2	9. Analyze	d: 2024-0	3-01		
Nitrogen, Total Kjelda	•	< 0.050	0.050 mg/L		· 	-, ,	3			
		3.000	0.000 mg/L							



REPORTED TO PROJECT	Lake Country, District of Final Effluent- PE1465		ater)			WORK REPOR	ORDER 24B2888 RTED 2024-03-04 13:			13:33
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameters,	Batch B4B3704, Contir	nued								
Blank (B4B3704-BL	K2)			Prepared	I: 2024-02-29	, Analyze	d: 2024-0	3-01		
Nitrogen, Total Kjeldah	1	< 0.050	0.050 mg/L							
LCS (B4B3704-BS1))			Prepared	I: 2024-02-29	, Analyze	ed: 2024-0	3-01		
Nitrogen, Total Kjeldah		0.968	0.050 mg/L	1.00		97	85-115			
LCS (B4B3704-BS2))			Prepared	I: 2024-02-29	, Analyze	d: 2024-0	3-01		
Nitrogen, Total Kjeldah		0.969	0.050 mg/L	1.00		97	85-115			
General Parameters,	Batch B4C1367									
Blank (B4C1367-BL	K1)			Prepared	I: 2024-03-02	. Analyze	ed: 2024-0	3-02		
Ammonia, Total (as N)		< 0.050	0.050 mg/L	•						
Blank (B4C1367-BL	K2)			Prepared	I: 2024-03-02	. Analvze	d: 2024-0	3-02		
Ammonia, Total (as N)	- ,	< 0.050	0.050 mg/L	<u>'</u>		<u>, , , , , , , , , , , , , , , , , , , </u>				
Blank (B4C1367-BL	K3)			Prepared	I: 2024-03-02	Analyze	ed: 2024-0	3-02		
Ammonia, Total (as N)	,	< 0.050	0.050 mg/L		0 0 0 0 0	.,,,,		0 02		
Blank (B4C1367-BL	K4)		J	Prepared	I: 2024-03-02	Analyze	ed: 2024-0	3-02		
Ammonia, Total (as N)	,	< 0.050	0.050 mg/L			·,···· ,				
LCS (B4C1367-BS1)			-	Prepared	I: 2024-03-02	Analyze	ed: 2024-0	3-02		
Ammonia, Total (as N)	<u> </u>	1.03	0.050 mg/L	1.00	0 0 0 0 0	103	85-115	0 02		
LCS (B4C1367-BS2)	1		<u> </u>	Prepared	I: 2024-03-02	Analyze	ed: 2024-0	3-02		
Ammonia, Total (as N)	<u> </u>	1.04	0.050 mg/L	1.00	202 1 00 02	104	85-115	0 02		
LCS (B4C1367-BS3)	1			Prenared	I: 2024-03-02	Analyze		3-02		
Ammonia, Total (as N)		1.05	0.050 mg/L	1.00	1. 202+ 00 02	105	85-115	0 02		
LCS (B4C1367-BS4)			J .		I: 2024-03-02	Δnalvze		3-02		
Ammonia, Total (as N)		1.05	0.050 mg/L	1.00	1. 202+ 00 02	105	85-115	0 02		
, ,	_DI ID3)	So		Prenared	I· 2024_03_02	Δnalvze	d. 2024-0	3-02		
	-501 0)			Tropulou		., 7 (1101)20	.u. 202+ 0		15	
	267 MC2\			Dranarad		Analyze	vq. 3034-0			
·	307-IVI33)							J-02		
Duplicate (B4C1367 Ammonia, Total (as N) Matrix Spike (B4C13 Ammonia, Total (as N) Microbiological Para Blank (B4B3539-BL	367-MS3) nmeters, Batch B4B3539	0.722 So 0.967	0.050 mg/L 0.050 mg/L urce: 24B2888-01 0.050 mg/L	Prepared 0.204	I: 2024-03-02 0.725 I: 2024-03-02 0.725 I: 2024-02-28	ł, Analyze 119	ed: 2024-0 75-125	< 1 3-02	15	
Coliforms, Total (Q-Tra	y)	< 1	1 MPN/100	mL						
Blank (B4B3539-BL	K2)			Prepared	I: 2024-02-28	s, Analyze	d: 2024-0	2-28		
Coliforms, Fecal (Q-Tra	•	< 1	1 MPN/100	mL		-				
Blank (B4B3539-BL	K3)			Prepared	I: 2024-02-28	s, Analyze	d: 2024-0	2-28		
Coliforms, Total (Q-Tra	•	< 1	1 MPN/100							

QC Qualifiers:





CERTIFICATE OF ANALYSIS

You know that the sample you collected after

snowshoeing to site, digging 5 meters, and

racing to get it on a plane so you can submit it

to the lab for time sensitive results needed to

make important and expensive decisions

(whew) is VERY important. We know that too.

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen WORK ORDER 24A0602

PO NUMBER RECEIVED / TEMP 2024-01-08 11:04 / 11.8°C

PROJECTFinal Effluent- PE14651REPORTED2024-01-15 12:29PROJECT INFOLake Country WWTPCOC NUMBER45299.33778

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager M what



REPORTED TO Lake Country, D PROJECT Final Effluent- P	istrict of (Wastewater) E14651		WORK ORDER REPORTED	24A0602 2024-01-1	5 12:29
Analyte	Result	RL	Units	Analyzed	Qualifier
Final Effluent (E233626) (24A0602-	01) Matrix: Wastewater Sample	ed: 2024-01-08 09:55			
Anions					
Chloride	115	0.10	mg/L	2024-01-10	
Nitrate (as N)	2.41	0.010	mg/L	2024-01-10	
Nitrite (as N)	0.280	0.010	mg/L	2024-01-10	
Phosphate (as P)	0.0750	0.0050	mg/L	2024-01-10	
Calculated Parameters					
Nitrate+Nitrite (as N)	2.69	0.0100	mg/L	N/A	
Nitrogen, Total	5.80	0.0500	mg/L	N/A	
Nitrogen, Organic	1.58	0.0500	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	188	1.0	mg/L	2024-01-09	
Alkalinity, Phenolphthalein (as CaCO3			mg/L	2024-01-09	
Alkalinity, Bicarbonate (as CaCO3)	188		mg/L	2024-01-09	
Alkalinity, Carbonate (as CaCO3)	< 1.0		mg/L	2024-01-09	
Alkalinity, Hydroxide (as CaCO3)	< 1.0		mg/L	2024-01-09	
Ammonia, Total (as N)	1.53	0.050		2024-01-10	
BOD, 5-day Carbonaceous	4.0		mg/L	2024-01-15	
Nitrogen, Total Kjeldahl	3.11	0.050	mg/L	2024-01-11	
pH	7.62	0.10	pH units	2024-01-09	HT2
Phosphorus, Total (as P)	0.261	0.0050	mg/L	2024-01-10	
Solids, Total Suspended	< 3.3	2.0	mg/L	2024-01-09	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	242000	1	MPN/100 mL	2024-01-09	
Coliforms, Fecal (Q-Tray)	15200		MPN/100 mL	2024-01-09	
Field Blank (24A0602-02) Matrix: \	Wastewater Sampled: 2024-01-0	08 10:15			
Chloride	< 0.10	0.10	mg/L	2024-01-10	
Nitrate (as N)	< 0.010	0.010	mg/L	2024-01-10	
Nitrite (as N)	< 0.010	0.010	mg/L	2024-01-10	
Phosphate (as P)	< 0.0050	0.0050	mg/L	2024-01-10	
Calculated Parameters					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	< 0.0500	0.0500	mg/L	N/A	
Nitrogen, Organic	< 0.0500	0.0500	mg/L	N/A	
General Parameters			<u> </u>		
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L	2024-01-09	
			mg/L	2024-01-09	
Alkalinity, Phenolphthalein (as CaCO3	(1.0	1.0	mg/L	2024-01-09	



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER

24A0602

REPORTED 2024-01-15 12:29

Analyte	Result	RL	Units	Analyzed	Qualifie
Field Blank (24A0602-02) Matrix: Was	tewater Sampled: 2024-01-08	3 10:15, Continued			
General Parameters, Continued					
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2024-01-09	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-01-09	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2024-01-10	
BOD, 5-day Carbonaceous	< 2.4	2.0	mg/L	2024-01-15	
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L	2024-01-11	
рН	5.85	0.10	pH units	2024-01-09	HT2
Phosphorus, Total (as P)	< 0.0050	0.0050	mg/L	2024-01-10	
Solids, Total Suspended	< 2.0	2.0	mg/L	2024-01-09	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	< 1	1	MPN/100 mL	2024-01-09	
Coliforms, Fecal (Q-Tray)	< 1	1	MPN/100 mL	2024-01-09	

Sample Qualifiers:



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED 24A0602

ORTED 2024-01-15 12:29

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Coliforms, Total in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

MPN/100 mL Most Probable Number per 100 millilitres

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED

24A0602 2024-01-15 12:29

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- Duplicate (Dup): An additional or second portion of a randomly selected sample in the analytical run carried through the entire
 analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
Anions, Batch B4A1754									
Blank (B4A1754-BLK1)			Prepared	l: 2024-01-1	0, Analyze	d: 2024-0)1-10		
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4A1754-BS1)			Prepared	l: 2024-01-1	0, Analyze	d: 2024-0)1-10		
Chloride	15.9	0.10 mg/L	16.0		99	90-110			
Nitrate (as N)	3.96	0.010 mg/L	4.00		99	90-110			
Nitrite (as N)	2.07	0.010 mg/L	2.00		103	85-115			
Anions, Batch B4A1760 Blank (B4A1760-BLK1)			Prepared	l: 2024-01-1	0, Analyze	d: 2024-0)1-10		
Blank (B4A1760-BLK1) Phosphate (as P)	< 0.0050	0.0050 mg/L	· ·						
Blank (B4A1760-BLK1)	< 0.0050	0.0050 mg/L 0.0050 mg/L	· ·	l: 2024-01-1 l: 2024-01-1					
Blank (B4A1760-BLK1) Phosphate (as P) LCS (B4A1760-BS1) Phosphate (as P) General Parameters, Batch B4A1712		Ţ.	Prepared 0.100		0, Analyze	d: 2024-0 80-120)1-10		
Blank (B4A1760-BLK1) Phosphate (as P) LCS (B4A1760-BS1) Phosphate (as P) General Parameters, Batch B4A1712 Blank (B4A1712-BLK1) Alkalinity, Total (as CaCO3)		Ţ.	Prepared 0.100	l: 2024-01-1	0, Analyze	d: 2024-0 80-120)1-10		
Blank (B4A1760-BLK1) Phosphate (as P) LCS (B4A1760-BS1) Phosphate (as P) General Parameters, Batch B4A1712 Blank (B4A1712-BLK1) Alkalinity, Total (as CaCO3) Alkalinity, Phenolphthalein (as CaCO3)	0.100	0.0050 mg/L 1.0 mg/L 1.0 mg/L	Prepared 0.100	l: 2024-01-1	0, Analyze	d: 2024-0 80-120)1-10		
Blank (B4A1760-BLK1) Phosphate (as P) LCS (B4A1760-BS1) Phosphate (as P) General Parameters, Batch B4A1712 Blank (B4A1712-BLK1) Alkalinity, Total (as CaCO3) Alkalinity, Phenolphthalein (as CaCO3) Alkalinity, Bicarbonate (as CaCO3)	< 1.0 < 1.0 < 1.0 < 1.0	0.0050 mg/L 1.0 mg/L 1.0 mg/L 1.0 mg/L	Prepared 0.100	l: 2024-01-1	0, Analyze	d: 2024-0 80-120)1-10		
Blank (B4A1760-BLK1) Phosphate (as P) LCS (B4A1760-BS1) Phosphate (as P) General Parameters, Batch B4A1712 Blank (B4A1712-BLK1) Alkalinity, Total (as CaCO3) Alkalinity, Phenolphthalein (as CaCO3) Alkalinity, Bicarbonate (as CaCO3) Alkalinity, Carbonate (as CaCO3)	0.100 < 1.0 < 1.0	0.0050 mg/L 1.0 mg/L 1.0 mg/L	Prepared 0.100	l: 2024-01-1	0, Analyze	d: 2024-0 80-120)1-10		
Blank (B4A1760-BLK1) Phosphate (as P) LCS (B4A1760-BS1) Phosphate (as P) General Parameters, Batch B4A1712 Blank (B4A1712-BLK1) Alkalinity, Total (as CaCO3) Alkalinity, Phenolphthalein (as CaCO3) Alkalinity, Bicarbonate (as CaCO3)	< 1.0 < 1.0 < 1.0 < 1.0	0.0050 mg/L 1.0 mg/L 1.0 mg/L 1.0 mg/L	Prepared 0.100	l: 2024-01-1	0, Analyze	d: 2024-0 80-120)1-10		
Blank (B4A1760-BLK1) Phosphate (as P) LCS (B4A1760-BS1) Phosphate (as P) General Parameters, Batch B4A1712 Blank (B4A1712-BLK1) Alkalinity, Total (as CaCO3) Alkalinity, Phenolphthalein (as CaCO3) Alkalinity, Bicarbonate (as CaCO3) Alkalinity, Carbonate (as CaCO3) Alkalinity, Hydroxide (as CaCO3)	< 1.0 < 1.0 < 1.0 < 1.0 < 1.0	0.0050 mg/L 1.0 mg/L 1.0 mg/L 1.0 mg/L 1.0 mg/L	Prepared 0.100	l: 2024-01-1	0, Analyze	d: 2024-(80-120 d: 2024-(01-10		
Blank (B4A1760-BLK1) Phosphate (as P) LCS (B4A1760-BS1) Phosphate (as P) General Parameters, Batch B4A1712 Blank (B4A1712-BLK1) Alkalinity, Total (as CaCO3) Alkalinity, Phenolphthalein (as CaCO3) Alkalinity, Bicarbonate (as CaCO3) Alkalinity, Carbonate (as CaCO3)	< 1.0 < 1.0 < 1.0 < 1.0 < 1.0	0.0050 mg/L 1.0 mg/L 1.0 mg/L 1.0 mg/L 1.0 mg/L	Prepared 0.100	l: 2024-01-1 l: 2024-01-0	0, Analyze	d: 2024-(80-120 d: 2024-(01-10		

Reference (B4A1712-SRM1)

7.01

0.10 pH units

7.04

Prepared: 2024-01-09, Analyzed: 2024-01-09

98-102



	ke Country, District of (Wast nal Effluent- PE14651	ewater)			WORK REPOR			0602 1-01-15	12:29
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameters, B	atch B4A1725, Continued								
Blank (B4A1725-BLK1)			Prepared	: 2024-01-0	9, Analyze	d: 2024-	01-09		
Solids, Total Suspended	< 2.0	2.0 mg/L							
LCS (B4A1725-BS1)			Prepared	: 2024-01-0	9, Analyze	d: 2024-	01-09		
Solids, Total Suspended	112	20.0 mg/L	100		112	85-115			
General Parameters, B	atch B4A1805								
Blank (B4A1805-BLK1))		Prepared	: 2024-01-0	9, Analyze	d: 2024-	01-10		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B4A1805-BLK3)			Prepared	: 2024-01-0	9, Analyze	d: 2024-	01-10		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
LCS (B4A1805-BS1)			Prepared	: 2024-01-0	9, Analyze	d: 2024-	01-10		
Phosphorus, Total (as P)	0.105	0.0050 mg/L	0.100		105	85-115			
LCS (B4A1805-BS3)			Prepared	: 2024-01-0	9, Analyze	d: 2024-	01-10		
Phosphorus, Total (as P)	0.105	0.0050 mg/L	0.100		105	85-115			
Ammonia, Total (as N)	< 0.050	0.050 mg/L	·	: 2024-01-1	•				
Blank (B4A1825-BLK2)			Prepared	: 2024-01-1	0, Analyze	d: 2024-	01-10		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
LCS (B4A1825-BS1)			Prepared	: 2024-01-1	0, Analyze	d: 2024-	01-10		
Ammonia, Total (as N)	1.04	0.050 mg/L	1.00		104	85-115			
LCS (B4A1825-BS2)			Prepared	: 2024-01-1	0, Analyze	d: 2024-	01-10		
Ammonia, Total (as N)	1.03	0.050 mg/L	1.00		103	85-115			
General Parameters, B	atch B4A1891								
Blank (B4A1891-BLK1))		Prepared	: 2024-01-1	0, Analyze	d: 2024-	01-11		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
Blank (B4A1891-BLK2))		Prepared	: 2024-01-1	0, Analyze	d: 2024-	01-11		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
LCS (B4A1891-BS1)			Prepared	: 2024-01-1	0, Analyze	d: 2024-	01-11		
Nitrogen, Total Kjeldahl	0.944	0.050 mg/L	1.00		94	85-115			
LCS (B4A1891-BS2)			Prepared	: 2024-01-1	0, Analyze	d: 2024-	01-11		
Nitrogen, Total Kjeldahl	0.976	0.050 mg/L	1.00		98	85-115			
General Parameters, B	atch B4A1917								
Blank (B4A1917-BLK1)	1		Prepared	: 2024-01-1	0, Analyze	d: 2024-	01-15		
BOD, 5-day Carbonaceous		2.0 mg/L	•		-				
LCS (B4A1917-BS1)			Prepared	: 2024-01-1	0, Analyze	d: 2024-	01-15		
BOD, 5-day Carbonaceous	s 192	40.0 mg/L	198		97	85-115			



REPORTED TO PROJECT	Lake Country, District o Final Effluent- PE14651	,				WORK REPOR	ORDER RTED	24A0 2024	0602 -01-15	12:29
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Microbiological Pa	rameters, Batch B4A1740									
Blank (B4A1740-B	BLK1)			Prepared	d: 2024-01-0	9, Analyze	ed: 2024-0	1-09		
Coliforms, Fecal (Q-	Ггау)	< 1	1 MPN/100	mL						
Blank (B4A1740-B	BLK2)			Prepared	d: 2024-01-0	9, Analyze	ed: 2024-0	1-09		
Coliforms, Total (Q-T	ray)	< 1	1 MPN/100	mL						
Blank (B4A1740-B	BLK3)			Prepared	d: 2024-01-0	9, Analyze	ed: 2024-0	1-09		
Coliforms, Total (Q-T	ray)	< 1	1 MPN/100	mL						
Duplicate (B4A174	40-DUP1)	Source:	24A0602-01	Prepared	d: 2024-01-0	9, Analyze	ed: 2024-0	1-09		
Coliforms, Fecal (Q-		19300	1 MPN/100	mL	15200			23	80	





CERTIFICATE OF ANALYSIS

You know that the sample you collected after

snowshoeing to site, digging 5 meters, and

racing to get it on a plane so you can submit it

to the lab for time sensitive results needed to

make important and expensive decisions

(whew) is VERY important. We know that too.

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen WORK ORDER 24A0601

PO NUMBER RECEIVED / TEMP 2024-01-08 11:04 / 11.8°C

PROJECTRaw Influent- PE14651REPORTED2024-01-15 12:30PROJECT INFOLake Country WWTPCOC NUMBER45299.33778

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager M undbud



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER

24A0601

REPORTED 2024-01-15 12:30

Analyte	Result	RL	Units	Analyzed	Qualifie
Raw Influent (E233627) (24A0601-01) Ma	trix: Wastewater Sample	d: 2024-01-08 10:20			
Anions					
Nitrate (as N)	< 0.010	0.010	mg/L	2024-01-10	
Nitrite (as N)	< 0.010	0.010	mg/L	2024-01-10	
Phosphate (as P)	5.54	0.0050	mg/L	2024-01-10	
Calculated Parameters					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	80.0	2.00	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	352	1.0	mg/L	2024-01-09	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2024-01-09	
Alkalinity, Bicarbonate (as CaCO3)	352	1.0	mg/L	2024-01-09	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2024-01-09	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-01-09	
Ammonia, Total (as N)	59.4	0.050	mg/L	2024-01-09	
BOD, 5-day	348	2.0	mg/L	2024-01-15	
BOD, 5-day Carbonaceous	297	2.0	mg/L	2024-01-15	
Nitrogen, Total Kjeldahl	80.0	0.050	mg/L	2024-01-11	
pH	8.07	0.10	pH units	2024-01-09	HT2
Phosphorus, Total (as P)	10.0	0.0050	mg/L	2024-01-10	
Solids, Total Suspended	236	2.0	mg/L	2024-01-09	

Sample Qualifiers:



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER
REPORTED

24A0601

2024-01-15 12:30

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	√	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

< Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



Alkalinity, Total (as CaCO3)

Alkalinity, Phenolphthalein (as CaCO3)

Alkalinity, Bicarbonate (as CaCO3)

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO Lake Country, District of (Wastewater) **PROJECT**

Raw Influent- PE14651

WORK ORDER REPORTED

24A0601 2024-01-15 12:30

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- Duplicate (Dup): An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B4A1754									
Blank (B4A1754-BLK1)			Prepared	: 2024-01-1	0, Analyze	d: 2024-0	01-10		
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4A1754-BS1)			Prepared	: 2024-01-1	I0, Analyze	d: 2024-0	01-10		
Nitrate (as N)	3.96	0.010 mg/L	4.00		99	90-110			
Nitrite (as N)	2.07	0.010 mg/L	2.00		103	85-115			
Anions, Batch B4A1760									
Blank (B4A1760-BLK1)			Prepared	: 2024-01-1	I0, Analyze	d: 2024-0	01-10		
Phosphate (as P)	< 0.0050	0.0050 mg/L							
LCS (B4A1760-BS1)			Prepared	: 2024-01-1	I0, Analyze	d: 2024-0	01-10		
Phosphate (as P)	0.100	0.0050 mg/L	0.100		100	80-120			
General Parameters, Batch B4A1695									
ŕ									
Blank (B4A1695-BLK1)			Prepared	: 2024-01-0	9, Analyze	d: 2024-0	01-09		
Ammonia, Total (as N)	0.010	0.010 mg/L							
Blank (B4A1695-BLK2)			Prepared	: 2024-01-0	9, Analyze	d: 2024-0	01-09		
Ammonia, Total (as N)	< 0.010	0.010 mg/L							
LCS (B4A1695-BS1)			Prepared	: 2024-01-0	9, Analyze	d: 2024-0	01-09		
Ammonia, Total (as N)	1.02	0.010 mg/L	1.00		102	85-115			
LCS (B4A1695-BS2)			Prepared	: 2024-01-0	9, Analyze	d: 2024-0	01-09		
Ammonia, Total (as N)	1.03	0.010 mg/L	1.00		103	85-115			
General Parameters, Batch B4A1712									
Blank (B4A1712-BLK1)			Prenared	: 2024-01-0)9 Analyze	d: 2024-0	01-09		

1.0 mg/L

1.0 mg/L

1.0 mg/L

< 1.0

< 1.0

< 1.0



									-	
REPORTED TO PROJECT	Lake Country, Dist Raw Influent- PE14	•	ater)			WORK REPOR	ORDER	24A0 2024	0601 1-01-15	12:30
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameter	rs, Batch B4A1712, Co	ontinued								
Blank (B4A1712-B	SLK1), Continued			Prepared	: 2024-01-0	9, Analyze	ed: 2024-0	1-09		
Alkalinity, Carbonate	· ,	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide	(as CaCO3)	< 1.0	1.0 mg/L							
LCS (B4A1712-BS	1)			Prepared	: 2024-01-0	9, Analyze	ed: 2024-0	1-09		
Alkalinity, Total (as C		106	1.0 mg/L	100		106	80-120			
Alkalinity, Phenolpht	halein (as CaCO3)	14.9	1.0 mg/L	50.0		30	0-200			
Reference (B4A17	12-SRM1)			Prepared	: 2024-01-0	9, Analyze	ed: 2024-0	1-09		
рН		7.04	0.10 pH units	7.01		100	98-102			
General Parameter	rs, Batch B4A1725									
Blank (B4A1725-B	BLK1)			Prepared	: 2024-01-0	9, Analyze	ed: 2024-0	1-09		
Solids, Total Suspend	ded	< 2.0	2.0 mg/L							
LCS (B4A1725-BS	31)			Prepared	: 2024-01-0	9, Analyze	ed: 2024-0	1-09		
Solids, Total Suspend	ded	112	20.0 mg/L	100		112	85-115			
Blank (B4A1805-B Phosphorus, Total (as	•	< 0.0050	0.0050 mg/L	Prepared	: 2024-01-0	9, Analyze	ed: 2024-0	1-10		
	,	< 0.0030	0.0030 Hig/L		0004.04.0		1 0004 0	4 40		
Blank (B4A1805-B		< 0.0050	0.0050 ma/l	Prepared	: 2024-01-0	19, Anaiyze	ea: 2024-0	1-10		
Phosphorus, Total (as	,	< 0.0050	0.0050 mg/L							
LCS (B4A1805-BS	•				: 2024-01-0			1-10		
Phosphorus, Total (as	s P)	0.105	0.0050 mg/L	0.100		105	85-115			
LCS (B4A1805-BS	3)			Prepared	: 2024-01-0	9, Analyze	ed: 2024-0	1-10		
Phosphorus, Total (as	s P)	0.105	0.0050 mg/L	0.100		105	85-115			
General Parameter	rs, Batch B4A1891									
Blank (B4A1891-B	BLK1)			Prepared	: 2024-01-1	0, Analyze	ed: 2024-0	1-11		
Nitrogen, Total Kjelda	ahl	< 0.050	0.050 mg/L							
Blank (B4A1891-B	BLK2)			Prepared	: 2024-01-1	0, Analyze	ed: 2024-0	1-11		
Nitrogen, Total Kjelda	ahl	< 0.050	0.050 mg/L							
LCS (B4A1891-BS	51)			Prepared	: 2024-01-1	0, Analyze	ed: 2024-0	1-11		
Nitrogen, Total Kjelda	•	0.944	0.050 mg/L	1.00		94	85-115			
LCS (B4A1891-BS					: 2024-01-1			1-11		
Nitrogen, Total Kjelda	•	0.976	0.050 mg/L	1.00	. 202-T-U I-I	98	85-115			
General Parameter	rs, Batch B4A1917	0.6.70	0.000 mg/2							
Blank (B4A1917-B	•			Prepared	: 2024-01-1	U, Analyze	ed: 2024-0	1-15		
BOD, 5-day Carbona	iceous	< 2.0	2.0 mg/L							
LCS (B4A1917-BS	1)			Prepared	: 2024-01-1	0, Analyze	ed: 2024-0	1-15		
BOD, 5-day Carbona	iceous	192	40.0 mg/L	198		97	85-115			



REPORTED TO PROJECT	Lake Country, District of (Waste) Raw Influent- PE14651	water)			WORK REPOR	ORDER TED	24A0 2024)601 -01-15	12:30
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameter	s, Batch B4A1919, Continued								
Blank (B4A1919-B	LK1)		Prepared	I: 2024-01-1	10, Analyze	d: 2024-0)1-15		
Blank (B4A1919-B	LK1) < 2.0	2.0 mg/L	Prepared	l: 2024-01-1	10, Analyze	d: 2024-0)1-15		
	< 2.0	2.0 mg/L	· · · · · · · · · · · · · · · · · · ·	l: 2024-01-1					





CERTIFICATE OF ANALYSIS

You know that the sample you collected after

snowshoeing to site, digging 5 meters, and

racing to get it on a plane so you can submit it

to the lab for time sensitive results needed to

make important and expensive decisions

(whew) is VERY important. We know that too.

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen **WORK ORDER** 24G0890

2024-07-08 11:33 / 16.6°C

Final Effluent- PE14651 **REPORTED** 2024-07-15 12:59 **PROJECT** Lake Country WWTP 45481.31193 **PROJECT INFO COC NUMBER**

Introduction:

PO NUMBER

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

We've Got Chemistry

It's simple. We figure the more you enjoy with fun and working our engaged team the more members; likely you are to give us continued opportunities to support you.

Ahead of the Curve

RECEIVED / TEMP

Through research, regulation and instrumentation, knowledge, are your analytical centre the knowledge technical you BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager What



REPORTED TO Lake Country, District of PROJECT Final Effluent- PE1465	,		WORK ORDER REPORTED	24G0890 2024-07-1	5 12:59
Analyte	Result	RL	Units	Analyzed	Qualifier
Final Effluent (E233626) (24G0890-01) M	atrix: Wastewater Sample	ed: 2024-07-08 07:40			
Anions					
Chloride	128	0.10	mg/L	2024-07-10	
Nitrate (as N)	2.27	0.010	mg/L	2024-07-10	
Nitrite (as N)	0.732	0.010	mg/L	2024-07-10	
Calculated Parameters					
Nitrate+Nitrite (as N)	3.01	0.0100	mg/L	N/A	
Nitrogen, Total	6.29	0.0500		N/A	
Nitrogen, Organic	1.84	0.0500		N/A	
General Parameters			<u> </u>		
Alkalinity, Total (as CaCO3)	170	1.0	mg/L	2024-07-08	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0		mg/L	2024-07-08	
Alkalinity, Bicarbonate (as CaCO3)	170	1.0	mg/L	2024-07-08	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2024-07-08	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-07-08	
Ammonia, Total (as N)	1.44	0.050	mg/L	2024-07-10	
BOD, 5-day Carbonaceous	< 3.2	2.0	mg/L	2024-07-15	
Nitrogen, Total Kjeldahl	3.28	0.050	mg/L	2024-07-12	
рН	7.48	0.10	pH units	2024-07-08	HT2
Phosphorus, Total (as P)	0.368	0.0050	mg/L	2024-07-11	
Phosphorus, Dissolved Reactive	0.230	0.0050	mg/L	2024-07-10	
Solids, Total Suspended	< 2.0	2.0	mg/L	2024-07-13	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	155000	1	MPN/100 mL	2024-07-09	
Coliforms, Fecal (Q-Tray)	19700	1	MPN/100 mL	2024-07-09	
Trip Blank (24G0890-02) Matrix: Wastew	ater Sampled: 2024-07-08	09:30			
Chloride	< 0.10	0.10	mg/L	2024-07-10	
Nitrate (as N)	< 0.010		mg/L	2024-07-10	
Nitrite (as N)	< 0.010		mg/L	2024-07-10	
Calculated Parameters					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	< 0.0500	0.0500		N/A	
Nitrogen, Organic	< 0.0500	0.0500		N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L	2024-07-08	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0		mg/L	2024-07-08	
Alkalinity, Bicarbonate (as CaCO3)					
Alkalinity, bloarbonate (as GaGGG)	< 1.0	1.0	mg/L	2024-07-08	



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER

24G0890

REPORTED 2024-07-15 12:59

lt	RL	Units	Analyzed	Qualifie
ed: 2024-07-08 09:30	, Continued			
.0	1.0	mg/L	2024-07-08	
50	0.050	mg/L	2024-07-10	
5.4	2.0	mg/L	2024-07-15	
50	0.050	mg/L	2024-07-12	
29	0.10	pH units	2024-07-08	HT2
50	0.0050	mg/L	2024-07-11	
50	0.0050	mg/L	2024-07-10	
.0	2.0	mg/L	2024-07-13	
: 1	1	MPN/100 mL	2024-07-09	
:1	1	MPN/100 mL	2024-07-09	
1	ed: 2024-07-08 09:30 1.0 50 5.4 50 29 50 4.0	ed: 2024-07-08 09:30, Continued 1.0 1.0 50 0.050 6.4 2.0 50 0.050 29 0.10 50 0.0050 50 0.0050 4.0 2.0	ed: 2024-07-08 09:30, Continued 1.0	ed: 2024-07-08 09:30, Continued 1.0

Sample Qualifiers:



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER
REPORTED

24G0890

2024-07-15 12:59

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Coliforms, Total in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Dissolved Reactive in Water	SM 4500-P F (2021)	Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

MPN/100 mL Most Probable Number per 100 millilitres

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED 24G0890 2024-07-15 12:59

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B4G2472									
Blank (B4G2472-BLK1)			Prepared	I: 2024-07-1	0, Analyze	d: 2024-0	07-10		
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Blank (B4G2472-BLK2)			Prepared	I: 2024-07-1	1, Analyze	d: 2024 - 0	7-11		
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4G2472-BS1)			Prepared	I: 2024-07-1	0, Analyze	d: 2024-(07-10		
Chloride	16.2	0.10 mg/L	16.0		101	90-110			
Nitrate (as N)	3.94	0.010 mg/L	4.00		99	90-110			
Nitrite (as N)	2.04	0.010 mg/L	2.00		102	85-115			
LCS (B4G2472-BS2)			Prepared	I: 2024-07-1	1, Analyze	d: 2024-0	7-11		
Chloride	16.1	0.10 mg/L	16.0		101	90-110			
Nitrate (as N)	3.94	0.010 mg/L	4.00		98	90-110			
Nitrite (as N)	2.21	0.010 mg/L	2.00		110	85-115			

General Parameters, Batch B4G2266

Blank (B4G2266-BLK1)			Prepared: 2024-07-08, Analyzed: 2024-07-08
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L	
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L	
Blank (B4G2266-BLK2)			Prepared: 2024-07-08, Analyzed: 2024-07-08
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L	
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L	



	Lake Country, Disti Final Effluent- PE1	•	ater)			WORK REPOR	ORDER TED	24G0 2024	0890 I-07-15	12:59
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameters,	Batch B4G2266, Co	ontinued								
LCS (B4G2266-BS1)				Prepared	: 2024-07-0	8, Analyze	d: 2024-0	7-08		
Alkalinity, Total (as CaCo	 O3)	96.4	1.0 mg/L	100		96	80-120			
Alkalinity, Phenolphthale	ein (as CaCO3)	75.4	1.0 mg/L	50.0		151	0-200			
LCS (B4G2266-BS3)				Prepared	: 2024-07-0	8, Analyze	d: 2024-0	7-08		
Alkalinity, Total (as CaCo	O3)	95.9	1.0 mg/L	100		96	80-120			
Alkalinity, Phenolphthale	ein (as CaCO3)	75.8	1.0 mg/L	50.0		152	0-200			
Reference (B4G2266	-SRM1)			Prepared	: 2024-07-0	8, Analyze	d: 2024-0	7-08		
рН		7.03	0.10 pH units	7.01		100	98-102			
Reference (B4G2266	-SRM2)			Prepared	: 2024-07-0	8, Analyze	d: 2024-0	7-08		
pH		7.02	0.10 pH units	7.01		100	98-102			
General Parameters,				Duamanad	. 2024 07 4	O. Analysis	J. 2024 O	7.40		
Blank (B4G2427-BLK	•	< 0.0050	0.0050 mg/l	Prepared	: 2024-07-1	u, Anaiyze	d: 2024-0	7-10		
Phosphorus, Dissolved I	Reactive	< 0.0050	0.0050 mg/L							
LCS (B4G2427-BS1)					: 2024-07-1	•		7-10		
Phosphorus, Dissolved I	Reactive	0.0990	0.0050 mg/L	0.100		99	84-115			
Duplicate (B4G2427-	DUP1)	Sou	rce: 24G0890-01	Prepared	: 2024-07-1	0, Analyze	d: 2024-0	7-10		
Phosphorus, Dissolved I	Reactive	0.230	0.0050 mg/L		0.230			< 1	14	
Matrix Spike (B4G24	27-MS1)	Sou	rce: 24G0890-01	Prepared	: 2024-07-1	0, Analyze	d: 2024-0	7-10		
Phosphorus, Dissolved I	Reactive	0.300	0.0050 mg/L	0.100	0.230	70	70-130			MS2
General Parameters,	Batch B4G2430									
Blank (B4G2430-BLK	(1)			Prepared	: 2024-07-1	0, Analyze	d: 2024-0	7-10		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B4G2430-BLK	(2)			D	0004074		1 0004 0	- 40		
				Prepared	: 2024-07-1	0, Analyze	a: 2024-0	7-10		
Ammonia, Total (as N)		< 0.050	0.050 mg/L	Prepared	: 2024-07-1	0, Analyze	d: 2024-0	7-10		
Ammonia, Total (as N) LCS (B4G2430-BS1)		< 0.050	0.050 mg/L	· ·	: 2024-07-1					
. , ,		< 0.050	0.050 mg/L 0.050 mg/L	· ·						
LCS (B4G2430-BS1) Ammonia, Total (as N)				Prepared	: 2024-07-1	0, Analyze	d: 2024-0 85-115	7-10		
LCS (B4G2430-BS1)				Prepared		0, Analyze	d: 2024-0 85-115	7-10		
LCS (B4G2430-BS1) Ammonia, Total (as N) LCS (B4G2430-BS2) Ammonia, Total (as N)	DUIP4)	0.936 0.904	0.050 mg/L 0.050 mg/L	Prepared 1.00 Prepared 1.00	: 2024-07-1 : 2024-07-1	0, Analyze 94 0, Analyze 90	d: 2024-0 85-115 d: 2024-0 85-115	7-10 7-10		
LCS (B4G2430-BS1) Ammonia, Total (as N) LCS (B4G2430-BS2) Ammonia, Total (as N) Duplicate (B4G2430-	DUP1)	0.936 0.904 Sou	0.050 mg/L 0.050 mg/L rce: 24G0890-01	Prepared 1.00 Prepared 1.00	: 2024-07-1 : 2024-07-1 : 2024-07-1	0, Analyze 94 0, Analyze 90	d: 2024-0 85-115 d: 2024-0 85-115	7-10 7-10 7-10	15	
LCS (B4G2430-BS1) Ammonia, Total (as N) LCS (B4G2430-BS2) Ammonia, Total (as N) Duplicate (B4G2430- Ammonia, Total (as N)	•	0.936 0.904 Sou 1.41	0.050 mg/L 0.050 mg/L rce: 24G0890-01 0.050 mg/L	Prepared 1.00 Prepared 1.00 Prepared	: 2024-07-1 : 2024-07-1 : 2024-07-1 1.44	0, Analyze 94 0, Analyze 90 0, Analyze	d: 2024-0 85-115 d: 2024-0 85-115 d: 2024-0	7-10 7-10 7-10 2	15	
LCS (B4G2430-BS1) Ammonia, Total (as N) LCS (B4G2430-BS2) Ammonia, Total (as N) Duplicate (B4G2430- Ammonia, Total (as N) Matrix Spike (B4G2434	•	0.936 0.904 Sou 1.41 Sou	0.050 mg/L 0.050 mg/L rce: 24G0890-01 0.050 mg/L rce: 24G0890-01	Prepared 1.00 Prepared 1.00 Prepared	: 2024-07-1 : 2024-07-1 : 2024-07-1 1.44 : 2024-07-1	0, Analyze 94 0, Analyze 90 0, Analyze	d: 2024-0' 85-115 d: 2024-0' 85-115 d: 2024-0' d: 2024-0	7-10 7-10 7-10 2	15	Moo
LCS (B4G2430-BS1) Ammonia, Total (as N) LCS (B4G2430-BS2) Ammonia, Total (as N) Duplicate (B4G2430- Ammonia, Total (as N) Matrix Spike (B4G2430- Ammonia, Total (as N)	30-MS1)	0.936 0.904 Sou 1.41	0.050 mg/L 0.050 mg/L rce: 24G0890-01 0.050 mg/L	Prepared 1.00 Prepared 1.00 Prepared	: 2024-07-1 : 2024-07-1 : 2024-07-1 1.44	0, Analyze 94 0, Analyze 90 0, Analyze	d: 2024-0 85-115 d: 2024-0 85-115 d: 2024-0	7-10 7-10 7-10 2	15	MS2
LCS (B4G2430-BS1) Ammonia, Total (as N) LCS (B4G2430-BS2) Ammonia, Total (as N) Duplicate (B4G2430- Ammonia, Total (as N) Matrix Spike (B4G24: Ammonia, Total (as N) General Parameters,	30-MS1) Batch B4G2529	0.936 0.904 Sou 1.41 Sou	0.050 mg/L 0.050 mg/L rce: 24G0890-01 0.050 mg/L rce: 24G0890-01	Prepared 1.00 Prepared 1.00 Prepared 0.204	: 2024-07-1 : 2024-07-1 : 2024-07-1 1.44 : 2024-07-1 1.44	0, Analyze 94 0, Analyze 90 0, Analyze 0, Analyze 60	d: 2024-0' 85-115 d: 2024-0' 85-115 d: 2024-0' d: 2024-0' 75-125	7-10 7-10 7-10 2 7-10	15	MS2
LCS (B4G2430-BS1) Ammonia, Total (as N) LCS (B4G2430-BS2) Ammonia, Total (as N) Duplicate (B4G2430- Ammonia, Total (as N) Matrix Spike (B4G2430- Ammonia, Total (as N) General Parameters, Blank (B4G2529-BLK	30-MS1) Batch B4G2529 (1)	0.936 0.904 Sou 1.41 Sou 1.56	0.050 mg/L 0.050 mg/L rce: 24G0890-01 0.050 mg/L rce: 24G0890-01 0.050 mg/L	Prepared 1.00 Prepared 1.00 Prepared 0.204	: 2024-07-1 : 2024-07-1 : 2024-07-1 1.44 : 2024-07-1	0, Analyze 94 0, Analyze 90 0, Analyze 0, Analyze 60	d: 2024-0' 85-115 d: 2024-0' 85-115 d: 2024-0' d: 2024-0' 75-125	7-10 7-10 7-10 2 7-10	15	MS2
LCS (B4G2430-BS1) Ammonia, Total (as N) LCS (B4G2430-BS2) Ammonia, Total (as N) Duplicate (B4G2430- Ammonia, Total (as N) Matrix Spike (B4G24: Ammonia, Total (as N) General Parameters,	30-MS1) Batch B4G2529 (1)	0.936 0.904 Sou 1.41 Sou	0.050 mg/L 0.050 mg/L rce: 24G0890-01 0.050 mg/L rce: 24G0890-01	Prepared 1.00 Prepared 1.00 Prepared 0.204 Prepared	: 2024-07-1 : 2024-07-1 : 2024-07-1 1.44 : 2024-07-1 1.44	0, Analyze 94 0, Analyze 90 0, Analyze 0, Analyze 60 0, Analyze	d: 2024-0' 85-115 d: 2024-0' 85-115 d: 2024-0' 75-125 d: 2024-0'	7-10 7-10 7-10 2 7-10 7-10	15	MS2



REPORTED TO PROJECT	Lake Country, Dist Final Effluent- PE1	,	ater)			WORK REPOR	ORDER TED		0890 I-07-15	12:59
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameter	s, Batch B4G2598									
Blank (B4G2598-B	LK1)			Prepared	I: 2024-07-1	1, Analyze	d: 2024-0	7-11		
Phosphorus, Total (as	s P)	< 0.0050	0.0050 mg/L							
Blank (B4G2598-B	LK2)			Prepared	I: 2024-07-1	1, Analyze	d: 2024-0	7-11		
Phosphorus, Total (as	s P)	< 0.0050	0.0050 mg/L							
LCS (B4G2598-BS	1)			Prepared	I: 2024-07-1	1, Analyze	d: 2024-0	7-11		
Phosphorus, Total (as	•	0.102	0.0050 mg/L	0.100		102	85-115			
LCS (B4G2598-BS	2)			Prepared	I: 2024-07-1	1, Analyze	d: 2024-0	7-11		
Phosphorus, Total (as	•	0.102	0.0050 mg/L	0.100		102	85-115			
General Parameter	s, Batch B4G2656									
Blank (B4G2656-B	LK1)			Prepared	I: 2024-07-1	1, Analyze	d: 2024-0	7-12		
Nitrogen, Total Kjelda		< 0.050	0.050 mg/L	· · · · · · · · · · · · · · · · · · ·						
Blank (B4G2656-B	LK2)			Prepared	I: 2024-07-1	1. Analvze	d: 2024-0	7-12		
Nitrogen, Total Kjelda	hl	< 0.050	0.050 mg/L	· ·		<u>, , , , , , , , , , , , , , , , , , , </u>				
LCS (B4G2656-BS	1)			Prepared	I: 2024-07-1	1, Analyze	d: 2024-0	7-12		
Nitrogen, Total Kjelda	•	1.02	0.050 mg/L	1.00		102	85-115			
LCS (B4G2656-BS	2)			Prepared	I: 2024-07-1	1, Analyze	d: 2024-0	7-12		
Nitrogen, Total Kjelda	•	1.02	0.050 mg/L	1.00		102	85-115			
General Parameter				Prepared	I: 2024-07-1	3, Analyze	d: 2024-0	7-13		
Solids, Total Suspend	•	< 2.0	2.0 mg/L	· ·						
LCS (B4G2879-BS	1)			Prepared	I: 2024-07-1	3. Analvze	d: 2024-0	7-13		
Solids, Total Suspend	•	92.9	10.2 mg/L	100		93	85-115			
Microbiological Pa	rameters, Batch B4G	2326								
Blank (B4G2326-B	LK1)			Prepared	I: 2024-07-0	9, Analyze	d: 2024-0	7-09		
Coliforms, Fecal (Q-T	ray)	< 1	1 MPN/100) mL						
Blank (B4G2326-B	LK2)			Prepared	I: 2024-07-0	9, Analyze	d: 2024-0	7-09		
Coliforms, Total (Q-Tr	ay)	< 1	1 MPN/100) mL						
Blank (B4G2326-B	LK3)			Prepared	I: 2024-07-0	9, Analyze	d: 2024-0	7-09		
Coliforms, Total (Q-Tr	ay)	< 1	1 MPN/100) mL						
Blank (B4G2326-B	LK4)			Prepared	I: 2024-07-0	9, Analyze	d: 2024-0	7-09		
Coliforms, Total (Q-Tr	ay)	< 1	1 MPN/100) mL		-				
Duplicate (B4G232	26-DUP1)	Sou	rce: 24G0890-01	Prepared	I: 2024-07-0	9, Analyze	d: 2024-0	7-09		
Coliforms, Fecal (Q-T	ray)	19500	1 MPN/100) mL	19700			1	80	

QC Qualifiers:

MS2 The native sample concentration is greater than the spike concentration hence the matrix spike limits do not apply.





CERTIFICATE OF ANALYSIS

You know that the sample you collected after

snowshoeing to site, digging 5 meters, and

racing to get it on a plane so you can submit it

to the lab for time sensitive results needed to

make important and expensive decisions

(whew) is VERY important. We know that too.

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen **WORK ORDER** 24G0889

2024-07-08 11:33 / 16.6°C

Raw Influent- PE14651 **REPORTED** 2024-07-15 12:44 **PROJECT** Lake Country WWTP 45481.31193 **PROJECT INFO COC NUMBER**

Introduction:

PO NUMBER

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

We've Got Chemistry

It's simple. We figure the more you enjoy with fun and working our engaged team the more members; likely you are to give us continued opportunities to support you.

Ahead of the Curve

RECEIVED / TEMP

Through research, regulation and instrumentation, knowledge, are your analytical centre the knowledge technical you BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager What



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER REPORTED

24G0889

2024-07-15 12:44

Analyte	Result	RL	Units	Analyzed	Qualifie
Raw Influent (E233627) (24G0889-01) Ma	atrix: Wastewater Sample	d: 2024-07-08 11:03			
Anions					
Nitrate (as N)	< 0.010	0.010	mg/L	2024-07-10	
Nitrite (as N)	< 0.010	0.010	mg/L	2024-07-10	
Calculated Parameters					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	107	2.00	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	391	1.0	mg/L	2024-07-08	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2024-07-08	
Alkalinity, Bicarbonate (as CaCO3)	391	1.0	mg/L	2024-07-08	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2024-07-08	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-07-08	
Ammonia, Total (as N)	65.0	0.050	mg/L	2024-07-10	
BOD, 5-day	616	2.0	mg/L	2024-07-15	
BOD, 5-day Carbonaceous	494	2.0	mg/L	2024-07-15	
Nitrogen, Total Kjeldahl	107	0.050	mg/L	2024-07-12	
pH	7.96	0.10	pH units	2024-07-08	HT2
Phosphorus, Total (as P)	13.3	0.0050	mg/L	2024-07-11	
Phosphorus, Dissolved Reactive	6.40	0.0050	mg/L	2024-07-10	
Solids, Total Suspended	428	2.0	mg/L	2024-07-11	

Sample Qualifiers:



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER
REPORTED

24G0889

2024-07-15 12:44

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Dissolved Reactive in Water	SM 4500-P F (2021)	Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

< Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER REPORTED

24G0889 2024-07-15 12:44

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B4G2472									
Blank (B4G2472-BLK1)			Prepared	l: 2024-07- 1	0, Analyze	d: 2024-0	07-10		
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Blank (B4G2472-BLK2)			Prepared	l: 2024-07- 1	1, Analyze	d: 2024-0	7-11		
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4G2472-BS1)			Prepared	l: 2024-07- 1	0, Analyze	d: 2024-0	07-10		
Nitrate (as N)	3.94	0.010 mg/L	4.00		99	90-110			
Nitrite (as N)	2.04	0.010 mg/L	2.00		102	85-115			
LCS (B4G2472-BS2)			Prepared	l: 2024-07- 1	1, Analyze	d: 2024-0)7-11		
Nitrate (as N)	3.94	0.010 mg/L	4.00		98	90-110			
Nitrite (as N)	2.21	0.010 mg/L	2.00		110	85-115			

General Parameters, Batch B4G2266

Blank (B4G2266-BLK1)			Prepared: 202	24-07-08, Analyz	ed: 2024-07-0)8
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L				
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L				
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L				
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L				
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L				
Blank (B4G2266-BLK2)			Prepared: 202	24-07-08, Analyz	ed: 2024-07-0)8
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L				
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L				
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L				
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L				
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L				
LCS (B4G2266-BS1)			Prepared: 202	24-07-08, Analyz	ed: 2024-07-0)8
Alkalinity, Total (as CaCO3)	96.4	1.0 mg/L	100	96	80-120	
Alkalinity, Phenolphthalein (as CaCO3)	75.4	1.0 mg/L	50.0	151	0-200	



REPORTED TO PROJECT	Lake Country, Dist Raw Influent- PE1	•	ater)			WORK REPOR	ORDER RTED	24G0 2024	0889 I-07-15	12:44
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameter	s, Batch B4G2266, Co	ontinued								
LCS (B4G2266-BS	3)			Prepared	I: 2024-07-0	8, Analyze	d: 2024-0	7-08		
Alkalinity, Total (as Ca	,	95.9	1.0 mg/L	100		96	80-120			
Alkalinity, Phenolphth	,	75.8	1.0 mg/L	50.0		152	0-200			
Reference (B4G22	66-SRM1)				I: 2024-07-0	•		7-08		
pH		7.03	0.10 pH units	7.01		100	98-102			
Reference (B4G22	66-SRM2)				I: 2024-07-0			7-08		
рН		7.02	0.10 pH units	7.01		100	98-102			
General Parameters Blank (B4G2427-B	,			Prepared	I: 2024-07-1	0 Analyze	ed: 2024-0	7-10		
Phosphorus, Dissolve		< 0.0050	0.0050 mg/L				0 0	. •		
LCS (B4G2427-BS	1)			Prepared	I: 2024-07-1	0, Analvze	d: 2024-0	7-10		
Phosphorus, Dissolve	,	0.0990	0.0050 mg/L	0.100		99	84-115			
Blank (B4G2430-B Ammonia, Total (as N		< 0.050	0.050 mg/L	Prepared	I: 2024-07-1	0, Analyze	ed: 2024-0	7-10		
Blank (B4G2430-B			J	Prenared	I: 2024-07-1	0 Analyze	d. 2024-0	7-10		
Ammonia, Total (as N	•	< 0.050	0.050 mg/L			0,7				
LCS (B4G2430-BS	1)			Prepared	I: 2024-07-1	0, Analyze	d: 2024-0	7-10		
Ammonia, Total (as N	•	0.936	0.050 mg/L	1.00		94	85-115			
LCS (B4G2430-BS	2)			Prepared	I: 2024-07-1	0, Analyze	ed: 2024-0	7-10		
Ammonia, Total (as N)	0.904	0.050 mg/L	1.00		90	85-115			
General Parameter	s, Batch B4G2475									
Blank (B4G2475-B	LK1)			Prepared	I: 2024-07-1	0, Analyze	d: 2024-0	7-11		
Solids, Total Suspend	led	< 2.0	2.0 mg/L							
LCS (B4G2475-BS	•				I: 2024-07-1			7-11		
Solids, Total Suspend	led	94.0	10.0 mg/L	100		94	85-115			
Duplicate (B4G247	· · · · · · · · · · · · · · · · · · ·		rce: 24G0889-01	Prepared	I: 2024-07-1	0, Analyze	d: 2024-0			
Solids, Total Suspend	led	416	2.0 mg/L		428			3	20	
General Parameter				Duamanad	. 2024 07 4	0 0 0	4. 2024 0	7.45		
Blank (B4G2529-B BOD, 5-day Carbona	•	< 2.0	2.0 mg/L	Prepared	I: 2024-07-1	o, Analyze	:u. ∠∪∠4-U	1-10		
		~ 2.0	2.0 Hig/L	Dronors	1. 2024 07 4	O Analys	d. 2024 2	7 15		
BOD, 5-day Carbona	•	202	2.0 mg/L	Prepared 198	I: 2024-07-1	0, Anaiyze	85-115	1-10		
<u> </u>		202	Z.O IIIg/L	190		102	00-110			
General Parameter				Dropore	1. 2024 07 4	O Analyz-	.d. 2024 0	7 15		
Blank (B4G2530-B BOD, 5-day	LNI)	< 2.0	2.0 mg/L	Frepared	I: 2024-07-1	o, Analyze	:u. ∠∪∠4-U	<i>i</i> - 10		
בטט, ט-uay		~ Z.U	Z.U IIIY/L							



	ake Country, District of (Waste aw Influent- PE14651	ewater)			WORK ORDER REPORTED		24G0889 2024-07-15 12:44		12:44
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameters, E	Batch B4G2530, Continued								
LCS (B4G2530-BS1)			Prepared	d: 2024-07-	10, Analyze	ed: 2024-0)7-15		
BOD, 5-day	213	2.0 mg/L	198		108	85-115			
General Parameters, E	Batch B4G2598								
Blank (B4G2598-BLK1)		Prepared	d: 2024-07-	11, Analyze	ed: 2024-0	7-11		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B4G2598-BLK2	2)		Prepared	d: 2024-07-	11, Analyze	ed: 2024-0	7-11		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L			-				
LCS (B4G2598-BS1)			Prepared	d: 2024-07-	11, Analyze	ed: 2024-0	7-11		
Phosphorus, Total (as P)	0.102	0.0050 mg/L	0.100		102	85-115			
LCS (B4G2598-BS2)			Prepared	d: 2024-07-	11, Analyze	ed: 2024-0	7-11		
Phosphorus, Total (as P)	0.102	0.0050 mg/L	0.100		102	85-115			
General Parameters, E	Batch B4G2656								
Blank (B4G2656-BLK1)		Prepared	d: 2024-07-	11, Analyze	ed: 2024-0	7-12		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
Blank (B4G2656-BLK2	2)		Prepared	d: 2024-07-	11, Analyze	ed: 2024-0	7-12		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
LCS (B4G2656-BS1)			Prepared	d: 2024-07-	11, Analyze	ed: 2024-0	7-12		
Nitrogen, Total Kjeldahl	1.02	0.050 mg/L	1.00		102	85-115			
LCS (B4G2656-BS2)			Prepared	d: 2024-07-	11, Analyze	ed: 2024-0	7-12		
Nitrogen, Total Kjeldahl	1.02	0.050 mg/L	1.00		102	85-115			





CERTIFICATE OF ANALYSIS

You know that the sample you collected after

snowshoeing to site, digging 5 meters, and

racing to get it on a plane so you can submit it

to the lab for time sensitive results needed to

make important and expensive decisions

(whew) is VERY important. We know that too.

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen WORK ORDER 24F1657

PO NUMBER RECEIVED / TEMP2024-06-13 10:34 / 18.1°C

 PROJECT
 Final Effluent- PE14651
 REPORTED
 2024-06-20 09:06

 PROJECT INFO
 Lake Country WWTP
 COC NUMBER
 45456.30373

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager M undhad



REPORTED TO Lake Country, Distr PROJECT Final Effluent- PE1	,		WORK ORDER REPORTED	24F1657 2024-06-2	0 09:06
Analyte	Result	RL	Units	Analyzed	Qualifier
Final Effluent (E233626) (24F1657-01)	Matrix: Wastewater Sample	d: 2024-06-13 07:30			
Anions					
Chloride	135	0.10	mg/L	2024-06-14	
Nitrate (as N)	2.10	0.010		2024-06-14	
Nitrite (as N)	0.329	0.010	mg/L	2024-06-14	
Calculated Parameters					
Nitrate+Nitrite (as N)	2.43	0.0100	ma/L	N/A	
Nitrogen, Total	6.05	0.0500		N/A	
Nitrogen, Organic	0.904	0.0500	-	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	168	1.0	mg/L	2024-06-18	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0		2024-06-18	
Alkalinity, Bicarbonate (as CaCO3)	168		mg/L	2024-06-18	
Alkalinity, Carbonate (as CaCO3)	< 1.0		mg/L	2024-06-18	
Alkalinity, Hydroxide (as CaCO3)	< 1.0		mg/L	2024-06-18	
Ammonia, Total (as N)	2.72	0.050		2024-06-14	
BOD, 5-day Carbonaceous	4.6		mg/L	2024-06-19	
Nitrogen, Total Kjeldahl	3.62	0.050	mg/L	2024-06-18	
pH	7.73	0.10	pH units	2024-06-18	HT2
Phosphorus, Total (as P)	0.289	0.0050	mg/L	2024-06-14	
Phosphorus, Dissolved Reactive	0.0840	0.0050	mg/L	2024-06-13	
Solids, Total Suspended	2.2	2.0	mg/L	2024-06-18	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	> 242000	1	MPN/100 mL	2024-06-13	
Coliforms, Fecal (Q-Tray)	81600		MPN/100 mL	2024-06-13	
Duplicate (24F1657-02) Matrix: Wast	tewater Sampled: 2024-06-13 ()7:30			
Chloride	146	0.10	mg/L	2024-06-14	
Nitrate (as N)	2.08	0.010		2024-06-14	
Nitrite (as N)	0.330	0.010		2024-06-14	
Calculated Parameters					
Nitrate+Nitrite (as N)	2.41	0.0100	mg/L	N/A	
Nitrogen, Total	6.02	0.0500		N/A	
Nitrogen, Organic	0.869	0.0500		N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	169	1 0	mg/L	2024-06-18	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0		mg/L	2024-06-18	
Alkalinity, Bicarbonate (as CaCO3)	169		mg/L	2024-06-18	



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER

24F1657

REPORTED 2024-06-20 09:06

Analyte	Result	RL	Units	Analyzed	Qualifie
Duplicate (24F1657-02) Matrix: Waste	water Sampled: 2024-06-13 0	7:30, Continued			
General Parameters, Continued					
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-06-18	
Ammonia, Total (as N)	2.74	0.050	mg/L	2024-06-14	
BOD, 5-day Carbonaceous	5.2	2.0	mg/L	2024-06-19	
Nitrogen, Total Kjeldahl	3.61	0.050	mg/L	2024-06-18	
pH	7.47	0.10	pH units	2024-06-18	HT2
Phosphorus, Total (as P)	0.294	0.0050	mg/L	2024-06-14	
Phosphorus, Dissolved Reactive	0.0820	0.0050	mg/L	2024-06-13	
Solids, Total Suspended	3.8	2.0	mg/L	2024-06-18	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	> 242000	1	MPN/100 mL	2024-06-13	
Coliforms, Fecal (Q-Tray)	155000	1	MPN/100 mL	2024-06-13	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED 24F1657

PORTED 2024-06-20 09:06

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Coliforms, Total in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Dissolved Reactive in Water	SM 4500-P F (2021)	Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

< Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

> Greater than the specified Result

mg/L Milligrams per litre

MPN/100 mL Most Probable Number per 100 millilitres

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER

24F1657

REPORTED 2024-06-20 09:06

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



Ammonia, Total (as N)

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED

24F1657 2024-06-20 09:06

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also
 referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B4F2739									
Blank (B4F2739-BLK1)			Prepared	l: 2024-06- 1	3, Analyze	d: 2024-0	06-13		
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Blank (B4F2739-BLK2)			Prepared	l: 2024-06- 1	4, Analyze	d: 2024-0	06-14		
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4F2739-BS1)			Prepared	l: 2024-06-1	3, Analyze	d: 2024-0	06-13		
Chloride	16.4	0.10 mg/L	16.0		103	90-110			
Nitrate (as N)	3.99	0.010 mg/L	4.00		100	90-110			
Nitrite (as N)	1.98	0.010 mg/L	2.00		99	85-115			
LCS (B4F2739-BS2)			Prepared	l: 2024-06-1	4, Analyze	ed: 2024-0	06-14		
Chloride	15.8	0.10 mg/L	16.0		99	90-110			
Nitrate (as N)	3.98	0.010 mg/L	4.00		100	90-110			
Nitrite (as N)	2.02	0.010 mg/L	2.00		101	85-115			
General Parameters, Batch B4F2874 Blank (B4F2874-BLK1)			Prepared	l: 2024-06- 1	3, Analyze	ed: 2024-(06-13		
Phosphorus, Dissolved Reactive	< 0.0050	0.0050 mg/L							
LCS (B4F2874-BS1)			Prepared	l: 2024-06- 1	3, Analyze	ed: 2024-0	06-13		
Phosphorus, Dissolved Reactive	0.100	0.0050 mg/L	0.100		100	84-115			
General Parameters, Batch B4F2878									
Blank (B4F2878-BLK1)			Prepared	l: 2024-06- 1	4, Analyze	d: 2024-0	06-14		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B4F2878-BLK2)			Droparad	l: 2024-06-1	4 Analyzo	4· 2024 (nc 14		

0.050 mg/L

< 0.050



	ake Country, Distr inal Effluent- PE14	•	ater)			WORK REPOR	ORDER TED		F1657 24-06-20 09:06		
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie	
General Parameters, I	Batch B4F2878, Coi	ntinued									
Blank (B4F2878-BLK3	3)			Prepared:	: 2024-06-14	4, Analyze	d: 2024-0	06-14			
Ammonia, Total (as N)	•	< 0.050	0.050 mg/L			-					
Blank (B4F2878-BLK4	1)			Prepared:	2024-06-14	4, Analyze	d: 2024-0	06-14			
Ammonia, Total (as N)		< 0.050	0.050 mg/L	·							
Blank (B4F2878-BLK5	5)			Prepared:	2024-06-14	4, Analyze	d: 2024-0	06-14			
Ammonia, Total (as N)		< 0.050	0.050 mg/L								
LCS (B4F2878-BS1)				Prepared:	2024-06-14	4, Analyze	d: 2024-0	06-14			
Ammonia, Total (as N)		0.990	0.050 mg/L	1.00		99	85-115				
LCS (B4F2878-BS2)				Prepared:	2024-06-14	4, Analyze	d: 2024-0	06-14			
Ammonia, Total (as N)		1.00	0.050 mg/L	1.00		100	85-115				
LCS (B4F2878-BS3)				Prepared:	2024-06-14	4, Analyze	d: 2024-0	06-14			
Ammonia, Total (as N)		1.03	0.050 mg/L	1.00		103	85-115				
LCS (B4F2878-BS4)				Prepared:	2024-06-14	4, Analyze	d: 2024-0	06-14			
Ammonia, Total (as N)		1.02	0.050 mg/L	1.00		102	85-115				
LCS (B4F2878-BS5)				Prepared:	2024-06-14	4, Analyze	d: 2024-0	06-14			
Ammonia, Total (as N)		1.01	0.050 mg/L	1.00		101	85-115				
Blank (B4F2885-BLK1 Phosphorus, Total (as P)	1)	< 0.0050	0.0050 mg/L	Prepared:	2024-06-13	3, Analyze	d: 2024-(06-14			
Blank (B4F2885-BLK2	D1	10.0000	0.0000 mg/L	Droporod	: 2024-06-1	2 Apolyzo	4. 2024 (ne 14			
Phosphorus, Total (as P)	•	< 0.0050	0.0050 mg/L	гтератец.	. 2024-00-1	o, Allalyze	u. 2024-0	70-14			
Blank (B4F2885-BLK3				Prenared:	: 2024-06-13	3 Analyze	d. 2024-0	n6-14			
Phosphorus, Total (as P)	•	< 0.0050	0.0050 mg/L	i repareu.	. 2024-00-1	o, Allaly26	u. 2024-0	70-14			
LCS (B4F2885-BS1)				Prenared:	: 2024-06-13	3 Analyze	d· 2024-0	06-14			
Phosphorus, Total (as P)		0.102	0.0050 mg/L	0.100	202+00 10	102	85-115	70 14			
LCS (B4F2885-BS2)			<u> </u>	Prenared:	: 2024-06-13	3 Analyze	d· 2024-0	06-14			
Phosphorus, Total (as P)		0.102	0.0050 mg/L	0.100		102	85-115				
LCS (B4F2885-BS3)				Prepared	: 2024-06-1	3. Analyze	d: 2024-0	06-14			
Phosphorus, Total (as P)		0.100	0.0050 mg/L	0.100		100	85-115				
General Parameters, I				Prepared:	: 2024-06-14	1, Analyze	d: 2024-(06-19			
BOD, 5-day Carbonaceo	us	< 2.0	2.0 mg/L								
LCS (B4F2978-BS1)				Prepared:	2024-06-14	4, Analyze	d: 2024-0	06-19			
BOD, 5-day Carbonaceo	us	183	41.3 mg/L	198		93	85-115				
General Parameters, I	Batch B4F3141										
General Parameters, I				Prepared:	: 2024-06-18	3, Analyze	d: 2024-0	06-18			



REPORTED TO Lake Country, Final Effluent-	District of (Wastewate PE14651	er)			WORK REPOI		24F1657 2024-06-20		09:06
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B4F314	1, Continued								
Blank (B4F3141-BLK2)			Prepared	l: 2024-06-1	8, Analyze	ed: 2024-	06-18		
Solids, Total Suspended	< 2.0	2.0 mg/L							
LCS (B4F3141-BS1)			Prepared	l: 2024-06-1	8, Analyze	ed: 2024-	06-18		
Solids, Total Suspended	91.0	10.0 mg/L	100		91	85-115			
LCS (B4F3141-BS2)			Prepared	l: 2024-06-1	8 Analyze	-d· 2024-	n6-18		
Solids, Total Suspended	92.0	10.0 mg/L	100	1. 2024-00-1	92	85-115	30-10		
	02.0			. 2024 00 4			00.40		
Reference (B4F3141-SRM1)	400	20.0		1: 2024-06-1			J0-18		
Solids, Total Suspended	190	20.0 mg/L	210		90	80-120			
General Parameters, Batch B4F314	6								
Blank (B4F3146-BLK1)			Prepared	l: 2024-06-1	8, Analyze	ed: 2024-	06-18		
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO3) Alkalinity, Carbonate (as CaCO3)	< 1.0 < 1.0	1.0 mg/L 1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
Blank (B4F3146-BLK2)			Prepared	l: 2024-06-1	8. Analvze	ed: 2024-	06-18		
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L	<u> </u>		<u>-, , , </u>				
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
Blank (B4F3146-BLK3)			Prepared	: 2024-06-1	8, Analyze	ed: 2024-	06-18		
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO3) Alkalinity, Carbonate (as CaCO3)	< 1.0 < 1.0	1.0 mg/L 1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
,		g/_	Duamanad	. 2024 00 4	0	- J. 2024	00.40		
LCS (B4F3146-BS1)	00.0	4.0//	•	l: 2024-06-1			J6-18		
Alkalinity, Total (as CaCO3) Alkalinity, Phenolphthalein (as CaCO3)	89.9 39.2	1.0 mg/L 1.0 mg/L	100 50.0		90 78	80-120 0-200			
	00.2	1.0 mg/L		. 2024 06 4			06.10		
LCS (B4F3146-BS3)		4.0	•	l: 2024-06-1	•		J6-18		
Alkalinity, Total (as CaCO3) Alkalinity, Phenolphthalein (as CaCO3)	91.8 40.6	1.0 mg/L 1.0 mg/L	100 50.0		92 81	80-120 0-200			
	40.0	1.0 mg/L		. 0004 00 4			00.40		
LCS (B4F3146-BS5)		4.0	•	l: 2024-06-1			J6-18		
Alkalinity, Total (as CaCO3) Alkalinity, Phenolphthalein (as CaCO3)	89.3 37.5	1.0 mg/L 1.0 mg/L	100 50.0		89 75	80-120 0-200			
	07.0			l: 2024-06-1			n6_18		
Reference (B4F3146-SRM1)	7.03	0.10 pH units	7.01	. 2024-00-1	0, Arialyze 100	98-102	00-10		
	1.03	o. to pri utilis		. 2024 22 1			00.40		
Reference (B4F3146-SRM2)			•	l: 2024-06-1	•		J6-18		
pH	7.02	0.10 pH units	7.01		100	98-102			
Reference (B4F3146-SRM3)			Prepared	: 2024-06-1	8, Analyze	ed: 2024-	06-18		
pH	7.02	0.10 pH units	7.01		100	98-102			



REPORTED TO PROJECT	Lake Country, D Final Effluent- P	istrict of (Wastewa E14651				WORK REPOR		24F1657 2024-06-20 09:06		
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	, Batch B4F3182,	Continued								
Blank (B4F3182-BL	K1)			Prepared	I: 2024-06-	17, Analyze	ed: 2024-0	06-18		
Nitrogen, Total Kjeldah	ıl	< 0.050	0.050 mg/L							
Blank (B4F3182-BL	K2)			Prepared	l: 2024-06-	17, Analyze	d: 2024-0	06-18		
Nitrogen, Total Kjeldah	ıl	< 0.050	0.050 mg/L							
LCS (B4F3182-BS1)			Prepared	l: 2024-06-	17, Analyze	d: 2024-0	06-18		
Nitrogen, Total Kjeldah	ıl	0.979	0.050 mg/L	1.00		98	85-115			
LCS (B4F3182-BS2)			Prepared	I: 2024-06-	17, Analyze	d: 2024-0	06-18		
Nitrogen, Total Kjeldah	ıl	0.945	0.050 mg/L	1.00		94	85-115			
Microbiological Para	•	4F2791		Prepared	I: 2024-06- ²	13, Analyze	ed: 2024-(06-13		
Coliforms, Total (Q-Tra	ay)	< 1	1 MPN/100	mL						
Blank (B4F2791-BL	K2)			Prepared	l: 2024-06-	13, Analyze	d: 2024-0	06-13		
Coliforms, Fecal (Q-Tr	ay)	< 1	1 MPN/100	mL		-				
Blank (B4F2791-BL	.K3)			Prepared	I: 2024-06-	13, Analyze	d: 2024-0	06-13		
Coliforms, Total (Q-Tra	ay)	< 1	1 MPN/100	mL						
Blank (B4F2791-BL	.K4)			Prepared	I: 2024-06-	13, Analyze	d: 2024-0	06-13		
Coliforms, Fecal (Q-Tr	av)	<1	1 MPN/100	mL						





CERTIFICATE OF ANALYSIS

You know that the sample you collected after

snowshoeing to site, digging 5 meters, and

racing to get it on a plane so you can submit it

to the lab for time sensitive results needed to

make important and expensive decisions

(whew) is VERY important. We know that too.

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen WORK ORDER 24F1658

PO NUMBER RECEIVED / TEMP 2024-06-13 10:34 / 18.1°C

 PROJECT
 Raw Influent- PE14651
 REPORTED
 2024-06-20 12:21

 PROJECT INFO
 Lake Country WWTP
 COC NUMBER
 45456.30373

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager M undbed



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER

24F1658

REPORTED 2024-06-20 12:21

Analyte	Result	RL	Units	Analyzed	Qualifie
Raw Influent (E233627) (24F1658-01) Ma	trix: Wastewater Samp	led: 2024-06-13 10:05			
Anions					
Nitrate (as N)	< 0.010	0.010	mg/L	2024-06-14	
Nitrite (as N)	< 0.010	0.010	mg/L	2024-06-14	
Calculated Parameters					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	102	2.00	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	383	1.0	mg/L	2024-06-18	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2024-06-18	
Alkalinity, Bicarbonate (as CaCO3)	383	1.0	mg/L	2024-06-18	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2024-06-18	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-06-18	
Ammonia, Total (as N)	73.5	0.050	mg/L	2024-06-14	
BOD, 5-day	462	2.0	mg/L	2024-06-19	
BOD, 5-day Carbonaceous	390	2.0	mg/L	2024-06-20	
Nitrogen, Total Kjeldahl	102	0.050	mg/L	2024-06-18	
pH	7.79	0.10	pH units	2024-06-18	HT2
Phosphorus, Total (as P)	14.5	0.0050	mg/L	2024-06-14	
Phosphorus, Dissolved Reactive	7.06	0.0050	mg/L	2024-06-13	
Solids, Total Suspended	310	2.0	mg/L	2024-06-18	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER
REPORTED

24F1658

PORTED 2024-06-20 12:21

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Dissolved Reactive in Water	SM 4500-P F (2021)	Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

< Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



Blank (B4F2878-BLK2)

Blank (B4F2878-BLK3)

Blank (B4F2878-BLK4) Ammonia, Total (as N)

Ammonia, Total (as N)

Ammonia, Total (as N)

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO Lake Country, District of (Wastewater) **PROJECT**

Raw Influent- PE14651

WORK ORDER REPORTED

24F1658 2024-06-20 12:21

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- Duplicate (Dup): An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
Anions, Batch B4F2739									
Blank (B4F2739-BLK1)			Prepared	I: 2024-06-1	I3, Analyze	d: 2024-0	06-13		
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Blank (B4F2739-BLK2)			Prepared	l: 2024-06-1	I4, Analyze	d: 2024-0	06-14		
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4F2739-BS1)			Prepared	I: 2024-06-1	I3, Analyze	d: 2024-0	06-13		
Nitrate (as N)	3.99	0.010 mg/L	4.00		100	90-110			
Nitrite (as N)	1.98	0.010 mg/L	2.00		99	85-115			
LCS (B4F2739-BS2)			Prepared	I: 2024-06-1	I4, Analyze	d: 2024-0	06-14		
Nitrate (as N)	3.98	0.010 mg/L	4.00		100	90-110			
Nitrite (as N)	2.02	0.010 mg/L	2.00		101	85-115			
General Parameters, Batch B4F2874									
Blank (B4F2874-BLK1)			Prepared	l: 2024-06-1	I3, Analyze	d: 2024-0	06-13		
Phosphorus, Dissolved Reactive	< 0.0050	0.0050 mg/L							
LCS (B4F2874-BS1)			Prepared	l: 2024-06-1	I3, Analyze	d: 2024-0	06-13		
Phosphorus, Dissolved Reactive	0.100	0.0050 mg/L	0.100		100	84-115			
General Parameters, Batch B4F2878									
Blank (B4F2878-BLK1)			Prepared	I: 2024-06-1	I4, Analyze	d: 2024-0	06-14		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							

0.050 mg/L

0.050 mg/L

0.050 mg/L

< 0.050

< 0.050

< 0.050

Prepared: 2024-06-14, Analyzed: 2024-06-14

Prepared: 2024-06-14, Analyzed: 2024-06-14

Prepared: 2024-06-14, Analyzed: 2024-06-14



	_ake Country, District of (Was Raw Influent- PE14651	tewater)			WORK REPOR	ORDER RTED	24F ²	1658 1-06-20	12:21
Analyte	Resul	t RL Unit	s Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters,	Batch B4F2878, Continued								
Blank (B4F2878-BLK	5)		Prepared	: 2024-06-1	4, Analyze	ed: 2024-0	6-14		
Ammonia, Total (as N)	< 0.05	0.050 mg/L	-						
LCS (B4F2878-BS1)			Prepared	: 2024-06-1	4, Analyze	ed: 2024-0	6-14		
Ammonia, Total (as N)	0.99	0.050 mg/L			99	85-115			
LCS (B4F2878-BS2)			Prepared	: 2024-06-1	4, Analyze	ed: 2024-0	6-14		
Ammonia, Total (as N)	1.0	0.050 mg/L			100	85-115			
LCS (B4F2878-BS3)			Prepared	: 2024-06-1	4, Analyze	ed: 2024-0	6-14		
Ammonia, Total (as N)	1.0	3 0.050 mg/L			103	85-115			
LCS (B4F2878-BS4)				: 2024-06-1	4, Analvze	ed: 2024-0	6-14		
Ammonia, Total (as N)	1.0	2 0.050 mg/L			102	85-115	<u> </u>		
LCS (B4F2878-BS5)			Prenareo	: 2024-06-1	4 Analyze	.d. 2024 - 0	6-14		
Ammonia, Total (as N)	1.0	1 0.050 mg/L	•	. 2024-00-1	101	85-115	0-14		
General Parameters, Blank (B4F2885-BLK	1)			: 2024-06-1	3, Analyze	ed: 2024-0	6-14		
Phosphorus, Total (as P	(0.005)	0.0050 mg/L							
Blank (B4F2885-BLK	2)		Prepared	: 2024-06-1	3, Analyze	ed: 2024-0	6-14		
Phosphorus, Total (as P	< 0.005	0.0050 mg/L	-						
Blank (B4F2885-BLK	3)		Prepared	: 2024-06-1	3, Analyze	ed: 2024-0	6-14		
Phosphorus, Total (as P	< 0.005	0.0050 mg/L	-						
LCS (B4F2885-BS1)			Prepared	: 2024-06-1	3, Analyze	ed: 2024-0	6-14		
Phosphorus, Total (as P	0.10	2 0.0050 mg/L	0.100		102	85-115			
LCS (B4F2885-BS2)			Prepared	: 2024-06-1	3, Analyze	ed: 2024-0	6-14		
Phosphorus, Total (as P	0.10	2 0.0050 mg/L	0.100		102	85-115			
LCS (B4F2885-BS3)			Prepared	: 2024-06-1	3, Analyze	ed: 2024-0	6-14		
Phosphorus, Total (as P	0.10	0.0050 mg/L	0.100		100	85-115			
General Parameters,	Batch B4F2979								
Blank (B4F2979-BLK	1)		Prepared	: 2024-06-1	4, Analyze	d: 2024-0	6-19		
BOD, 5-day	< 2.	0 2.0 mg/L	-						
LCS (B4F2979-BS1)			Prepared	: 2024-06-1	4, Analyze	ed: 2024-0	6-19		
BOD, 5-day	18	3 51.4 mg/L	_ 198		93	85-115			
General Parameters,	Batch B4F3087								
Blank (B4F3087-BLK	•		Prepared	: 2024-06-1	5, Analyze	d: 2024-0	6-20		
BOD, 5-day Carbonaceo	ous < 2.	0 2.0 mg/L	_						
LCS (B4F3087-BS1)			Prepared	: 2024-06-1	5, Analyze	ed: 2024-0	6-20		
BOD, 5-day Carbonace	ous 17	6 33.8 mg/L	_ 198		89	85-115			

General Parameters, Batch B4F3141



Result R	REPORTED TO Lake Country, Di PROJECT Raw Influent- PE	istrict of (Wastewate 14651	er)			WORK REPOR	ORDER RTED		1658 I-06-20	12:21
Prepared: 2024-06-18, Analyzed: 2024-06-18 Solids, Folial Suspended 4.2.0 2.0 mg/L	Analyte	Result	RL Units	•		% REC		% RPD		Qualifier
Solids, Total Suspended 4_20	General Parameters, Batch B4F3141,	Continued								
Blank (B4F3141-BLK2)	Blank (B4F3141-BLK1)			Prepared	: 2024-06-1	8, Analyze	ed: 2024-0	06-18		
Solids, Total Suspended	Solids, Total Suspended	< 2.0	2.0 mg/L							
Solids, Total Suspended	Rlank (R4F3141-RLK2)			Dranarad	. 2024-06-1	8 Analyze	-d- 2024-i	∩6 ₋ 18		
Prepared: 2024-06-18, Analyzed: 2024-06-18		< 2.0	2.0 mg/l	i repared	. 2024-00-1	o, Analyze	5u. 2024-	00-10		
Solids, Total Suspended 91.0 10.0 mg/L 20024-06-18 Sel-116 10.0 mg/L 10.0 mg/L 20024-06-18 Sel-116 20024-06-18 Sel-			2.0 Hig/L							
Description					: 2024-06-1			06-18		
Solids, Total Suspended 92.0 10.0 mg/L 10.0 mg/L 22 85-115	Solids, Total Suspended	91.0	10.0 mg/L	100		91	85-115			
Prepared: 2024-06-18, Analyzed: 2024-06-18	LCS (B4F3141-BS2)			Prepared	: 2024-06-1	8, Analyze	ed: 2024-0	06-18		
Solids, Total Suspended 190 20.0 mg/L 210 90 80-120	Solids, Total Suspended	92.0	10.0 mg/L	100		92	85-115			
Solids, Total Suspended 190 20.0 mg/L 210 90 80-120	Reference (B4F3141-SRM1)			Prepared	: 2024-06-1	8, Analvze	ed: 2024-0	06-18		
Blank (B4F3146-BLK1)	· · · · · · · · · · · · · · · · · · ·	190	20.0 mg/L	· · · · · · · · · · · · · · · · · · ·						
Prepared: 2024-06-18, Analyzed: 2024-06-18 Alkalinity, Total (as CaCO3)										
Alkalinity, Total (as CaCO3)	General Parameters, Batch B4F3146									
Alkalinity, Phenolphthalein (as CaCO3)				Prepared	: 2024-06-1	8, Analyze	ed: 2024-0	06-18		
Alkalinity, Bicarbonate (as CaCO3)										
Alkalinity, Carbonate (as CaCO3) 1.0 mg/L										
Alkalinity, Hydroxide (as CaCO3)										
Blank (B4F3146-BLK2)	, , ,									
Alkalinity, Total (as CaCO3)		<u> </u>	1.0 Hig/L							
Alkalinity, Phenolphthalein (as CaCO3)				Prepared	: 2024-06-1	8, Analyze	ed: 2024-0	06-18		
Alkalinity, Bearbonate (as CaCO3) <1.0 1.0 mg/L										
Alkalinity, Carbonate (as CaCO3)										
Alkalinity, Hydroxide (as CaCO3)										
Blank (B4F3146-BLK3)										
Alkalinity, Phenolphthalein (as CaCO3) < 1.0 1.0 mg/L Alkalinity, Phenolphthalein (as CaCO3) < 1.0 1.0 mg/L Alkalinity, Carbonate (as CaCO3) < 1.0 1.0 mg/L LCS (B4F3146-BS1) Prepared: 2024-06-18, Analyzed: 2024-06-18 Alkalinity, Total (as CaCO3) 89.9 1.0 mg/L 100 90 80-120 Alkalinity, Phenolphthalein (as CaCO3) 39.2 1.0 mg/L 50.0 78 0-200 LCS (B4F3146-BS3) Prepared: 2024-06-18, Analyzed: 2024-06-18 Alkalinity, Total (as CaCO3) 91.8 1.0 mg/L 100 92 80-120 Alkalinity, Phenolphthalein (as CaCO3) 40.6 1.0 mg/L 50.0 81 0-200 LCS (B4F3146-BS5) Prepared: 2024-06-18, Analyzed: 2024-06-18 Alkalinity, Phenolphthalein (as CaCO3) 89.3 1.0 mg/L 50.0 81 0-200 LCS (B4F3146-BS5) Prepared: 2024-06-18, Analyzed: 2024-06-18 Alkalinity, Phenolphthalein (as CaCO3) 37.5 1.0 mg/L 50.0 75 0-200 Reference (B4F3146-SRM1) Prepared: 2024-06-18, Analyzed: 2024-06-18	Alkalifility, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3) < 1.0 mg/L Alkalinity, Bicarbonate (as CaCO3) < 1.0 1.0 mg/L Alkalinity, Bicarbonate (as CaCO3) < 1.0 1.0 mg/L Alkalinity, Hydroxide (as CaCO3) < 1.0 1.0 mg/L LCS (B4F3146-BS1) Prepared: 2024-06-18, Analyzed: 2024-06-18 Alkalinity, Phenolphthalein (as CaCO3) 39.2 1.0 mg/L 50.0 78 0-200 LCS (B4F3146-BS3) Prepared: 2024-06-18, Analyzed: 2024-06-18 Alkalinity, Phenolphthalein (as CaCO3) 91.8 1.0 mg/L 100 92 80-120 Alkalinity, Total (as CaCO3) 91.8 1.0 mg/L 50.0 81 0-200 LCS (B4F3146-BS5) Prepared: 2024-06-18, Analyzed: 2024-06-18 Alkalinity, Phenolphthalein (as CaCO3) 40.6 1.0 mg/L 50.0 81 0-200 LCS (B4F3146-BS5) Prepared: 2024-06-18, Analyzed: 2024-06-18 Alkalinity, Total (as CaCO3) 89.3 1.0 mg/L 100 89 80-120 Alkalinity, Total (as CaCO3) 89.3 1.0 mg/L 100 89 80-120 Alkalinity, Phenolphthalein (as CaCO3) 37.5 1.0 mg/L 50.0 75 0-200 Reference (B4F3146-SRM1) Prepared: 2024-06-18, Analyzed: 2024-06-18	Blank (B4F3146-BLK3)			Prepared	: 2024-06-1	8, Analyze	ed: 2024-0	06-18		
Alkalinity, Bicarbonate (as CaCO3) <1.0 1.0 mg/L	Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)	,		1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3) 1.0 mg/L										
Description	. ,									
Alkalinity, Total (as CaCO3) 89.9 1.0 mg/L 100 90 80-120 Alkalinity, Phenolphthalein (as CaCO3) 39.2 1.0 mg/L 50.0 78 0-200 LCS (B4F3146-BS3) Prepared: 2024-06-18, Analyzed: 2024-06-18 Alkalinity, Total (as CaCO3) 91.8 1.0 mg/L 100 92 80-120 Alkalinity, Phenolphthalein (as CaCO3) 40.6 1.0 mg/L 50.0 81 0-200 LCS (B4F3146-BS5) Prepared: 2024-06-18, Analyzed: 2024-06-18 Alkalinity, Phenolphthalein (as CaCO3) 89.3 1.0 mg/L 100 89 80-120 Alkalinity, Phenolphthalein (as CaCO3) 37.5 1.0 mg/L 50.0 75 0-200 Reference (B4F3146-SRM1) Prepared: 2024-06-18, Analyzed: 2024-06-18 PH 7.03 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM2) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM3) Prepared: 2024-06-18, Analyzed: 2024-06-18 Prepar	Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3) 39.2 1.0 mg/L 50.0 78 0-200 LCS (B4F3146-BS3) Prepared: 2024-06-18, Analyzed: 2024-06-18 Alkalinity, Total (as CaCO3) 91.8 1.0 mg/L 100 92 80-120 Alkalinity, Phenolphthalein (as CaCO3) 40.6 1.0 mg/L 50.0 81 0-200 LCS (B4F3146-BS5) Prepared: 2024-06-18, Analyzed: 2024-06-18 Alkalinity, Total (as CaCO3) 89.3 1.0 mg/L 100 89 80-120 Alkalinity, Phenolphthalein (as CaCO3) 37.5 1.0 mg/L 50.0 75 0-200 Reference (B4F3146-SRM1) Prepared: 2024-06-18, Analyzed: 2024-06-18	LCS (B4F3146-BS1)			Prepared	2024-06-1	8, Analyze	ed: 2024-0	06-18		
Prepared: 2024-06-18, Analyzed: 2024-06-18	Alkalinity, Total (as CaCO3)	89.9	1.0 mg/L	100		90	80-120			
Alkalinity, Total (as CaCO3) 91.8 1.0 mg/L 100 92 80-120 Alkalinity, Phenolphthalein (as CaCO3) 40.6 1.0 mg/L 50.0 81 0-200 LCS (B4F3146-BS5) Prepared: 2024-06-18, Analyzed: 2024-06-18 Alkalinity, Total (as CaCO3) 89.3 1.0 mg/L 100 89 80-120 Alkalinity, Phenolphthalein (as CaCO3) 37.5 1.0 mg/L 50.0 75 0-200 Reference (B4F3146-SRM1) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.03 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM2) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM3) Prepared: 2024-06-18, Analyzed: 2024-06-18	Alkalinity, Phenolphthalein (as CaCO3)	39.2	1.0 mg/L	50.0		78	0-200			
Alkalinity, Total (as CaCO3) 91.8 1.0 mg/L 100 92 80-120 Alkalinity, Phenolphthalein (as CaCO3) 40.6 1.0 mg/L 50.0 81 0-200 LCS (B4F3146-BS5) Prepared: 2024-06-18, Analyzed: 2024-06-18 Alkalinity, Total (as CaCO3) 89.3 1.0 mg/L 100 89 80-120 Alkalinity, Phenolphthalein (as CaCO3) 37.5 1.0 mg/L 50.0 75 0-200 Reference (B4F3146-SRM1) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.03 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM2) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM3) Prepared: 2024-06-18, Analyzed: 2024-06-18	LCS (B4F3146-BS3)			Prepared	: 2024-06-1	8, Analyze	ed: 2024-0	06-18		
Alkalinity, Phenolphthalein (as CaCO3) 40.6 1.0 mg/L 50.0 81 0-200 LCS (B4F3146-BS5) Prepared: 2024-06-18, Analyzed: 2024-06-18 Alkalinity, Total (as CaCO3) 89.3 1.0 mg/L 100 89 80-120 Alkalinity, Phenolphthalein (as CaCO3) 37.5 1.0 mg/L 50.0 75 0-200 Reference (B4F3146-SRM1) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.03 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM2) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM3) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102	<u> </u>	91.8	1.0 ma/L							
Alkalinity, Total (as CaCO3) 89.3 1.0 mg/L 100 89 80-120 Alkalinity, Phenolphthalein (as CaCO3) 37.5 1.0 mg/L 50.0 75 0-200 Reference (B4F3146-SRM1) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.03 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM2) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM3) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102										
Alkalinity, Total (as CaCO3) 89.3 1.0 mg/L 100 89 80-120 Alkalinity, Phenolphthalein (as CaCO3) 37.5 1.0 mg/L 50.0 75 0-200 Reference (B4F3146-SRM1) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.03 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM2) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM3) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102	LCS (B4F3146-BS5)		-	Prepared	: 2024-06-1	8, Analyze	ed: 2024-0	06-18		
Alkalinity, Phenolphthalein (as CaCO3) 37.5 1.0 mg/L 50.0 75 0-200 Reference (B4F3146-SRM1) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.03 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM2) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM3) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102	Alkalinity, Total (as CaCO3)	89.3	1.0 mg/L							
pH 7.03 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM2) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM3) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102										
Reference (B4F3146-SRM2) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM3) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102	Reference (B4F3146-SRM1)			Prepared	: 2024-06-1	8, Analyze	ed: 2024-	06-18		
Reference (B4F3146-SRM2) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM3) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102	pH	7.03	0.10 pH units							
pH 7.02 0.10 pH units 7.01 100 98-102 Reference (B4F3146-SRM3) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102			-		: 2024-06-1	8, Analvze		06-18		
Reference (B4F3146-SRM3) Prepared: 2024-06-18, Analyzed: 2024-06-18 pH 7.02 0.10 pH units 7.01 100 98-102	· · · · · · · · · · · · · · · · · · ·	7.02	0.10 nH unito					0		
pH 7.02 0.10 pH units 7.01 100 98-102		1.02	o. to pri utilis							
	· · · · · · · · · · · · · · · · · · ·			Prepared	: 2024-06-1	8, Analyze	ed: 2024-0	06-18		
	pH	7.02	0.10 pH units	7.01		100	98-102			



REPORTED TO PROJECT	Lake Country, Dis Raw Influent- PE1	•	ater)			WORK REPOR	ORDER RTED	24F1 2024	658 -06-20	12:21
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameter	rs, Batch B4F3182									
Blank (B4F3182-B	SLK1)			Prepared	d: 2024-06-1	17, Analyze	ed: 2024-0	06-18		
Nitrogen, Total Kjelda	ahl	< 0.050	0.050 mg/L							
Blank (B4F3182-B	SLK2)			Prepared	d: 2024-06-1	17, Analyze	ed: 2024-0	06-18		
Nitrogen, Total Kjelda	ahl	< 0.050	0.050 mg/L							
LCS (B4F3182-BS	1)			Prepared	d: 2024-06-1	17, Analyze	ed: 2024-0	6-18		
Nitrogen, Total Kjelda	ahl	0.979	0.050 mg/L	1.00		98	85-115			
LCS (B4F3182-BS	(2)			Prepared	d: 2024-06-1	17, Analyze	ed: 2024-0	06-18		
Nitrogen Total Kielda	ahl	0.945	0.050 mg/l	1.00		94	85-115			





CERTIFICATE OF ANALYSIS

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen

PO NUMBER 104395-10-9007

PROJECT Final Effluent- PE14651
PROJECT INFO Lake Country WWTP

WORK ORDER 24C1212

RECEIVED / TEMP 2024-03-11 14:28 / 11.4°C

REPORTED 2024-03-18 13:23 **COC NUMBER** 45362.39662

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



We've Got Chemistry



Ahead of the Curve



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager M what

1-888-311-8846 | www.caro.ca



REPORTED TO Lake Country, District of PROJECT Final Effluent- PE1465	•		WORK ORDER REPORTED	24C1212 2024-03-1	8 13:23
Analyte	Result	RL	Units	Analyzed	Qualifier
Duplicate (24C1212-01) Matrix: Wastew	ater Sampled: 2024-03-11	10:30			
Anions					
Chloride	131	0.10	mg/L	2024-03-12	
Nitrate (as N)	2.18	0.010	mg/L	2024-03-12	
Nitrite (as N)	0.122	0.010	mg/L	2024-03-12	
Phosphate (as P)	0.285	0.0050	mg/L	2024-03-12	
Calculated Parameters					
Nitrate+Nitrite (as N)	2.30	0.0100	mg/L	N/A	
Nitrogen, Total	5.47	0.0500		N/A	
Nitrogen, Organic	1.04	0.0500	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	186	1.0	mg/L	2024-03-13	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0		mg/L	2024-03-13	
Alkalinity, Bicarbonate (as CaCO3)	186		mg/L	2024-03-13	
Alkalinity, Carbonate (as CaCO3)	< 1.0		mg/L	2024-03-13	
Alkalinity, Hydroxide (as CaCO3)	< 1.0		mg/L	2024-03-13	
Ammonia, Total (as N)	2.12	0.050	mg/L	2024-03-15	
BOD, 5-day Carbonaceous	2.1	2.0	mg/L	2024-03-18	
Nitrogen, Total Kjeldahl	3.17	0.050	mg/L	2024-03-14	
pH	7.66	0.10	pH units	2024-03-13	HT2
Phosphorus, Total (as P)	0.418	0.0050	mg/L	2024-03-13	
Solids, Total Suspended	< 2.0	2.0	mg/L	2024-03-13	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	173000	1	MPN/100 mL	2024-03-12	
Coliforms, Fecal (Q-Tray)	15900	1	MPN/100 mL	2024-03-12	
Final Effluent (E233626) (24C1212-02) M	flatrix: Wastewater Sample	ed: 2024-03-11 10:30			
Chloride	132	0.10	mg/L	2024-03-12	
Nitrate (as N)	2.20		mg/L	2024-03-12	
Nitrite (as N)	0.122		mg/L	2024-03-12	
Phosphate (as P)	0.281	0.0050		2024-03-12	
Calculated Parameters					
Nitrate+Nitrite (as N)	2.33	0.0100	mg/L	N/A	
Nitrogen, Total	5.52	0.0500		N/A	
Nitrogen, Organic	1.09	0.0500	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	186	1.0	mg/L	2024-03-13	
Alkalinity, Total (as CaCO3) Alkalinity, Phenolphthalein (as CaCO3)	186 < 1.0		mg/L	2024-03-13	



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER

24C1212

REPORTED 2024-03-18 13:23

Analyte	Result	RL	Units	Analyzed	Qualifie
Final Effluent (E233626) (24C1212-02)	Matrix: Wastewater Sample	d: 2024-03-11 10:30, (Continued		
General Parameters, Continued					
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2024-03-13	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-03-13	
Ammonia, Total (as N)	2.11	0.050	mg/L	2024-03-15	
BOD, 5-day Carbonaceous	2.1	2.0	mg/L	2024-03-18	
Nitrogen, Total Kjeldahl	3.20	0.050	mg/L	2024-03-14	
pH	7.70	0.10	pH units	2024-03-13	HT2
Phosphorus, Total (as P)	0.416	0.0050	mg/L	2024-03-13	
Solids, Total Suspended	< 2.0	2.0	mg/L	2024-03-13	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	105000	1	MPN/100 mL	2024-03-12	
Coliforms, Fecal (Q-Tray)	17600	1	MPN/100 mL	2024-03-12	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER

24C1212

EPORTED	2024-03-18 13:23

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Coliforms, Total in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

MPN/100 mL Most Probable Number per 100 millilitres

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED

24C1212 2024-03-18 13:23

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B4C2285									
Blank (B4C2285-BLK1)			Prepared	l: 2024-03- 1	12, Analyze	d: 2024-0	03-12		
Phosphate (as P)	< 0.0050	0.0050 mg/L							
Duplicate (B4C2285-DUP1)	Sou	urce: 24C1212-01	Prepared	l: 2024-03- 1	12, Analyze	d: 2024-0	03-12		
Phosphate (as P)	0.288	0.0050 mg/L		0.285			1	20	
Matrix Spike (B4C2285-MS1)	Sou	ırce: 24C1212-01	Prepared	l: 2024-03-1	I2, Analyze	d: 2024-0	03-12		
Phosphate (as P)	0.362	0.0050 mg/L	0.100	0.285	77	70-130			
Anions, Batch B4C2288 Blank (B4C2288-BLK1)			Prepared	l: 2024-03- 1	I2, Analyze	d: 2024-(03-12		
•	< 0.10	0.10 mg/L	Prepared	l: 2024-03-1	I2, Analyze	d: 2024-()3-12		
Blank (B4C2288-BLK1)	< 0.10 < 0.010	0.10 mg/L 0.010 mg/L	Prepared	l: 2024-03-1	12, Analyze	d: 2024-(03-12		
Blank (B4C2288-BLK1) Chloride	****		Prepared	l: 2024-03-1	I2, Analyze	d: 2024-(03-12		
Blank (B4C2288-BLK1) Chloride Nitrate (as N)	< 0.010	0.010 mg/L	•	l: 2024-03-1 l: 2024-03-1					
Blank (B4C2288-BLK1) Chloride Nitrate (as N) Nitrite (as N)	< 0.010	0.010 mg/L	•						
Blank (B4C2288-BLK1) Chloride Nitrate (as N) Nitrite (as N) LCS (B4C2288-BS1)	< 0.010 < 0.010	0.010 mg/L 0.010 mg/L	Prepared		12, Analyze	d: 2024-(

General Parameters, Batch B4C2354

Blank (B4C2354-BLK1)			Prepared: 2024	4-03-12, Analyz	ed: 2024-03-13	
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L				
Blank (B4C2354-BLK2)			Prepared: 2024	4-03-12, Analyz	ed: 2024-03-13	
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L				
LCS (B4C2354-BS1)			Prepared: 2024	4-03-12, Analyz	ed: 2024-03-13	
Phosphorus, Total (as P)	0.105	0.0050 mg/L	0.100	105	85-115	
LCS (B4C2354-BS2)			Prepared: 2024	4-03-12, Analyz	ed: 2024-03-13	
Phosphorus, Total (as P)	0.106	0.0050 mg/L	0.100	106	85-115	



REPORTED TO PROJECT	Lake Country, Distr Final Effluent- PE1	•	ter)			WORK REPOR	ORDER RTED		1212 I-03-18	13:23
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameters	s, Batch B4C2358, Co	ontinued								
Blank (B4C2358-Bl	LK1)			Prepared	I: 2024-03-1	13, Analyze	ed: 2024-0	03-13		
Alkalinity, Total (as Ca	(CO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphth	nalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate		< 1.0	1.0 mg/L							
Alkalinity, Carbonate	(as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide	(as CaCO3)	< 1.0	1.0 mg/L							
pН		6.10	0.10 pH units							HT2
Blank (B4C2358-Bl	LK2)			Prepared	I: 2024-03-1	13, Analyze	ed: 2024-0	03-13		
Alkalinity, Total (as Ca	(CO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphth	nalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonat		< 1.0	1.0 mg/L							
Alkalinity, Carbonate		< 1.0	1.0 mg/L							
Alkalinity, Hydroxide	(as CaCO3)	< 1.0	1.0 mg/L							
рН		5.51	0.10 pH units							HT2
Blank (B4C2358-Bl	LK3)			Prepared	I: 2024-03-1	13, Analyze	ed: 2024-0	03-13		
Alkalinity, Total (as Ca	(CO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphth	nalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate		< 1.0	1.0 mg/L							
Alkalinity, Carbonate	· /	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide	(as CaCO3)	< 1.0	1.0 mg/L							
pH		5.96	0.10 pH units							HT2
LCS (B4C2358-BS1	l)			Prepared	I: 2024-03-1	13, Analyze	ed: 2024-0	03-13		
Alkalinity, Total (as Ca		105	1.0 mg/L	100		105	80-120			
Alkalinity, Phenolphth	nalein (as CaCO3)	76.1	1.0 mg/L	50.0		152	0-200			
LCS (B4C2358-BS2	2)			Prepared	I: 2024-03-1	13, Analyze	ed: 2024-0	03-13		
Alkalinity, Total (as Ca	(CO3)	96.5	1.0 mg/L	100		97	80-120			
Alkalinity, Phenolphth	nalein (as CaCO3)	66.0	1.0 mg/L	50.0		132	0-200			
LCS (B4C2358-BS3	3)			Prepared	I: 2024-03-1	13, Analyze	ed: 2024-0	03-13		
Alkalinity, Total (as Ca	(CO3)	96.6	1.0 mg/L	100		97	80-120			
Alkalinity, Phenolphth		66.7	1.0 mg/L	50.0		133	0-200			
Reference (B4C23	58-SRM1)			Prepared	I: 2024-03-1	13, Analyze	ed: 2024-0	03-13		
pH	,	7.04	0.10 pH units	7.01		100	98-102			
Reference (B4C23	58_SDM2\		•	Drenared	I: 2024-03-1		d. 2024-i	าว_1ว		
pH	00-01(WZ)	7.03	0.10 pH units	7.01	1. 2024-00-1	100	98-102	30-10		
		7.00	0.10 pri units							
Reference (B4C23	58-SRM3)				I: 2024-03-1	•		03-13		
pH		7.03	0.10 pH units	7.01		100	98-102			
General Parameters	LK1)			Prepared	I: 2024-03-1	13, Analyze	ed: 2024-	03-13		
Solids, Total Suspend	ea	< 2.0	2.0 mg/L							
Blank (B4C2374-Bl	LK2)			Prepared	I: 2024-03-1	13, Analyze	ed: 2024-0	03-13		
Solids, Total Suspend	ed	< 2.0	2.0 mg/L							
LCS (B4C2374-BS1	I)			Prepared	I: 2024-03-1	13, Analyze	ed: 2024-0	03-13		
Solids, Total Suspend	ed	85.0	10.0 mg/L	100		85	85-115			
LCS (B4C2374-BS2	2)			Prepared	I: 2024-03-1	13. Analyze	ed: 2024-0	03-13		
Solids, Total Suspend	•	85.9	10.1 mg/L	100	0_ 1 00 1	86	85-115			
Jones, Total Guspellu		00.8	10.1 mg/L	100		00	00-110			



REPORTED TO PROJECT	Lake Country, Distri Final Effluent- PE14	•	ater)			WORK REPOR	ORDER TED	_	1212 I-03-18	13:23
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	s, Batch B4C2433									
Blank (B4C2433-Bl	_K1)			Prepared:	2024-03-13	3, Analyze	ed: 2024-0	3-14		
Nitrogen, Total Kjeldal	•	< 0.050	0.050 mg/L			· •				
Blank (B4C2433-Bl	_K2)			Prepared:	2024-03-13	3. Analvze	d: 2024-0	3-14		
Nitrogen, Total Kjeldal	•	< 0.050	0.050 mg/L			·,·,—-				
LCS (B4C2433-BS1	1)			Prepared:	2024-03-13	3. Analyze	d: 2024-0	3-14		
Nitrogen, Total Kjeldal	•	0.907	0.050 mg/L	1.00		91	85-115			
LCS (B4C2433-BS2			<u> </u>	Prepared:	2024-03-13	R Analyze	.d. 2024-0	3-14		
Nitrogen, Total Kjeldal	•	0.910	0.050 mg/L	1.00	2024 00 10	91	85-115	70 14		
General Parameters Blank (B4C2487-Bl				Prenared	2024-03-13	8 Analyze	.d· 2024_0	13-18		
BOD, 5-day Carbonac	•	< 2.0	2.0 mg/L	i iopaieu.		, Allaly26	.G. 2024-0	,o-10		
LCS (B4C2487-BS1				Drenared:	2024-03-13	2 Analyze	.d. 2024-0	13_18		
BOD, 5-day Carbonac	•	200	33.2 mg/L	198	2024-00-10	101	85-115	70-10		
Blank (B4C2677-Bl Ammonia, Total (as N)	•	< 0.050	0.050 mg/L	Prepared:	2024-03-15	5, Analyze	ed: 2024-0)3-15		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B4C2677-Bl	•	0.050	0.050 #	Prepared:	2024-03-15	, Analyze	d: 2024-0	3-15		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B4C2677-Bl	•	0.050	0.050 #	Prepared:	2024-03-15	, Analyze	ed: 2024-0)3-15		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
LCS (B4C2677-BS1	•				2024-03-15)3-15		
Ammonia, Total (as N)		1.06	0.050 mg/L	1.00		106	85-115			
LCS (B4C2677-BS2	•			•	2024-03-15			3-15		
Ammonia, Total (as N)		1.06	0.050 mg/L	1.00		106	85-115			
LCS (B4C2677-BS3	3)			Prepared:	2024-03-15	, Analyze		3-15		
Ammonia, Total (as N)		1.08	0.050 mg/L	1.00		108	85-115			
•	ameters, Batch B4C2	338		Duananad	. 2024 02 40) A l	J. 2024 C	22.42		
Blank (B4C2338-Bl Coliforms, Total (Q-Tra	•	< 1	1 MPN/100		2024-03-12	z, Anaiyze	u: 2024-0	13-12		
		<u> </u>	i IVIFIN/TUC		0004.00.11	.	1.0004.0	0.40		
Blank (B4C2338-Bl	· · · · · · · · · · · · · · · · · · ·	- 4	4. MDN/400		2024-03-12	2, Analyze	:d: 2024-0	13-12		
Coliforms, Total (Q-Tra		< 1	1 MPN/100		0004.00.13	.	1.0001	10.40		
Blank (B4C2338-Bl	•	٠	A RADRIMOO		2024-03-12	z, Analyze	a: 2024-0	13-12		
Coliforms, Fecal (Q-Tr		< 1	1 MPN/100							
Blank (B4C2338-BL	•		,		2024-03-12	2, Analyze	d: 2024-0	3-12		
Coliforms, Fecal (Q-Tr		< 1	1 MPN/100							
Duplicate (B4C233	· · · · · · · · · · · · · · · · · · ·		rce: 24C1212-01		2024-03-12	2, Analyze	d: 2024-0			
Coliforms, Fecal (Q-Tr	av)	24200	1 MPN/100) ml	15900			41	80	





REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER

24C1212

REPORTED

2024-03-18 13:23

QC Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is

recommended.





24C1215

CERTIFICATE OF ANALYSIS

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen WORK ORDER

 PO NUMBER
 104395-10-9007
 RECEIVED / TEMP
 2024-03-11 11:28 / 11.4°C

 PROJECT
 Raw Influent- PE14651
 REPORTED
 2024-03-18 13:31

 PROJECT INFO
 Lake Country WWTP
 COC NUMBER
 45362.39662

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

We've Got Chemistry



Ahead of the Curve



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager M what



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER REPORTED

24C1215 2024-03-18 13:31

Analyte	Result	RL	Units	Analyzed	Qualifie
Raw Influent (E233627) (24C1215-01) Mar	trix: Wastewater Sample	l: 2024-03-11 10:50			
Anions					
Nitrate (as N)	0.118	0.010	mg/L	2024-03-12	
Nitrite (as N)	< 0.010	0.010	mg/L	2024-03-12	
Phosphate (as P)	4.92	0.0050	mg/L	2024-03-12	
Calculated Parameters					
Nitrate+Nitrite (as N)	0.118	0.0100	mg/L	N/A	
Nitrogen, Total	81.2	2.00	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	375	1.0	mg/L	2024-03-13	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2024-03-13	
Alkalinity, Bicarbonate (as CaCO3)	375	1.0	mg/L	2024-03-13	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2024-03-13	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-03-13	
Ammonia, Total (as N)	61.5	0.050	mg/L	2024-03-15	
BOD, 5-day	279	2.0	mg/L	2024-03-18	
BOD, 5-day Carbonaceous	306	2.0	mg/L	2024-03-18	
Nitrogen, Total Kjeldahl	81.1	0.050	mg/L	2024-03-14	
pH	7.99	0.10	pH units	2024-03-13	HT2
Phosphorus, Total (as P)	9.88	0.0050	mg/L	2024-03-13	
Solids, Total Suspended	336	2.0	mg/L	2024-03-13	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER REPORTED 24C1215 2024-03-18 13:31

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

< Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



Alkalinity, Bicarbonate (as CaCO3)

Alkalinity, Carbonate (as CaCO3)

Alkalinity, Hydroxide (as CaCO3)

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER REPORTED 24C1215 2024-03-18 13:31

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
Anions, Batch B4C2285									
Blank (B4C2285-BLK1)			Prepared	: 2024-03-1	2, Analyze	d: 2024-	03-12		
Phosphate (as P)	< 0.0050	0.0050 mg/L							
Anions, Batch B4C2288									
Blank (B4C2288-BLK1)			Prepared	: 2024-03-1	2, Analyze	d: 2024-	03-12		
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4C2288-BS1)			Prepared	: 2024-03-1	2, Analyze	d: 2024-	03-12		
Nitrate (as N)	3.91	0.010 mg/L	4.00		98	90-110			
Nitrite (as N)	2.17	0.010 mg/L	2.00		108	85-115			
Blank (B4C2354-BLK1)			Prepared	: 2024-03-1	l2, Analyze	d: 2024-	03-13		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B4C2354-BLK2)			Prepared	: 2024-03-1	12, Analyze	d: 2024-	03-13		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
LCS (B4C2354-BS1)			Prepared	: 2024-03-1	2, Analyze	d: 2024-	03-13		
Phosphorus, Total (as P)	0.105	0.0050 mg/L	0.100		105	85-115			
LCS (B4C2354-BS2)			Prepared	: 2024-03-1	2, Analyze	d: 2024-	03-13		
Phosphorus, Total (as P)	0.106	0.0050 mg/L	0.100		106	85-115			
General Parameters, Batch B4C2358									
Blank (B4C2358-BLK1)			Prepared	: 2024-03-1	3, Analyze	d: 2024-	03-13		
Alkalinity, Total (as CaCO3) Alkalinity, Phenolphthalein (as CaCO3)	< 1.0 < 1.0	1.0 mg/L 1.0 mg/L							

HT2

1.0 mg/L

1.0 mg/L

1.0 mg/L

0.10 pH units

< 1.0

< 1.0

< 1.0

6.10



REPORTED TO Lake Country, Distr PROJECT Raw Influent- PE14	•	ter)			WORK REPOR	ORDER TED		1215 I-03-18	13:31
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B4C2358, Co	ontinued								
Blank (B4C2358-BLK2)			Prepared	: 2024-03-1	3, Analyze	d: 2024-	03-13		
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
рН	5.51	0.10 pH units							HT2
Blank (B4C2358-BLK3)			Prepared	: 2024-03-1	3, Analyze	d: 2024-0	03-13		
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							1.70
pH	5.96	0.10 pH units							HT2
LCS (B4C2358-BS1)			Prepared	: 2024-03-1	3, Analyze	d: 2024-	03-13		
Alkalinity, Total (as CaCO3)	105	1.0 mg/L	100		105	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	76.1	1.0 mg/L	50.0		152	0-200			
LCS (B4C2358-BS2)			Prepared	: 2024-03-1	3, Analyze	d: 2024-	03-13		
Alkalinity, Total (as CaCO3)	96.5	1.0 mg/L	100		97	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	66.0	1.0 mg/L	50.0		132	0-200			
LCS (B4C2358-BS3)			Prepared	: 2024-03-1	3, Analyze	d: 2024-	03-13		
Alkalinity, Total (as CaCO3)	96.6	1.0 mg/L	100		97	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	66.7	1.0 mg/L	50.0		133	0-200			
Reference (B4C2358-SRM1)			Prepared	: 2024-03-1	3, Analyze	d: 2024-	03-13		
pH	7.04	0.10 pH units	7.01		100	98-102			
Reference (B4C2358-SRM2)			Prepared	: 2024-03-1	3, Analyze	d: 2024-	03-13		
pH	7.03	0.10 pH units	7.01		100	98-102			
Reference (B4C2358-SRM3)			Prepared	: 2024-03-1	3. Analvze	d: 2024-0	03-13		
pH	7.03	0.10 pH units	7.01		100	98-102			
General Parameters, Batch B4C2374 Blank (B4C2374-BLK1)			Prenared	: 2024-03-1	3 Analyze	d: 2024-l	12_12		
Solids, Total Suspended	< 2.0	2.0 mg/L	i iepaieu	. 2024-00-	o, Analyze	u. 2024-1	JU- 1U		
	~ 2.0	Z.U IIIY/L	Dua :: - :: '	. 0004 00 4	10 Am - I: ::	J. 0004 :	22.42		
Blank (B4C2374-BLK2)			Prepared	: 2024-03-1	ು, Analyze	a: 2024-0	J3-13		
Solids, Total Suspended	< 2.0	2.0 mg/L							
LCS (B4C2374-BS1)			Prepared	: 2024-03-1			03-13		
Solids, Total Suspended	85.0	10.0 mg/L	100		85	85-115			
LCS (B4C2374-BS2)			Prepared	: 2024-03-1	3, Analyze	d: 2024-	03-13		
Solids, Total Suspended	85.9	10.1 mg/L	100		86	85-115			
Duplicate (B4C2374-DUP1)	Sour	ce: 24C1215-01	Prepared	: 2024-03-1	3, Analyze	d: 2024-	03-13		
Solids, Total Suspended	316	2.0 mg/L		336			6	20	
Duplicate (B4C2374-DUP2)	Sour	ce: 24C1215-01	Prepared	: 2024-03-1	3, Analyze	d: 2024-	03-13		
Solids, Total Suspended	324	2.0 mg/L		336	-		4	20	



REPORTED TO PROJECT	Raw Influent- PE1	trict of (Wastewa 14651	ater)			WORK REPOR	ORDER RTED	24C ² 2024	1215 -03-18	13:31
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	s, Batch B4C2433									
Blank (B4C2433-B	LK1)			Prepared	l: 2024-03-1	3, Analyze	ed: 2024-0	3-14		
Nitrogen, Total Kjelda	hl	< 0.050	0.050 mg/L							
Blank (B4C2433-B	LK2)			Prepared	l: 2024-03-1	3, Analyze	ed: 2024-0	3-14		
Nitrogen, Total Kjelda	hl	< 0.050	0.050 mg/L							
LCS (B4C2433-BS	1)			Prepared	l: 2024-03-1	3, Analyze	ed: 2024-0	3-14		
Nitrogen, Total Kjelda	hl	0.907	0.050 mg/L	1.00		91	85-115			
LCS (B4C2433-BS	2)			Prepared	l: 2024-03-1	3, Analyze	ed: 2024-0	3-14		
Nitrogen, Total Kjelda	hl	0.910	0.050 mg/L	1.00		91	85-115			
General Parameters	s, Batch B4C2487									
Blank (B4C2487-B	LK1)			Prepared	l: 2024-03-1	3, Analyze	ed: 2024-0	3-18		
BOD, 5-day Carbona	ceous	< 2.0	2.0 mg/L							
				Prepared	l: 2024-03-1	3, Analyze	ed: 2024-0	3-18		
LCS (B4C2487-BS	1)									
BOD, 5-day Carbonad	ceous	200	33.2 mg/L	198		101	85-115			
`	ceous s, Batch B4C2488	200 < 2.0	33.2 mg/L 2.0 mg/L	198	l: 2024-03-1			03-18		
BOD, 5-day Carbonac General Parameters Blank (B4C2488-B BOD, 5-day	ceous s, Batch B4C2488 LK1)		-	198 Prepared	l: 2024-03-1	3, Analyze	ed: 2024-0			
BOD, 5-day Carbonad General Parameters Blank (B4C2488-B	ceous s, Batch B4C2488 LK1)		-	198 Prepared		3, Analyze	ed: 2024-0			
BOD, 5-day Carbonac General Parameters Blank (B4C2488-B BOD, 5-day LCS (B4C2488-BS BOD, 5-day	ceous s, Batch B4C2488 LK1)	< 2.0	2.0 mg/L	198 Prepared Prepared	l: 2024-03-1	3, Analyze 3, Analyze	ed: 2024-0 ed: 2024-0			
BOD, 5-day Carbonac General Parameters Blank (B4C2488-B BOD, 5-day LCS (B4C2488-BS BOD, 5-day	ceous s, Batch B4C2488 LK1) 1) s, Batch B4C2677	< 2.0	2.0 mg/L	Prepared Prepared 198	l: 2024-03-1	3, Analyze 3, Analyze 103	ed: 2024-0 ed: 2024-0 85-115)3-18		
BOD, 5-day Carbonac General Parameters Blank (B4C2488-B BOD, 5-day LCS (B4C2488-BS BOD, 5-day	ceous s, Batch B4C2488 LK1) 1) s, Batch B4C2677 LK1)	< 2.0	2.0 mg/L	Prepared Prepared 198	l: 2024-03-1 l: 2024-03-1	3, Analyze 3, Analyze 103	ed: 2024-0 ed: 2024-0 85-115)3-18		
BOD, 5-day Carbonac General Parameters Blank (B4C2488-B BOD, 5-day LCS (B4C2488-BS BOD, 5-day General Parameters Blank (B4C2677-B	ceous s, Batch B4C2488 LK1) 1) s, Batch B4C2677 LK1)	< 2.0 204	2.0 mg/L 51.1 mg/L	Prepared 198 Prepared	l: 2024-03-1 l: 2024-03-1	3, Analyze 3, Analyze 103 5, Analyze	ed: 2024-0 ed: 2024-0 85-115 ed: 2024-0	03-18		
BOD, 5-day Carbonac General Parameters Blank (B4C2488-B BOD, 5-day LCS (B4C2488-BS) BOD, 5-day General Parameters Blank (B4C2677-B Ammonia, Total (as N	ceous s, Batch B4C2488 LK1) 1) s, Batch B4C2677 LK1) LK2)	< 2.0 204	2.0 mg/L 51.1 mg/L	Prepared 198 Prepared	l: 2024-03-1 l: 2024-03-1 l: 2024-03-1	3, Analyze 3, Analyze 103 5, Analyze	ed: 2024-0 ed: 2024-0 85-115 ed: 2024-0	03-18		
BOD, 5-day Carbonac General Parameters Blank (B4C2488-B BOD, 5-day LCS (B4C2488-BS) BOD, 5-day General Parameters Blank (B4C2677-B Ammonia, Total (as N Blank (B4C2677-B	ceous s, Batch B4C2488 LK1) 1) s, Batch B4C2677 LK1) LK2)	< 2.0 204 < 0.050	2.0 mg/L 51.1 mg/L 0.050 mg/L	Prepared 198 Prepared 198 Prepared	l: 2024-03-1 l: 2024-03-1 l: 2024-03-1	3, Analyze 3, Analyze 103 5, Analyze 5, Analyze	ed: 2024-(ed: 2024-(85-115 ed: 2024-(ed: 2024-(03-18		
BOD, 5-day Carbonac General Parameters Blank (B4C2488-B BOD, 5-day LCS (B4C2488-BS: BOD, 5-day General Parameters Blank (B4C2677-B Ammonia, Total (as N Blank (B4C2677-B	ceous s, Batch B4C2488 LK1) 1) s, Batch B4C2677 LK1) LK2) LK3)	< 2.0 204 < 0.050	2.0 mg/L 51.1 mg/L 0.050 mg/L	Prepared 198 Prepared 198 Prepared	: 2024-03-1 : 2024-03-1 : 2024-03-1	3, Analyze 3, Analyze 103 5, Analyze 5, Analyze	ed: 2024-(ed: 2024-(85-115 ed: 2024-(ed: 2024-(03-18		
BOD, 5-day Carbonad General Parameters Blank (B4C2488-B BOD, 5-day LCS (B4C2488-BS) BOD, 5-day General Parameters Blank (B4C2677-B Ammonia, Total (as N Blank (B4C2677-B Ammonia, Total (as N Blank (B4C2677-B	ceous s, Batch B4C2488 LK1) 1) s, Batch B4C2677 LK1) LK2) LK3)	< 2.0 204 < 0.050 < 0.050	2.0 mg/L 51.1 mg/L 0.050 mg/L 0.050 mg/L	Prepared Prepared Prepared Prepared Prepared	: 2024-03-1 : 2024-03-1 : 2024-03-1	3, Analyze 3, Analyze 103 5, Analyze 5, Analyze 5, Analyze	ed: 2024-0 ed: 2024-0 85-115 ed: 2024-0 ed: 2024-0	03-18 03-15 03-15		
BOD, 5-day Carbonad General Parameters Blank (B4C2488-B BOD, 5-day LCS (B4C2488-BS) BOD, 5-day General Parameters Blank (B4C2677-B Ammonia, Total (as N Blank (B4C2677-B Ammonia, Total (as N Blank (B4C2677-B Ammonia, Total (as N	ceous s, Batch B4C2488 LK1) 1) s, Batch B4C2677 LK1) LK2) LK3)	< 2.0 204 < 0.050 < 0.050	2.0 mg/L 51.1 mg/L 0.050 mg/L 0.050 mg/L	Prepared Prepared Prepared Prepared Prepared	: 2024-03-1 : 2024-03-1 : 2024-03-1 : 2024-03-1	3, Analyze 3, Analyze 103 5, Analyze 5, Analyze 5, Analyze	ed: 2024-0 ed: 2024-0 85-115 ed: 2024-0 ed: 2024-0	03-18 03-15 03-15		
BOD, 5-day Carbonad General Parameters Blank (B4C2488-B BOD, 5-day LCS (B4C2488-BS: BOD, 5-day General Parameters Blank (B4C2677-B Ammonia, Total (as N Blank (B4C2677-B Ammonia, Total (as N Blank (B4C2677-B Ammonia, Total (as N COMMONIA (B4C2677-B COMMONIA (B4C2677-B) Ammonia, Total (as N COMMONIA (B4C2677-B) Ammonia, Total (as N COMMONIA (B4C2677-B)	ceous s, Batch B4C2488 LK1) 1) s, Batch B4C2677 LK1) LK2) LK3) 1)	< 2.0 204 < 0.050 < 0.050	2.0 mg/L 51.1 mg/L 0.050 mg/L 0.050 mg/L	Prepared Prepared Prepared Prepared Prepared Prepared 1.00	: 2024-03-1 : 2024-03-1 : 2024-03-1 : 2024-03-1	3, Analyze 3, Analyze 103 5, Analyze 5, Analyze 5, Analyze 106	ed: 2024-0 85-115 ed: 2024-0 ed: 2024-0 ed: 2024-0 ed: 2024-0	03-18 03-15 03-15 03-15		
BOD, 5-day Carbonad General Parameters Blank (B4C2488-B) BOD, 5-day LCS (B4C2488-BS) BOD, 5-day General Parameters Blank (B4C2677-B) Ammonia, Total (as N Blank (B4C2677-B) Ammonia, Total (as N Blank (B4C2677-B) Ammonia, Total (as N LCS (B4C2677-BS) Ammonia, Total (as N	ceous s, Batch B4C2488 LK1) 1) s, Batch B4C2677 LK1) LK2) LK3) 1) 1)	< 2.0 204 < 0.050 < 0.050	2.0 mg/L 51.1 mg/L 0.050 mg/L 0.050 mg/L	Prepared Prepared Prepared Prepared Prepared Prepared 1.00	: 2024-03-1 : 2024-03-1 : 2024-03-1 : 2024-03-1	3, Analyze 3, Analyze 103 5, Analyze 5, Analyze 5, Analyze 106	ed: 2024-0 85-115 ed: 2024-0 ed: 2024-0 ed: 2024-0 ed: 2024-0	03-18 03-15 03-15 03-15		
BOD, 5-day Carbonad General Parameters Blank (B4C2488-B) BOD, 5-day LCS (B4C2488-BS) BOD, 5-day General Parameters Blank (B4C2677-B) Ammonia, Total (as N Blank (B4C2677-B) Ammonia, Total (as N Blank (B4C2677-B) Ammonia, Total (as N LCS (B4C2677-BS) Ammonia, Total (as N LCS (B4C2677-BS)	Ceous Seeous Seeous LK1) 1) Seeous LK1) LK1) LK1) LK2) LK3) 1) LK3) 1) 1)	< 2.0 204 < 0.050 < 0.050 < 0.050 1.06	2.0 mg/L 51.1 mg/L 0.050 mg/L 0.050 mg/L 0.050 mg/L	Prepared Prepared Prepared Prepared Prepared Prepared 1.00 Prepared 1.00	: 2024-03-1 : 2024-03-1 : 2024-03-1 : 2024-03-1	3, Analyze 103 5, Analyze 5, Analyze 5, Analyze 106 5, Analyze 106	ed: 2024-0 85-115 ed: 2024-0 ed: 2024-0 ed: 2024-0 ed: 2024-0 85-115 ed: 2024-0 85-115	03-18 03-15 03-15 03-15		

QC Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.





CERTIFICATE OF ANALYSIS

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen WORK ORDER 24E2538

PO NUMBER RECEIVED / TEMP 2024-05-21 11:40 / 9.2°C

PROJECTFinal Effluent- PE14651REPORTED2024-05-28 13:26PROJECT INFOLake Country WWTPCOC NUMBER45433.37535

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

We've Got Chemistry

31

Ahead of the Curve



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager M what



	untry, District of (Wastewater) uent- PE14651		WORK ORDER REPORTED	24E2538 2024-05-2	8 13:26
Analyte	Result	RL	Units	Analyzed	Qualifier
Final Effluent (E233626) (24	E2538-01) Matrix: Wastewater Sample	ed: 2024-05-21 08:00			
Anions					
Chloride	132	0.10	mg/L	2024-05-23	
Nitrate (as N)	1.78	0.010		2024-05-23	
Nitrite (as N)	0.322	0.010	mg/L	2024-05-23	
Calculated Parameters					
Nitrate+Nitrite (as N)	2.10	0.0100	ma/L	N/A	
Nitrogen, Total	5.97	0.0500		N/A	
Nitrogen, Organic	1.80	0.0500		N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	184	1.0	mg/L	2024-05-25	
Alkalinity, Phenolphthalein (as		1.0	mg/L	2024-05-25	
Alkalinity, Bicarbonate (as CaC			mg/L	2024-05-25	
Alkalinity, Carbonate (as CaCo	•		mg/L	2024-05-25	
Alkalinity, Hydroxide (as CaCC	>33) < 1.0		mg/L	2024-05-25	
Ammonia, Total (as N)	2.07	0.050	mg/L	2024-05-24	
BOD, 5-day Carbonaceous	< 5.0	2.0	mg/L	2024-05-28	
Nitrogen, Total Kjeldahl	3.87	0.050	mg/L	2024-05-27	
рН	7.67	0.10	pH units	2024-05-25	HT2
Phosphorus, Total (as P)	0.237	0.0050	mg/L	2024-05-24	
Phosphorus, Dissolved Reacti	ive 0.0650	0.0050	mg/L	2024-05-24	
Solids, Total Suspended	2.0	2.0	mg/L	2024-05-25	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	173000	1	MPN/100 mL	2024-05-21	
Coliforms, Fecal (Q-Tray)	17800		MPN/100 mL	2024-05-21	
	Matrix: Wastewater Sampled: 2024-05-2	21 09:45			
Anions	-0.40	2.12		0004.05.00	
Chloride	< 0.10		mg/L	2024-05-23	
Nitrate (as N)	< 0.010 < 0.010	0.010		2024-05-23	
Nitrite (as N) Calculated Parameters	\ U.U I U	0.010	mg/L	2024-00-20	
	< 0.0100	0.0400	ma/l	N/A	
Nitrate+Nitrite (as N) Nitrogen, Total	< 0.0500	0.0100 0.0500		N/A N/A	
Nitrogen, Total Nitrogen, Organic	< 0.0500 < 0.0500	0.0500		N/A N/A	
General Parameters	0.0000	0.0000	g/ =		
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L	2024-05-25	
Alkalinity, Phenolphthalein (as			mg/L	2024-05-25	
, anaminy, i nonopiunaiem (as	> 1.0	1.0	g/ L	2027-00-20	
Alkalinity, Bicarbonate (as CaC	•	1 0	mg/L	2024-05-25	



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER
REPORTED

24E2538

ORTED 2024-05-28 13:26

Analyte	Result	RL	Units	Analyzed	Qualifier
Field Blank (24E2538-02) Matrix: Was	stewater Sampled: 2024-05-2	1 09:45, Continued			
General Parameters, Continued					
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-05-25	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2024-05-24	
BOD, 5-day Carbonaceous	< 5.0	2.0	mg/L	2024-05-28	
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L	2024-05-27	
pH	5.70	0.10	pH units	2024-05-25	HT2
Phosphorus, Total (as P)	< 0.0050	0.0050	mg/L	2024-05-24	
Phosphorus, Dissolved Reactive	< 0.0050	0.0050	mg/L	2024-05-24	
Solids, Total Suspended	< 2.0	2.0	mg/L	2024-05-25	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	<1	1	MPN/100 mL	2024-05-21	
Coliforms, Fecal (Q-Tray)	< 1	1	MPN/100 mL	2024-05-21	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED 24E2538

RTED 2024-05-28 13:26

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Coliforms, Total in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Dissolved Reactive in Water	SM 4500-P F (2021)	Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

MPN/100 mL Most Probable Number per 100 millilitres

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED

24E2538 2024-05-28 13:26

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B4E3584									
Blank (B4E3584-BLK1)			Prepared	I: 2024-05-2	23, Analyze	d: 2024-0)5-23		
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Blank (B4E3584-BLK2)			Prepared	I: 2024-05-2	23, Analyze	d: 2024-0)5-23		
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4E3584-BS1)			Prepared	I: 2024-05-2	23, Analyze	d: 2024-0	05-23		
Chloride	15.8	0.10 mg/L	16.0		99	90-110			
Nitrate (as N)	3.93	0.010 mg/L	4.00		98	90-110			
Nitrite (as N)	2.12	0.010 mg/L	2.00		106	85-115			
LCS (B4E3584-BS2)			Prepared	I: 2024-05-2	23, Analyze	d: 2024-0)5-23		
Chloride	16.1	0.10 mg/L	16.0		101	90-110			
Nitrate (as N)	3.83	0.010 mg/L	4.00		96	90-110			
Nitrite (as N)	2.14	0.010 mg/L	2.00		107	85-115			

General Parameters, Batch B4E3546

Blank (B4E3546-BLK1)			Prepared: 2024	1-05-22, Analyze	ed: 2024-05-24	
Phosphorus, Dissolved Reactive	< 0.0050	0.0050 mg/L				
Blank (B4E3546-BLK2)			Prepared: 2024	I-05-22, Analyze	ed: 2024-05-24	
Phosphorus, Dissolved Reactive	< 0.0050	0.0050 mg/L				
LCS (B4E3546-BS1)			Prepared: 2024	1-05-22, Analyze	ed: 2024-05-24	
Phosphorus, Dissolved Reactive	0.0990	0.0050 mg/L	0.100	99	84-115	
LCS (B4E3546-BS2)			Prepared: 2024	I-05-22, Analyze	ed: 2024-05-24	
Phosphorus, Dissolved Reactive	0.0980	0.0050 mg/L	0.100	98	84-115	

General Parameters, Batch B4E3724



REPORTED TO PROJECT	Lake Country, Distri Final Effluent- PE14	•	ater)						24E2538 2024-05-28 13:26				
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier			
General Parameters	, Batch B4E3724, Cor	ntinued											
Blank (B4E3724-BL	K1)			Prepared	: 2024-05-2	3, Analyze	d: 2024-0	5-28					
BOD, 5-day Carbonac	eous	< 2.0	2.0 mg/L										
LCS (B4E3724-BS1)			Prepared	: 2024-05-2	3, Analyze	d: 2024-0	5-28					
BOD, 5-day Carbonac	eous	201	33.6 mg/L	198		101	85-115						
General Parameters	, Batch B4E3769												
Blank (B4E3769-BL	K1)			Prepared	: 2024-05-2	4, Analyze	d: 2024-0	5-24					
Ammonia, Total (as N)		< 0.050	0.050 mg/L										
Blank (B4E3769-BL	.K2)			Prepared	: 2024-05-2	4, Analyze	d: 2024-0	5-24					
Ammonia, Total (as N)		< 0.050	0.050 mg/L										
Blank (B4E3769-BL	.K3)			Prepared	: 2024-05-2	4, Analyze	d: 2024-0	5-24					
Ammonia, Total (as N)		< 0.050	0.050 mg/L										
Blank (B4E3769-BL	K4)			Prepared	: 2024-05-2	4, Analyze	d: 2024-0	5-24					
Ammonia, Total (as N)		< 0.050	0.050 mg/L										
LCS (B4E3769-BS1)			Prepared	: 2024-05-2	4, Analyze	d: 2024-0	5-24					
Ammonia, Total (as N)		1.01	0.050 mg/L	1.00		101	85-115						
LCS (B4E3769-BS2)			Prepared	: 2024-05-2	4, Analyze	d: 2024-0	5-24					
Ammonia, Total (as N)		0.978	0.050 mg/L	1.00		98	85-115						
LCS (B4E3769-BS3)			Prepared	: 2024-05-2	4, Analyze	d: 2024-0	5-24					
Ammonia, Total (as N)		0.980	0.050 mg/L	1.00		98	85-115						
LCS (B4E3769-BS4)			Prepared	: 2024-05-2	4, Analyze	d: 2024-0	5-24					
Ammonia, Total (as N)		0.973	0.050 mg/L	1.00		97	85-115						
Duplicate (B4E3769)-DUP4)	Sou	rce: 24E2538-01	Prepared	: 2024-05-2	4, Analyze	d: 2024-0	5-24					
Ammonia, Total (as N)		2.01	0.050 mg/L		2.07			3	15				
General Parameters	, Batch B4E3805												
Blank (B4E3805-BL	.K1)			Prepared	: 2024-05-2	3, Analyze	d: 2024-0	5-24					
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L										
Blank (B4E3805-BL	.K2)			Prepared	: 2024-05-2	3, Analyze	d: 2024-0	5-24					
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L										
LCS (B4E3805-BS1)			Prepared	: 2024-05-2	3, Analyze	d: 2024-0	5-24					
Phosphorus, Total (as	P)	0.113	0.0050 mg/L	0.100		113	85-115						
LCS (B4E3805-BS2)			Prepared	: 2024-05-2	3, Analyze	d: 2024-0	5-24					
Phosphorus, Total (as	P)	0.110	0.0050 mg/L	0.100		110	85-115						
General Parameters	, Batch B4E3855												
Blank (B4E3855-BL	K1)			Prepared	: 2024-05-2	5, Analyze	d: 2024-0	5-25					
Solids, Total Suspende		< 2.0	2.0 mg/L										
Blank (B4E3855-BL	.K2)			Prepared	: 2024-05-2	5, Analyze	d: 2024-0	5-25					
Solids, Total Suspende	ed	< 2.0	2.0 mg/L										



	Country, Distri Effluent- PE14	ct of (Wastewa 651	ter)			WORK (24E2 2024	2538 -05-28	13:26
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameters, Batc	h B4E3855, Cor	ntinued								
LCS (B4E3855-BS1)				Prepared	2024-05-25	, Analyzed	l: 2024-0	5-25		
Solids, Total Suspended		95.0	10.0 mg/L	100		95	85-115			
LCS (B4E3855-BS2)				Prepared	2024-05-25	Analyzed	I· 2024-0	5-25		
Solids, Total Suspended		90.0	10.0 mg/L	100		90	85-115	<u> </u>		
Reference (B4E3855-SRM	4\			Propared	2024-05-25	Analyzoo	1. 2024 0	5 25		
Solids, Total Suspended	1)	184	20.0 mg/L	210	. 2024-03-23	88	80-120	J-2J		
	h B452052	104	20.0 mg/L	210		- 00	00-120			
General Parameters, Batc Blank (B4E3953-BLK1)	N 64E3933			Prenared	: 2024-05-25	Analyzed	I· 2024 - 0	5-25		
Alkalinity, Total (as CaCO3)		< 1.0	1.0 mg/L	. ropurou	0 00 20	,	2027-0			
Alkalinity, Phenolphthalein (as	caCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as Ca		< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaC Alkalinity, Hydroxide (as CaC		< 1.0 < 1.0	1.0 mg/L 1.0 mg/L							
	03)	<u> </u>	1.0 Hig/L							
Blank (B4E3953-BLK2)				Prepared	2024-05-25	, Analyzed	1: 2024-0	5-25		
Alkalinity, Total (as CaCO3) Alkalinity, Phenolphthalein (as	, C2CO3)	< 1.0 < 1.0	1.0 mg/L 1.0 mg/L							
Alkalinity, Bicarbonate (as Ca		< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaC		< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaC	O3)	< 1.0	1.0 mg/L							
Blank (B4E3953-BLK3)				Prepared	2024-05-25	, Analyzed	l: 2024-0	5-25		
Alkalinity, Total (as CaCO3)		< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as		< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as Ca Alkalinity, Carbonate (as CaC		< 1.0 < 1.0	1.0 mg/L 1.0 mg/L							
Alkalinity, Hydroxide (as CaC		< 1.0	1.0 mg/L							
LCS (B4E3953-BS1)				Prenared	2024-05-25	Analyzed	I· 2024 <u>-</u> 0	5-25		
Alkalinity, Total (as CaCO3)		97.4	1.0 mg/L	100	. 2024-05-25	97	80-120	3-23		
Alkalinity, Phenolphthalein (as	s CaCO3)	52.5	1.0 mg/L	50.0		105	0-200			
LCS (B4E3953-BS2)	,			Dranarad	2024-05-25	Analyzed	I: 2024_0	5-25		
Alkalinity, Total (as CaCO3)		97.9	1.0 mg/L	100	. 2024-05-25	98	80-120	J-2J		
Alkalinity, Phenolphthalein (as	s CaCO3)	46.3	1.0 mg/L	50.0		93	0-200			
LCS (B4E3953-BS3)	,				2024-05-25	Analyzoo		5 25		
Alkalinity, Phenolphthalein (as	C°CO3)	< 1.0	1.0 mg/L	50.0	. 2024-05-25	, Analyzec	0-200	3-23		
Reference (B4E3953-SRM	,	<u> </u>	1.0 Hig/L		: 2024-05-25	. Analvzed		5-25		
pH	,	7.04	0.10 pH units	7.01		100	98-102			
Reference (B4E3953-SRM	2)				: 2024-05-25			5-25		
pH	•	7.05	0.10 pH units	7.01		101	98-102			
Reference (B4E3953-SRM	3)		<u> </u>	Prepared	2024-05-25	Analyzed	l: 2024-0	5-25		
рН	-,	7.05	0.10 pH units	7.01		101	98-102			
General Parameters, Batc	h B4E3984									
Blank (B4E3984-BLK1)				Prepared	2024-05-25	, Analyzed	l: 2024-0	5-27		
Nitrogen, Total Kjeldahl		< 0.050	0.050 mg/L	· · · · · · · · · · · · · · · · · · ·						



REPORTED TO PROJECT	Lake Country, District of Final Effluent- PE1465	,				WORK ORDER REPORTED			24E2538 2024-05-28 13:26		
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier	
General Parameters	, Batch B4E3984, Contin	nued									
Blank (B4E3984-BL	.K2)			Prepared	: 2024-05-25	ō, Analyze	d: 2024-0	5-27			
Nitrogen, Total Kjeldah	nl	< 0.050	0.050 mg/L								
LCS (B4E3984-BS1)			Prepared	: 2024-05-25	5, Analyze	d: 2024-0	5-27			
Nitrogen, Total Kjeldah	nl	0.924	0.050 mg/L	1.00		92	85-115				
LCS (B4E3984-BS2	2)			Prepared	: 2024-05-25	5, Analyze	d: 2024-0	5-27			
Nitrogen, Total Kjeldah	nl	0.949	0.050 mg/L	1.00		95	85-115				
Microbiological Par	ameters, Batch B4E3417 .K1)			Prepared	: 2024-05-21	1, Analyze	d: 2024-0	5-21			
Coliforms, Fecal (Q-Tr	ay)	< 1	1 MPN/100 n	nL							
Blank (B4E3417-BL	.K2)			Prepared	: 2024-05-21	1, Analyze	d: 2024-0	5-21			
Coliforms, Total (Q-Tra	ay)	< 1	1 MPN/100 n	nL							
Blank (B4E3417-BL	.K3)			Prepared	: 2024-05-21	1, Analyze	d: 2024-0	5-21			
Coliforms, Total (Q-Tra	ay)	< 1	1 MPN/100 n	nL							
Duplicate (B4E3417	7-DUP1)	Sc	ource: 24E2538-01	Prepared	: 2024-05-21	1, Analyze	d: 2024-0	5-21			
Coliforms, Fecal (Q-Tr	ay)	14200	1 MPN/100 n	nL	17800			23	80		





CERTIFICATE OF ANALYSIS

You know that the sample you collected after

snowshoeing to site, digging 5 meters, and

racing to get it on a plane so you can submit it

to the lab for time sensitive results needed to

make important and expensive decisions

(whew) is VERY important. We know that too.

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen WORK ORDER 24E2535

PO NUMBER RECEIVED / TEMP 2024-05-21 11:40 / 9.2°C

PROJECTRaw Influent- PE14651REPORTED2024-05-28 13:27PROJECT INFOLake Country WWTPCOC NUMBER45433.37535

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager M what



TEST RESULTS

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER REPORTED 24E2535 2024-05-28 13:27

Analyte	Result	RL	Units	Analyzed	Qualifier
Raw Influent (E233627) (24E2535-01) Ma	atrix: Wastewater Sampl	ed: 2024-05-21 10:25			
Anions					
Nitrate (as N)	< 0.010	0.010	mg/L	2024-05-21	
Nitrite (as N)	< 0.010	0.010	mg/L	2024-05-21	
Calculated Parameters					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	113	2.00	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	408	1.0	mg/L	2024-05-25	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2024-05-25	
Alkalinity, Bicarbonate (as CaCO3)	408	1.0	mg/L	2024-05-25	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2024-05-25	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-05-25	
Ammonia, Total (as N)	67.6	0.050	mg/L	2024-05-24	
BOD, 5-day	497	2.0	mg/L	2024-05-28	
BOD, 5-day Carbonaceous	333	2.0	mg/L	2024-05-28	
Nitrogen, Total Kjeldahl	113	0.050	mg/L	2024-05-27	
pH	7.84	0.10	pH units	2024-05-25	HT2
Phosphorus, Total (as P)	13.5	0.0050	mg/L	2024-05-24	
Phosphorus, Dissolved Reactive	6.26	0.0050	mg/L	2024-05-24	
Solids, Total Suspended	357	2.0	mg/L	2024-05-25	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER

24E2535

REPORTED 2024-05-28 13:27

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Dissolved Reactive in Water	SM 4500-P F (2021)	Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	√	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

< Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



PROJECT

BOD, 5-day

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO Lake Country, District of (Wastewater)

Raw Influent- PE14651

WORK ORDER REPORTED

24E2535 2024-05-28 13:27

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B4E3309									
Blank (B4E3309-BLK1)			Prepared	l: 2024-05-2	21, Analyze	ed: 2024-0	05-21		
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4E3309-BS1)			Prepared	l: 2024-05-2	21, Analyze	ed: 2024-0	05-21		
Nitrate (as N)	4.05	0.010 mg/L	4.00		101	90-110			
Nitrite (as N)	2.10	0.010 mg/L	2.00		105	85-115			
General Parameters, Batch B4E3546									
Blank (B4E3546-BLK1)			Prepared	l: 2024-05-2	22, Analyze	ed: 2024-0	05-24		
Phosphorus, Dissolved Reactive	< 0.0050	0.0050 mg/L							
Blank (B4E3546-BLK2)			Prepared	l: 2024-05-2	22, Analyze	ed: 2024-0	05-24		
Phosphorus, Dissolved Reactive	< 0.0050	0.0050 mg/L							
LCS (B4E3546-BS1)			Prepared	l: 2024-05-2	22, Analyze	ed: 2024-0	05-24		
Phosphorus, Dissolved Reactive	0.0990	0.0050 mg/L	0.100		99	84-115			
LCS (B4E3546-BS2)			Prepared	l: 2024-05-2	22, Analyze	ed: 2024-0	05-24		
Phosphorus, Dissolved Reactive	0.0980	0.0050 mg/L	0.100		98	84-115			
General Parameters, Batch B4E3724									
Blank (B4E3724-BLK1)			Prepared	l: 2024-05-2	23, Analyze	ed: 2024-0	05-28		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L	· ·		•				
LCS (B4E3724-BS1)			Prepared	l: 2024-05-2	23, Analyze	ed: 2024-0	05-28		
BOD, 5-day Carbonaceous	201	33.6 mg/L	198		101	85-115			
General Parameters, Batch B4E3727									
Blank (B4E3727-BLK1)			Prepared	l: 2024-05-2	23, Analyze	ed: 2024-0	05-28		

2.0 mg/L

< 2.0



	Lake Country, District o Raw Influent- PE14651	ntry, District of (Wastewater) ent- PE14651				WORK (24E2535 2024-05-28 1		
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameters,	Batch B4E3727, Continu	ued								
LCS (B4E3727-BS1)				Prepared	: 2024-05-2	3, Analyze	d: 2024-0	5-28		
BOD, 5-day		206	37.8 mg/L	198		104	85-115			
General Parameters,	Batch B4E3769									
Blank (B4E3769-BLI	(1)			Prepared	: 2024-05-2	4, Analyze	d: 2024-0	5-24		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B4E3769-BLI	(2)			Prepared	: 2024-05-2	4, Analyze	d: 2024 - 0	5-24		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B4E3769-BL	(3)			Prepared	: 2024-05-2	4, Analyze	d: 2024 - 0	5-24		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B4E3769-BLI	(4)			Prepared	: 2024-05-2	4, Analyze	d: 2024-0	5-24		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
LCS (B4E3769-BS1)				Prepared	: 2024-05-2	4, Analyze	d: 2024-0	5-24		
Ammonia, Total (as N)		1.01	0.050 mg/L	1.00		101	85-115			
LCS (B4E3769-BS2)				Prepared	: 2024-05-2	4, Analyze	d: 2024-0	5-24		
Ammonia, Total (as N)		0.978	0.050 mg/L	1.00		98	85-115			
LCS (B4E3769-BS3)				Prepared	: 2024-05-2	4, Analyze	d: 2024-0	5-24		
Ammonia, Total (as N)		0.980	0.050 mg/L	1.00		98	85-115			
LCS (B4E3769-BS4)				Prepared	: 2024-05-2	4, Analyze	d: 2024-0	5-24		
Ammonia, Total (as N)		0.973	0.050 mg/L	1.00		97	85-115			
General Parameters,	Batch B4E3805									
Blank (B4E3805-BL	(1)			Prepared	: 2024-05-2	3, Analyze	d: 2024 - 0	5-24		
Phosphorus, Total (as F	?)	< 0.0050	0.0050 mg/L							
Blank (B4E3805-BLI	(2)			Prepared	: 2024-05-2	3, Analyze	d: 2024 - 0	5-24		
Phosphorus, Total (as F	?)	< 0.0050	0.0050 mg/L							
LCS (B4E3805-BS1)				Prepared	: 2024-05-2	3, Analyze	d: 2024 - 0	5-24		
Phosphorus, Total (as F	P)	0.113	0.0050 mg/L	0.100		113	85-115			
LCS (B4E3805-BS2)				Prepared	: 2024-05-2	3, Analyze	d: 2024 - 0	5-24		
Phosphorus, Total (as F	9)	0.110	0.0050 mg/L	0.100		110	85-115			
General Parameters,	Batch B4E3855									
Blank (B4E3855-BLI	(1)			Prepared	: 2024-05-2	5, Analyze	d: 2024-0	5-25		
Solids, Total Suspende	•	< 2.0	2.0 mg/L	•				_		
Blank (B4E3855-BLI	(2)			Prepared	: 2024-05-2	5, Analyze	d: 2024-0	5-25		
Solids, Total Suspende	·	< 2.0	2.0 mg/L	·						
LCS (B4E3855-BS1)				Prepared	: 2024-05-2	5, Analyze	d: 2024-0	5-25		
Solids, Total Suspende		95.0	10.0 mg/L	100		95	85-115			
LCS (B4E3855-BS2)			-	Prepared	: 2024-05-2	5. Analyze		5-25		
=30 (= :20000 202)	b	90.0	10.0 mg/L	100	0_ 1 00 2	90	85-115			



REPORTED TO Lake Country PROJECT Raw Influent-	y, District of (Wastewat - PE14651				WORK REPOR	ORDER RTED		24E2535 2024-05-28		
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier	
General Parameters, Batch B4E38	55, Continued									
Duplicate (B4E3855-DUP2)	Sour	ce: 24E2535-01	Prepared	l: 2024-05-2	25, Analyze	ed: 2024-0)5-25			
Solids, Total Suspended	347	2.0 mg/L		357			3	20		
Reference (B4E3855-SRM1)			Prepared	l: 2024-05-2	25, Analyze	ed: 2024-0)5-25			
Solids, Total Suspended	184	20.0 mg/L	210		88	80-120				
General Parameters, Batch B4E39	953									
Blank (B4E3953-BLK1)			Prepared	l: 2024-05-2	25, Analyze	ed: 2024-0)5-25			
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L								
Blank (B4E3953-BLK2)			Prepared	l: 2024-05-2	25, Analyze	ed: 2024-0)5-25			
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L								
Blank (B4E3953-BLK3)			Prepared	l: 2024-05-2	25, Analyze	ed: 2024-0)5-25			
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L								
LCS (B4E3953-BS1)			Prepared	l: 2024-05-2	25, Analyze	ed: 2024-0)5-25			
Alkalinity, Total (as CaCO3)	97.4	1.0 mg/L	100		97	80-120				
Alkalinity, Phenolphthalein (as CaCO3)	52.5	1.0 mg/L	50.0		105	0-200				
LCS (B4E3953-BS2)			Prepared	l: 2024-05-2	25, Analyze	ed: 2024-0)5-25			
Alkalinity, Total (as CaCO3)	97.9	1.0 mg/L	100		98	80-120				
Alkalinity, Phenolphthalein (as CaCO3)	46.3	1.0 mg/L	50.0		93	0-200				
LCS (B4E3953-BS3)			Prepared	l: 2024-05-2	25, Analyze	ed: 2024-0)5-25			
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L	50.0		-	0-200				
Reference (B4E3953-SRM1)			Prenared	l: 2024-05-2	25 Analyze	ed: 2024-0)5-25			
pH	7.04	0.10 pH units	7.01	2021 00 2	100	98-102	70 20			
Reference (B4E3953-SRM2)		0.10 p.1 u		l: 2024-05-2			15.25			
pH	7.05	0.10 pH units	7.01	1. 2024-03-2	101	98-102	JJ-2J			
	7.00	0.10 pri dritts								
Reference (B4E3953-SRM3)	7.05	0.40		l: 2024-05-2			15-25			
General Parameters, Batch B4E39 Blank (B4E3984-BLK1)	7.05 984	0.10 pH units	7.01 Prepared	l: 2024-05-2	101 25, Analyze	98-102 ed: 2024-0	05-27			
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L	1 Toparou	2021 00 2	.o, 7 (1)a1y20	Ju. 202 1 0				
-	\ 0.030	0.030 Hig/L								
Blank (B4E3984-BLK2)			Prepared	l: 2024-05-2	25, Analyze	ed: 2024-0)5-27			
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L								



Nitrogen, Total Kjeldahl

APPENDIX 2: QUALITY CONTROL RESULTS

0.949

REPORTED TO PROJECT	Lake Country, District o Raw Influent- PE14651	,				WORK ORDER REPORTED		24E2535 2024-05-28		13:27
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameter	rs, Batch B4E3984, Continu	ued								
LCS (B4E3984-BS	1)			Prepared	: 2024-05-2	25, Analyze	d: 2024-0	5-27		
Nitrogen, Total Kjelda	ahl	0.924	0.050 mg/L	1.00		92	85-115			
LCS (B4E3984-BS	2)			Prepared	: 2024-05-2	25. Analyze	d: 2024-0	5-27		

85-115

0.050 mg/L





CERTIFICATE OF ANALYSIS

You know that the sample you collected after

snowshoeing to site, digging 5 meters, and

racing to get it on a plane so you can submit it

to the lab for time sensitive results needed to

make important and expensive decisions

(whew) is VERY important. We know that too.

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen WORK ORDER 24K2800

PO NUMBER RECEIVED / TEMP 2024-11-25 10:56 / 11.2°C

PROJECTFinal Effluent- PE14651REPORTED2024-12-02 11:37PROJECT INFOLake Country WWTPCOC NUMBERNo Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

✓ We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at hhannaoui@caro.ca

Authorized By:

Hanane El Hannaoui Junior Account Manager Fla

1-888-311-8846 | www.caro.ca



TEST RESULTS

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED 24K2800

ORTED 2024-12-02 11:37

Analyte	Result	RL	Units	Analyzed	Qualifi
Final Effluent (24K2800-01) Matrix: Wate	r Sampled: 2024-11-25 09:00				
Anions					
Chloride	142	0.10	mg/L	2024-11-26	
Nitrate (as N)	4.11	0.010	mg/L	2024-11-26	
Nitrite (as N)	0.278	0.010	mg/L	2024-11-26	
Calculated Parameters					
Nitrate+Nitrite (as N)	4.39	0.0100	mg/L	N/A	
Nitrogen, Total	6.72	0.0500	mg/L	N/A	
Nitrogen, Organic	1.39	0.0500	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	156	1.0	mg/L	2024-11-28	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2024-11-28	
Alkalinity, Bicarbonate (as CaCO3)	156	1.0	mg/L	2024-11-28	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2024-11-28	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-11-28	
Ammonia, Total (as N)	0.943	0.050	mg/L	2024-11-28	
BOD, 5-day Carbonaceous	< 3.6	2.0	mg/L	2024-12-02	
Nitrogen, Total Kjeldahl	2.33	0.050	mg/L	2024-11-28	
pH	7.97	0.10	pH units	2024-11-28	HT2
Phosphorus, Total (as P)	1.16	0.0050	mg/L	2024-11-28	
Phosphorus, Dissolved Reactive	0.960	0.0050	mg/L	2024-11-26	
Solids, Total Suspended	< 2.0	2.0	mg/L	2024-11-28	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	173000	1	MPN/100 mL	2024-11-25	
Coliforms, Fecal (Q-Tray)	23800	1	MPN/100 mL	2024-11-25	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER
REPORTED

24K2800

ED 2024-12-02 11:37

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Coliforms, Total in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Dissolved Reactive in Water	SM 4500-P F (2021)	Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

MPN/100 mL Most Probable Number per 100 millilitres

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED

24K2800 2024-12-02 11:37

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
Anions, Batch B4K3701									
Blank (B4K3701-BLK1)			Prepared	: 2024-11-2	26, Analyze	d: 2024-1	1-26		
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4K3701-BS1)			Prepared	: 2024-11-2	26, Analyze	d: 2024-1	1-26		
Chloride	16.2	0.10 mg/L	16.0		101	90-110			
Nitrate (as N)	3.97	0.010 mg/L	4.00		99	90-110			
Nillate (as IV)	0.07								
Nitrite (as N)	2.11	0.010 mg/L	2.00		105	85-115			
Nitrite (as N) General Parameters, Batch B4K3815				. 2024 11 2			1 26		
Nitrite (as N) General Parameters, Batch B4K3815 Blank (B4K3815-BLK1)	2.11	0.010 mg/L		: 2024-11-2			1-26		
Nitrite (as N) General Parameters, Batch B4K3815 Blank (B4K3815-BLK1)				: 2024-11-2			1-26		
Nitrite (as N) General Parameters, Batch B4K3815 Blank (B4K3815-BLK1) Phosphorus, Dissolved Reactive	2.11	0.010 mg/L	Prepared	: 2024-11-2 : 2024-11-2	26, Analyze	d: 2024-1			
Nitrite (as N) General Parameters, Batch B4K3815 Blank (B4K3815-BLK1) Phosphorus, Dissolved Reactive LCS (B4K3815-BS1)	2.11	0.010 mg/L	Prepared		26, Analyze	d: 2024-1			
,	2.11< 0.00500.108	0.010 mg/L 0.0050 mg/L	Prepared Prepared 0.100		26, Analyze 26, Analyze 108	d: 2024-1 d: 2024-1 84-115	1-26		

Blank (B4K3926-BLK1)			Prepared: 202	24-11-27, Analyze	ed: 2024-12-02	
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L				
LCS (B4K3926-BS1)			Prepared: 202	24-11-27, Analyze	ed: 2024-12-02	
BOD, 5-day Carbonaceous	207	60.5 mg/L	198	105	85-115	

General Parameters, Batch B4K3941

Blank (B4K3941-BLK1)			Prepared: 2024-11-27, Analyzed: 2024-11-28				
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L					
Blank (B4K3941-BLK2)			Prepared: 2024-11-27, Analyzed: 2024-11-28				



REPORTED TO PROJECT	Lake Country, Dis Final Effluent- PE	•	ater)			WORK REPOR			24K2800 2024-12-02 11:3		
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier	
General Parameters	s, Batch B4K3941, C	Continued									
LCS (B4K3941-BS1	.)			Prepared:	: 2024-11-27	7, Analyze	d: 2024-1	11-28			
Nitrogen, Total Kjeldah	<u>-</u> 1	0.863	0.050 mg/L	1.00		86	85-115				
LCS (B4K3941-BS2	<u>'</u>)			Prepared:	2024-11-27	7, Analyze	d: 2024-1	11-28			
Nitrogen, Total Kjeldah	ıl	0.903	0.050 mg/L	1.00		90	85-115				
General Parameters	, Batch B4K3969										
Blank (B4K3969-BL	_K1)			Prepared:	: 2024-11-28	3, Analyze	d: 2024-1	11-28			
Solids, Total Suspende	ed	< 2.0	2.0 mg/L	•		· ·					
LCS (B4K3969-BS1	.)			Prepared:	2024-11-28	3, Analyze	d: 2024-′	11-28			
Solids, Total Suspende	ed	97.5	5.0 mg/L	100		98	85-115				
General Parameters	, Batch B4K3987										
Blank (B4K3987-BL	_K1)			Prepared:	: 2024-11-28	3, Analyze	d: 2024-1	11-28			
Ammonia, Total (as N)	1	< 0.050	0.050 mg/L								
Blank (B4K3987-BL	_K2)			Prepared:	2024-11-28	3, Analyze	d: 2024-′	11-28			
Ammonia, Total (as N)		< 0.050	0.050 mg/L								
Blank (B4K3987-BL	_K3)			Prepared:	: 2024-11-28	3, Analyze	d: 2024-1	11-28			
Ammonia, Total (as N)		< 0.050	0.050 mg/L			<u> </u>					
Blank (B4K3987-BL	_K4)			Prepared:	: 2024-11-28	3, Analyze	d: 2024-1	11-28			
Ammonia, Total (as N)		< 0.050	0.050 mg/L	· · · · · · · · · · · · · · · · · · ·		-					
LCS (B4K3987-BS1	.)			Prepared:	2024-11-28	3, Analyze	d: 2024-1	11-28			
Ammonia, Total (as N))	1.02	0.050 mg/L	1.00		102	85-115				
LCS (B4K3987-BS2	<u>'</u>)			Prepared:	: 2024-11-28	3, Analyze	d: 2024-1	11-28			
Ammonia, Total (as N))	1.02	0.050 mg/L	1.00		102	85-115				
LCS (B4K3987-BS3	3)			Prepared:	: 2024-11-28	3, Analyze	d: 2024-1	11-28			
Ammonia, Total (as N)		1.01	0.050 mg/L	1.00		101	85-115				
LCS (B4K3987-BS4	!)			Prepared:	2024-11-28	3, Analyze	d: 2024-1	11-28			
Ammonia, Total (as N)		0.985	0.050 mg/L	1.00		98	85-115				
General Parameters	, Batch B4K4000										
Blank (B4K4000-BL	_K1)			Prepared:	: 2024-11-28	3, Analyze	d: 2024-1	11-28			
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L								
Blank (B4K4000-BL	-K2)			Prepared:	2024-11-28	3, Analyze	d: 2024-1	11-28			
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L								
Blank (B4K4000-BL	_K3)			Prepared:	2024-11-28	3, Analyze	d: 2024-1	11-28			
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L								
LCS (B4K4000-BS1)			Prepared:	2024-11-28	3, Analyze	d: 2024-1	11-28			
Phosphorus, Total (as	·	0.102	0.0050 mg/L	0.100		102	85-115				
LCS (B4K4000-BS2	<u>'</u>)			Prepared:	2024-11-28	3, Analyze	d: 2024-′	11-28			
Phosphorus, Total (as	P)	0.102	0.0050 mg/L	0.100		102	85-115				



					the second secon					
REPORTED TO PROJECT	Lake Country, Distr Final Effluent- PE1	`	ater)			WORK REPOR	ORDER RTED		2800 I-12-02	11:37
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	, Batch B4K4000, Co	ontinued								
LCS (B4K4000-BS3)			Prepared	d: 2024-11-2	28, Analyze	d: 2024-1	1-28		
Phosphorus, Total (as	P)	0.102	0.0050 mg/L	0.100		102	85-115			
General Parameters Blank (B4K4064-BL	•			Prepared	d: 2024-11-2	≀8, Analyze	d: 2024-1	1-28		
Alkalinity, Total (as Cat	•	< 1.0	1.0 mg/L	<u>'</u>		-, ,				
Alkalinity, Phenolphtha		< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate		< 1.0	1.0 mg/L							
Alkalinity, Carbonate (· ,	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
LCS (B4K4064-BS1)			Prepared	d: 2024-11-2	28, Analyze	d: 2024-1	1-28		
Alkalinity, Total (as Cat	CO3)	90.1	1.0 mg/L	100		90	80-120			
Alkalinity, Phenolphtha	alein (as CaCO3)	36.7	1.0 mg/L	50.0		73	0-200			
Reference (B4K406	4-SRM1)			Prepared	d: 2024-11-2	28, Analyze	d: 2024-1	1-28		
pH		7.02	0.10 pH units	7.01		100	98-102			
Microbiological Para	ameters, Batch B4K3	3686		Prepared	d: 2024-11-2	25, Analyze	d: 2024-1	1-25		
Coliforms, Total (Q-Tra	ny)	< 1	1 MPN/100	mL						
Blank (B4K3686-BL	.K2)			Prepared	d: 2024-11-2	25, Analyze	d: 2024-1	1-25		

1 MPN/100 mL

< 1

Coliforms, Fecal (Q-Tray)





CERTIFICATE OF ANALYSIS

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen **WORK ORDER** 24K2799

2024-11-25 10:56 / 11.2°C

Raw Influent- PE14651 **REPORTED** 2024-12-02 13:56 **PROJECT**

Lake Country WWTP No Number **PROJECT INFO COC NUMBER**

Introduction:

PO NUMBER

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



We've Got Chemistry



RECEIVED / TEMP

Ahead of the Curve



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

It's simple. We figure the more you working enjoy with fun and our engaged team the more members; likely you are to give us continued opportunities to support you.

Through research, regulation and instrumentation, knowledge, are your analytical centre the knowledge technical you BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at hhannaoui@caro.ca

Authorized By:

Hanane El Hannaoui Junior Account Manager

1-888-311-8846 | www.caro.ca



TEST RESULTS

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER

24K2799

REPORTED 2024-12-02 13:56

Analyte	Result	RL	Units	Analyzed	Qualifie
Raw Influent (24K2799-01) Matrix: Water	Sampled: 2024-11-25 10:20				
Anions					
Nitrate (as N)	< 0.010	0.010	mg/L	2024-11-26	
Nitrite (as N)	< 0.010	0.010	mg/L	2024-11-26	
Calculated Parameters					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	88.3	1.00	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	420	1.0	mg/L	2024-11-28	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2024-11-28	
Alkalinity, Bicarbonate (as CaCO3)	420	1.0	mg/L	2024-11-28	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2024-11-28	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-11-28	
Ammonia, Total (as N)	73.5	0.050	mg/L	2024-11-28	
BOD, 5-day	434	2.0	mg/L	2024-12-02	
BOD, 5-day Carbonaceous	324	2.0	mg/L	2024-12-02	
Nitrogen, Total Kjeldahl	88.3	0.050	mg/L	2024-11-28	
pH	8.20	0.10	pH units	2024-11-28	HT2
Phosphorus, Total (as P)	12.9	0.0050	mg/L	2024-11-28	
Phosphorus, Dissolved Reactive	6.76	0.0050	mg/L	2024-11-26	
Solids, Total Suspended	322		mg/L	2024-11-28	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER
REPORTED

24K2799

2024-12-02 13:56

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Dissolved Reactive in Water	SM 4500-P F (2021)	Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



PROJECT

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO Lake Country, District of (Wastewater)

Raw Influent- PE14651

WORK ORDER REPORTED

24K2799 2024-12-02 13:56

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B4K3701									
Blank (B4K3701-BLK1)			Prepared	I: 2024-11-2	6, Analyze	d: 2024-1	1-26		
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4K3701-BS1)			Prepared	I: 2024-11-2	6, Analyze	d: 2024-′	1-26		
Nitrate (as N)	3.97	0.010 mg/L	4.00		99	90-110			
Nitrite (as N)	2.11	0.010 mg/L	2.00		105	85-115			
General Parameters, Batch B4K3815									
Blank (B4K3815-BLK1)			Prepared	I: 2024-11-2	6, Analyze	d: 2024-1	1-26		
Phosphorus, Dissolved Reactive	< 0.0050	0.0050 mg/L							
LCS (B4K3815-BS1)			Prepared	I: 2024-11-2	6, Analyze	d: 2024-′	1-26		
Phosphorus, Dissolved Reactive	0.108	0.0050 mg/L	0.100		108	84-115			
General Parameters, Batch B4K3926									
Blank (B4K3926-BLK1)			Prepared	I: 2024-11-2	7, Analyze	d: 2024-1	2-02		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B4K3926-BS1)			Prepared	I: 2024-11-2	7, Analyze	d: 2024-′	2-02		
BOD, 5-day Carbonaceous	207	60.5 mg/L	198		105	85-115			
General Parameters, Batch B4K3927									
Blank (B4K3927-BLK1)			Prepared	I: 2024-11-2	7, Analyze	d: 2024-1	2-02		
BOD, 5-day	< 2.0	2.0 mg/L	-		-				
LCS (B4K3927-BS1)			Prepared	I: 2024-11-2	7, Analyze	d: 2024-1	2-02		

General Parameters, Batch B4K3941

Blank (B4K3941-BLK1) Prepared: 2024-11-27, Analyzed: 2024-11-28

Nitrogen, Total Kjeldahl < 0.050 mg/L

50 0.050 mg/L

103

50.5 mg/L

BOD, 5-day



	e Country, District of (Wastew / Influent- PE14651	vater)			WORK REPOR	ORDER RTED		2799 I-12-02	13:56
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Bat	ch B4K3941, Continued								
Blank (B4K3941-BLK1), (Continued		Prepared	: 2024-11-2	7, Analyze	d: 2024-1	1-28		
Blank (B4K3941-BLK2)			Prepared	: 2024-11-2	7, Analyze	d: 2024-1	1-28		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L	·		•				
LCS (B4K3941-BS1)			Prepared	: 2024-11-2	7, Analyze	d: 2024-1	1-28		
Nitrogen, Total Kjeldahl	0.863	0.050 mg/L	1.00		86	85-115			
LCS (B4K3941-BS2)			Prepared	: 2024-11-2	7, Analyze	d: 2024-1	1-28		
Nitrogen, Total Kjeldahl	0.903	0.050 mg/L	1.00		90	85-115			
General Parameters, Bat	ch B4K3969								
Blank (B4K3969-BLK1)			Prepared	: 2024-11-2	8, Analyze	d: 2024-1	1-28		
Solids, Total Suspended	< 2.0	2.0 mg/L							
LCS (B4K3969-BS1)			Prepared	: 2024-11-2	8, Analyze	d: 2024-1	1-28		
Solids, Total Suspended	97.5	5.0 mg/L	100		98	85-115			
General Parameters, Bat Blank (B4K3987-BLK1)	ch B4K3987		Prepared	: 2024-11-2	8, Analyze	d: 2024-1	1-28		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B4K3987-BLK2)			Prepared	: 2024-11-2	8, Analyze	d: 2024-1	1-28		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B4K3987-BLK3)			Prepared	: 2024-11-2	8, Analyze	d: 2024-1	1-28		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B4K3987-BLK4)			Prepared	: 2024-11-2	8, Analyze	d: 2024-1	1-28		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
LCS (B4K3987-BS1)			-	: 2024-11-2	8, Analyze		1-28		
Ammonia, Total (as N)	1.02	0.050 mg/L	1.00		102	85-115			
LCS (B4K3987-BS2)			<u> </u>	: 2024-11-2	•		1-28		
Ammonia, Total (as N)	1.02	0.050 mg/L	1.00		102	85-115			
LCS (B4K3987-BS3)				: 2024-11-2			1-28		
Ammonia, Total (as N)	1.01	0.050 mg/L	1.00		101	85-115			
LCS (B4K3987-BS4)	0.005	0.050		: 2024-11-2			1-28		
Ammonia, Total (as N)	0.985	0.050 mg/L	1.00		98	85-115			
General Parameters, Bat Blank (B4K4000-BLK1)	UI <u>04</u> N4000		Prepared	: 2024-11-2	8, Analyze	ed: 2024-1	1-28		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L	•		-				
Blank (B4K4000-BLK2)			Prepared	: 2024-11-2	8, Analyze	d: 2024-1	1-28		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L	•		-				
Blank (B4K4000-BLK3)			Prepared	: 2024-11-2	8, Analyze	d: 2024-1	1-28		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L	•						



REPORTED TO PROJECT	Lake Country, Distr Raw Influent- PE14	•	ater)			WORK REPOR	ORDER RTED		2799 I-12-02	13:56
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Paramete	rs, Batch B4K4000, Co	ntinued								
LCS (B4K4000-BS	S1)			Prepared	I: 2024-11-2	8, Analyze	d: 2024-1	1-28		
Phosphorus, Total (a	ıs P)	0.102	0.0050 mg/L	0.100		102	85-115			
LCS (B4K4000-BS	S2)			Prepared	I: 2024-11-2	8, Analyze	ed: 2024-1	1-28		
Phosphorus, Total (a	s P)	0.102	0.0050 mg/L	0.100		102	85-115			
LCS (B4K4000-BS	S3)			Prepared	I: 2024-11-2	8, Analyze	ed: 2024-1	1-28		
Phosphorus, Total (a	ıs P)	0.102	0.0050 mg/L	0.100		102	85-115			
General Parameter Blank (B4K4064-E	rs, Batch B4K4064 BLK1)			Prepared	I: 2024-11-2	8, Analyze	ed: 2024-1	1-28		
Alkalinity, Total (as C	CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolph	thalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbona	ate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate	e (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide	e (as CaCO3)	< 1.0	1.0 mg/L							
LCS (B4K4064-B5	S1)			Prepared	I: 2024-11-2	8, Analyze	d: 2024-1	1-28		
Alkalinity, Total (as C	CaCO3)	90.1	1.0 mg/L	100		90	80-120			
Alkalinity, Phenolph	thalein (as CaCO3)	36.7	1.0 mg/L	50.0		73	0-200			
Reference (B4K40	064-SRM1)			Prepared	I: 2024-11-2	8, Analyze	d: 2024-1	1-28		
pH		7.02	0.10 pH units	7.01		100	98-102			





CERTIFICATE OF ANALYSIS

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen

PO NUMBER 104395-10-9007

PROJECT Final Effluent- PE14651
PROJECT INFO Lake Country WWTP

WORK ORDER 24J0927

RECEIVED / TEMP 2024-10-07 12:00 / 17.6°C

REPORTED 2024-10-15 09:38 **COC NUMBER** 45572.35282

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



We've Got Chemistry



Ahead of the Curve



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager M what

1-888-311-8846 | www.caro.ca



TEST RESULTS

REPORTED TO Lake Country, District o PROJECT Final Effluent- PE14651	,		WORK ORDER REPORTED	24J0927 2024-10-1	5 09:38
Analyte	Result	RL	Units	Analyzed	Qualifie
Final Effluent (E233626) (24J0927-01) Ma	atrix: Wastewater Sample	d: 2024-10-07 10:45			
Anions					
Chloride	132	0.10	mg/L	2024-10-08	
Nitrate (as N)	1.95	0.010		2024-10-08	
Nitrite (as N)	< 0.010	0.010		2024-10-08	
Calculated Parameters					
Nitrate+Nitrite (as N)	1.95	0.0100	mg/L	N/A	
Nitrogen, Total	4.56	0.0500		N/A	
Nitrogen, Organic	1.70	0.0500		N/A	
General Parameters			<u> </u>		
Alkalinity, Total (as CaCO3)	167	1.0	mg/L	2024-10-10	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0		2024-10-10	
Alkalinity, Bicarbonate (as CaCO3)	167		mg/L	2024-10-10	
Alkalinity, Carbonate (as CaCO3)	< 1.0		mg/L	2024-10-10	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0		2024-10-10	
Ammonia, Total (as N)	0.908	0.050		2024-10-10	
BOD, 5-day Carbonaceous	< 3.2	2.0		2024-10-14	
Nitrogen, Total Kjeldahl	2.61	0.050	mg/L	2024-10-11	
pH	7.93	0.10	pH units	2024-10-10	HT2
Phosphorus, Total (as P)	0.664	0.0050	mg/L	2024-10-10	
Phosphorus, Dissolved Reactive	0.410	0.0050	mg/L	2024-10-09	
Solids, Total Suspended	< 2.0	2.0	mg/L	2024-10-11	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	155000	1	MPN/100 mL	2024-10-07	
Coliforms, Fecal (Q-Tray)	22500	1	MPN/100 mL	2024-10-07	
Duplicate (24J0927-02) Matrix: Wastewar				2024 40 00	
Chloride Nitrate (as N)	130	0.010	mg/L	2024-10-08 2024-10-08	
Nitrite (as N)	1.99 < 0.010	0.010		2024-10-08	
Calculated Parameters	<u> </u>		<u> </u>		
Nitrate+Nitrite (as N)	1.99	0.0100	ma/l	N/A	
Nitrogen, Total	4.55	0.0500		N/A	
Nitrogen, Organic	1.64	0.0500		N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	165	1.0	mg/L	2024-10-10	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0		mg/L	2024-10-10	
· · · · · · · · · · · · · · · · · · ·	<u> </u>				
Alkalinity, Bicarbonate (as CaCO3)	165	1.0	mg/L	2024-10-10	



TEST RESULTS

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER

24J0927

REPORTED 2024-10-15 09:38

Amelida	Donalf.		1114-	A l I	0
Analyte	Result	KL_	Units	Analyzed	Qualifie
Ouplicate (24J0927-02) Matrix: Waste	water Sampled: 2024-10-07 1	0:50, Continued			
General Parameters, Continued					
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-10-10	
Ammonia, Total (as N)	0.917	0.050	mg/L	2024-10-10	
BOD, 5-day Carbonaceous	< 3.2	2.0	mg/L	2024-10-14	
Nitrogen, Total Kjeldahl	2.56	0.050	mg/L	2024-10-11	
pH	7.94	0.10	pH units	2024-10-10	HT2
Phosphorus, Total (as P)	0.652	0.0050	mg/L	2024-10-10	
Phosphorus, Dissolved Reactive	0.380	0.0050	mg/L	2024-10-09	
Solids, Total Suspended	< 2.0	2.0	mg/L	2024-10-11	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	199000	1	MPN/100 mL	2024-10-07	
Coliforms, Fecal (Q-Tray)	31300	1	MPN/100 mL	2024-10-07	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED 24J0927

RTED 2024-10-15 09:38

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Coliforms, Total in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Dissolved Reactive in Water	SM 4500-P F (2021)	Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

MPN/100 mL Most Probable Number per 100 millilitres

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED

24J0927 2024-10-15 09:38

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
Anions, Batch B4J2334									
Blank (B4J2334-BLK1)			Prepared	l: 2024-10-0	08, Analyze	d: 2024-	10-08		
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4J2334-BS1)			Prepared	l: 2024-10-0	08, Analyze	d: 2024-	10-08		
Chloride	15.8	0.10 mg/L	16.0		99	90-110			
Nitrate (as N)	4.11	0.010 mg/L	4.00		103	90-110			
Nitrite (as N)	2.04	0.010 mg/L	2.00		102	85-115			
Blank (B4J2426-BLK1) Phosphorus, Dissolved Reactive	< 0.0050	0.0050 mg/L		i: 2024-10-0					
LCS (B4J2426-BS1)			Prepared	l: 2024-10-0	08, Analyze	d: 2024-	10-09		
Phosphorus, Dissolved Reactive	0.104	0.0050 mg/L	0.100		104	84-115			
General Parameters, Batch B4J2602									
Blank (B4J2602-BLK1)			Prepared	l: 2024-10-0	09, Analyze	d: 2024-	10-14		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B4J2602-BS1)			Prepared	l: 2024-10-0	09, Analyze	d: 2024-	10-14		
BOD, 5-day Carbonaceous	215	53.1 mg/L	198		109	85-115			
General Parameters, Batch B4J2660									
Blank (B4J2660-BLK1)			Prepared	l: 2024-10-0	09, Analyze	d: 2024-	10-10		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B4J2660-BLK2)			Prepared	l: 2024-10-0	09, Analyze	d: 2024-	10-10		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							

Blank (B4J2660-BLK3)

Phosphorus, Total (as P)

0.0050 mg/L

< 0.0050

Prepared: 2024-10-09, Analyzed: 2024-10-10



	ke Country, District of (Was nal Effluent- PE14651	tewater)				WORK REPOR	ORDER RTED	24J0 2024	927 I-10-15	09:38
Analyte	Resul	t RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameters, Ba	atch B4J2660, Continued									
LCS (B4J2660-BS1)				Prepared	: 2024-10-0	9, Analyze	d: 2024-1	0-10		
Phosphorus, Total (as P)	0.100	0.0050	mg/L	0.100		100	85-115			
LCS (B4J2660-BS2)				Prepared	: 2024-10-0	9, Analyze	d: 2024-1	0-10		
Phosphorus, Total (as P)	0.103	0.0050	mg/L	0.100		103	85-115			
LCS (B4J2660-BS3)				Prepared	: 2024-10-0	9, Analyze	d: 2024-1	0-10		
Phosphorus, Total (as P)	0.10	0.0050	mg/L	0.100		101	85-115			
General Parameters, Ba	atch B4J2665									
Blank (B4J2665-BLK1)				Prepared	: 2024-10-1	0, Analyze	d: 2024-1	0-10		
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
Blank (B4J2665-BLK2)				Prepared	: 2024-10-1	0, Analyze	d: 2024-1	0-10		
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
Blank (B4J2665-BLK3)				Prepared	: 2024-10-1	0, Analyze	d: 2024-1	0-10		
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
Blank (B4J2665-BLK4)				Prepared	: 2024-10-1	0, Analyze	d: 2024-1	0-10		
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
Blank (B4J2665-BLK5)				Prepared	: 2024-10-1	0, Analyze	d: 2024-1	0-10		
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
LCS (B4J2665-BS1)				Prepared	: 2024-10-1	0, Analyze	d: 2024-1	0-10		
Ammonia, Total (as N)	1.0	0.050	mg/L	1.00		101	85-115			
LCS (B4J2665-BS2)				Prepared	: 2024-10-1	0, Analyze	d: 2024-1	0-10		
Ammonia, Total (as N)	0.996	0.050	mg/L	1.00		100	85-115			
LCS (B4J2665-BS3)				Prepared	: 2024-10-1	0, Analyze	d: 2024-1	0-10		
Ammonia, Total (as N)	1.02	2 0.050	mg/L	1.00		102	85-115			
LCS (B4J2665-BS4)				Prepared	: 2024-10-1	0, Analyze	d: 2024-1	0-10		
Ammonia, Total (as N)	1.02	2 0.050	mg/L	1.00		102	85-115			
LCS (B4J2665-BS5)				Prepared	: 2024-10-1	0, Analyze	d: 2024-1	0-10		
Ammonia, Total (as N)	1.06	0.050	mg/L	1.00		106	85-115			
Duplicate (B4J2665-DU	P4)	Source: 24J0	927-01	Prepared	: 2024-10-1	0, Analyze	d: 2024-1	0-10		
Ammonia, Total (as N)	0.918		mg/L		0.908	-, ,		1	15	
Matrix Spike (B4J2665-	MS4)	Source: 24J0	927-01	Prepared	: 2024-10-1	0. Analyze	d: 2024-1	0-10		
Ammonia, Total (as N)	1.16		mg/L	0.204	0.908	124	75-125			
General Parameters, Bo			<u> </u>							
Blank (B4J2692-BLK1)				Prepared	: 2024-10-1	0, Analyze	d: 2024-1	0-11		
Solids, Total Suspended	< 2.0	2.0	mg/L	· · · · · · · · · · · · · · · · · · ·						
LCS (B4J2692-BS1)				Prepared	: 2024-10-1	0, Analyze	ed: 2024-1	0-11		
Solids, Total Suspended	94.0	5.0	mg/L	100		94	85-115			

General Parameters, Batch B4J2767



REPORTED TO Lake Country, Dist PROJECT Final Effluent- PE1	•	ter)			WORK REPOR	ORDER RTED				
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier	
General Parameters, Batch B4J2767, Co	ontinued									
Blank (B4J2767-BLK1)			Prepared	: 2024-10-1	10, Analyze	ed: 2024-1	0-11			
Nitrogen, Total Kieldahl	< 0.050	0.050 mg/L	<u> </u>		· ·					
		<u> </u>		2004 40 4	10 4 1	1 0004 4	0.44			
Blank (B4J2767-BLK2)			Prepared	: 2024-10-1	IU, Analyze	ed: 2024-1	0-11			
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L								
LCS (B4J2767-BS1)			Prepared	: 2024-10-1	I0, Analyze	d: 2024-1	0-11			
Nitrogen, Total Kjeldahl	1.00	0.050 mg/L	1.00		100	85-115				
LCS (B4J2767-BS2)			Dranarad	: 2024-10-1	In Analyze	d· 2024_1	∩_11			
	0.000	0.050		. 2024-10-1			0-11			
Nitrogen, Total Kjeldahl	0.996	0.050 mg/L	1.00		100	85-115				
General Parameters, Batch B4J2803										
Blank (B4J2803-BLK1)			Prepared	: 2024-10-1	I1, Analyze	d: 2024-1	0-11			
Solids, Total Suspended	< 2.0	2.0 mg/L								
LCS (B4J2803-BS1)			Prepared	: 2024-10-1	I1 Analyze	d· 2024-1	0-11			
Solids, Total Suspended	96.0	5.0 mg/L	100	. 202+ 10	96	85-115	0 11			
General Parameters, Batch B4J2816										
Blank (B4J2816-BLK1)			Prepared	: 2024-10-1	10, Analyze	ed: 2024-1	0-10			
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Bicarbonate (as CaCO3) Alkalinity, Carbonate (as CaCO3)	< 1.0 < 1.0	1.0 mg/L 1.0 mg/L								
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L								
· · · · · · · · · · · · · · · · · · ·				2004 40 4	10 4 1	1 0004 4	0.40			
Blank (B4J2816-BLK2)			Prepared	: 2024-10-1	IU, Analyze	ed: 2024-1	0-10			
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Bicarbonate (as CaCO3) Alkalinity, Carbonate (as CaCO3)	< 1.0 < 1.0	1.0 mg/L 1.0 mg/L								
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L								
				2004 40 4	10 4 1	1 0004 4	0.40			
Blank (B4J2816-BLK3)			Prepared	: 2024-10-1	ıu, Analyze	u: 2024-1	U-1U			
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L								
Alkalinity, Bicarbonate (as CaCO3) Alkalinity, Carbonate (as CaCO3)	< 1.0 < 1.0	1.0 mg/L 1.0 mg/L								
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L								
LCS (B4J2816-BS1)		1.0 mg/L	Prepared	: 2024-10-1	10, Analyze	ed: 2024-1	0-10			
Alkalinity, Total (as CaCO3)	91.1	1.0 mg/L	100		91	80-120				
Alkalinity, Phenolphthalein (as CaCO3)	42.3	1.0 mg/L	50.0		85	0-200				
LCS (B4J2816-BS3)			Prepared	: 2024-10-1	I0, Analyze	ed: 2024-1	0-10			
Alkalinity, Total (as CaCO3)	91.3	1.0 mg/L	100		91	80-120				
Alkalinity, Phenolphthalein (as CaCO3)	42.6	1.0 mg/L	50.0		85	0-200				
LCS (B4J2816-BS5)			Prepared	: 2024-10-1	I0, Analyze	ed: 2024-1	0-10			
Alkalinity, Total (as CaCO3)	91.7	1.0 mg/L	100		92	80-120				
Alkalinity, Phenolphthalein (as CaCO3)	41.5	1.0 mg/L	50.0		83	0-200				
Reference (B4J2816-SRM1)		-	Prepared	: 2024-10-1	I0, Analyze	ed: 2024-1	0-10			
pH	7.02	0.10 pH units	7.01		100	98-102				



Coliforms, Fecal (Q-Tray)

APPENDIX 2: QUALITY CONTROL RESULTS

21900

REPORTED TO PROJECT	Lake Country, District of Final Effluent- PE1465	,				WORK REPOR	ORDER TED		927 -10-15	09:38
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameter	s, Batch B4J2816, Contin	ued								
Reference (B4J28	16-SRM2)			Prepared	: 2024-10-10), Analyze	d: 2024-1	0-10		
pН		7.01	0.10 pH units	7.01		100	98-102			
Reference (B4J28	16-SRM3)			Prepared	: 2024-10-10), Analyze	d: 2024-1	0-10		
рН		7.02	0.10 pH units	7.01		100	98-102			
Microbiological Pa	rameters, Batch B4J2327									
Blank (B4J2327-B	LK1)			Prepared	: 2024-10-07	7, Analyze	d: 2024-1	0-07		
Coliforms, Total (Q-Ti	ray)	< 1	1 MPN/100 m	L						
Blank (B4J2327-B	LK2)			Prepared	: 2024-10-07	7, Analyze	d: 2024-1	0-07		
Coliforms, Fecal (Q-T	ray)	< 1	1 MPN/100 m	L						
Duplicate (B4J232	7-DUP2)	Source:	24J0927-01	Prepared	: 2024-10-07	7, Analyze	ed: 2024-1	0-07		

1 MPN/100 mL

22500

3

80





CERTIFICATE OF ANALYSIS

You know that the sample you collected after

snowshoeing to site, digging 5 meters, and

racing to get it on a plane so you can submit it

to the lab for time sensitive results needed to

make important and expensive

(whew) is VERY important. We know that too.

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen **WORK ORDER** 24J0883

2024-10-07 12:00 / 17.6°C **PO NUMBER RECEIVED / TEMP**

Raw Influent- PE14651 **REPORTED** 2024-10-15 10:03 **PROJECT** Lake Country WWTP 45572.35282 **PROJECT INFO COC NUMBER**

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

We've Got Chemistry

likely you are

enjoy

decisions

It's simple. We figure the more you with fun and working our engaged team the more members;

to give us continued

opportunities to support you.

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, are your analytical centre the knowledge technical you BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager What

1-888-311-8846 | www.caro.ca



TEST RESULTS

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER REPORTED 24J0883

2024-10-15 10:03

Analyte	Result	RL	Units	Analyzed	Qualifie
Raw Influent (E233627) (24J0883-01) Ma	trix: Wastewater Sampled	l: 2024-10-07 10:20			
Anions					
Nitrate (as N)	< 0.010	0.010	mg/L	2024-10-08	
Nitrite (as N)	< 0.010	0.010	mg/L	2024-10-08	
Calculated Parameters					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	120	2.00	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	429	1.0	mg/L	2024-10-10	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2024-10-10	
Alkalinity, Bicarbonate (as CaCO3)	429	1.0	mg/L	2024-10-10	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2024-10-10	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-10-10	
Ammonia, Total (as N)	77.9	0.050	mg/L	2024-10-10	
BOD, 5-day	650	2.0	mg/L	2024-10-14	
BOD, 5-day Carbonaceous	423	2.0	mg/L	2024-10-14	
Nitrogen, Total Kjeldahl	120	0.050	mg/L	2024-10-11	
pH	8.09		pH units	2024-10-10	HT2
Phosphorus, Total (as P)	15.2	0.0050	•	2024-10-10	
Phosphorus, Dissolved Reactive	6.32	0.0050	mg/L	2024-10-09	
Solids, Total Suspended	380		mg/L	2024-10-11	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER REPORTED 24J0883

RTED 2024-10-15 10:03

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Dissolved Reactive in Water	SM 4500-P F (2021)	Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

< Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER REPORTED

24J0883 2024-10-15 10:03

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
Anions, Batch B4J2334									
Blank (B4J2334-BLK1)			Prepared	l: 2024-10-0	08, Analyze	d: 2024-	10-08		
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4J2334-BS1)			Prepared	l: 2024-10-0	08, Analyze	d: 2024-	10-08		
Nitrate (as N)	4.11	0.010 mg/L	4.00		103	90-110			
Nitrite (as N)	2.04	0.010 mg/L	2.00		102	85-115			
General Parameters, Batch B4J2426									
Blank (B4J2426-BLK1)			Prepared	l: 2024-10-0	08, Analyze	d: 2024-	10-09		
Phosphorus, Dissolved Reactive	< 0.0050	0.0050 mg/L							
LCS (B4J2426-BS1)			Prepared	l: 2024-10-0	08, Analyze	d: 2024-	10-09		
Phosphorus, Dissolved Reactive	0.104	0.0050 mg/L	0.100		104	84-115			
General Parameters, Batch B4J2602									
Blank (B4J2602-BLK1)			Prepared	l: 2024-10-0	09, Analyze	d: 2024-	10-14		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B4J2602-BS1)			Prepared	l: 2024-10-0	09, Analyze	d: 2024-	10-14		
BOD, 5-day Carbonaceous	215	53.1 mg/L	198		109	85-115			
General Parameters, Batch B4J2603									
Blank (B4J2603-BLK1)			Prepared	l: 2024-10-0	09, Analyze	d: 2024-	10-14		
BOD, 5-day	< 2.0	2.0 mg/L							

General Parameters, Batch B4J2660

Blank (B4J2660-BLK1) Prepared: 2024-10-09, Analyzed: 2024-10-10

48.4 mg/L

BOD, 5-day

LCS (B4J2603-BS1)

Prepared: 2024-10-09, Analyzed: 2024-10-14

115



REPORTED TO PROJECT	Lake Country, I Raw Influent- F	District of (Wastewa E14651	ater)			WORK ORDER REPORTED			24J0883 2024-10-15 10:00		
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie	
General Parameters	, Batch B4J2660	, Continued									
Blank (B4J2660-BL	K1), Continued			Prepared	: 2024-10-09	9, Analyze	d: 2024-	10-10			
Blank (B4J2660-BL	K2)			Prepared	: 2024-10-09	9 Analyze	d: 2024-	10-10			
Phosphorus, Total (as	•	< 0.0050	0.0050 mg/L	1 Toparou	. 2021 10 00	5,7 thaiy20	u. 2021	10 10			
Blank (B4J2660-BL	K3)			Prepared	: 2024-10-09	9 Analyze	d· 2024-	10-10			
Phosphorus, Total (as	•	< 0.0050	0.0050 mg/L		0	5,7					
LCS (B4J2660-BS1				Prepared	: 2024-10-09	9. Analyze	d· 2024-	10-10			
Phosphorus, Total (as		0.100	0.0050 mg/L	0.100	. 2021 10 00	100	85-115	10 10			
LCS (B4J2660-BS2			<u> </u>		: 2024-10-09	9 Analyze		10-10			
Phosphorus, Total (as		0.103	0.0050 mg/L	0.100		103	85-115				
LCS (B4J2660-BS3					: 2024-10-09			10-10			
Phosphorus, Total (as		0.101	0.0050 mg/L	0.100		101	85-115				
General Parameters	, Batch B4J2665										
Blank (B4J2665-BL	K1)			Prepared	: 2024-10-10), Analyze	d: 2024-	10-10			
Ammonia, Total (as N)		< 0.050	0.050 mg/L								
Blank (B4J2665-BL	K2)			Prepared	: 2024-10-10), Analyze	d: 2024-	10-10			
Ammonia, Total (as N)		< 0.050	0.050 mg/L								
Blank (B4J2665-BL	K3)			Prepared	: 2024-10-10), Analyze	d: 2024-	10-10			
Ammonia, Total (as N)		< 0.050	0.050 mg/L								
Blank (B4J2665-BL	K4)			Prepared	: 2024-10-10), Analyze	d: 2024-	10-10			
Ammonia, Total (as N)		< 0.050	0.050 mg/L								
Blank (B4J2665-BL	K5)			Prepared	: 2024-10-10), Analyze	d: 2024-	10-10			
Ammonia, Total (as N)		< 0.050	0.050 mg/L								
LCS (B4J2665-BS1				Prepared	: 2024-10-10), Analyze	d: 2024-	10-10			
Ammonia, Total (as N)		1.01	0.050 mg/L	1.00		101	85-115				
LCS (B4J2665-BS2)			Prepared	: 2024-10-10), Analyze	d: 2024-	10-10			
Ammonia, Total (as N)		0.996	0.050 mg/L	1.00		100	85-115				
LCS (B4J2665-BS3)			Prepared	: 2024-10-10), Analyze	d: 2024-	10-10			
Ammonia, Total (as N)		1.02	0.050 mg/L	1.00		102	85-115				
LCS (B4J2665-BS4)			Prepared	: 2024-10-10), Analyze	d: 2024-	10-10			
Ammonia, Total (as N)		1.02	0.050 mg/L	1.00		102	85-115				
LCS (B4J2665-BS5	<u>) </u>			Prepared	: 2024-10-10), Analyze	d: 2024-	10-10			
Ammonia, Total (as N)		1.06	0.050 mg/L	1.00		106	85-115				
General Parameters	, Batch B4J2767										
Blank (B4J2767-BL	K1)			Prepared	: 2024-10-10), Analyze	d: 2024-	10-11			
Nitrogen, Total Kjeldah	l	< 0.050	0.050 mg/L								
Blank (B4J2767-BL	K2)			Prepared	: 2024-10-10), Analyze	d: 2024-	10-11			
Nitrogen, Total Kjeldah	l .	< 0.050	0.050 mg/L								



REPORTED TO Lake Country, Distr PROJECT Raw Influent- PE14	•	ter)			WORK REPOR			883 I-10-15	10:03
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B4J2767, Co.	ntinued								
LCS (B4J2767-BS1)			Prepared:	2024-10-1	0, Analyze	d: 2024-	10-11		
Nitrogen, Total Kjeldahl	1.00	0.050 mg/L	1.00		100	85-115			
LCS (B4J2767-BS2)			Dranarad:	2024-10-1	0 Analyze	d- 2024-4	10_11		
Nitrogen, Total Kjeldahl	0.996	0.050 mg/L	1.00	. 2024-10-1	100	85-115	10-11		
General Parameters, Batch B4J2803									
Blank (B4J2803-BLK1)			Prepared:	: 2024-10-1	1 Analyze	d· 2024-1	10-11		
Solids, Total Suspended	< 2.0	2.0 mg/L	i iopaiou.	0_ / 10-1	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<u>L</u> V <u>L</u> T			
LCS (B4J2803-BS1)	-	3	Prenared	: 2024-10-1	1 Analyze	d· 20241	I N-11		
Solids, Total Suspended	96.0	5.0 mg/L	100	. 2024-10-1	96	85-115	I U- I I		
Contas, Total Guspendeu	90.0	J.O Hig/L	100		30	00-110			
General Parameters, Batch B4J2816									
Blank (B4J2816-BLK1)			Prepared:	2024-10-1	0, Analyze	d: 2024-	10-10		
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
Blank (B4J2816-BLK2)			Prepared:	2024-10-1	0, Analyze	d: 2024-	10-10		
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
Blank (B4J2816-BLK3)			Prepared:	2024-10-1	0, Analyze	d: 2024-	10-10		
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
LCS (B4J2816-BS1)			Prepared:	2024-10-1	0, Analyze	d: 2024-	10-10		
Alkalinity, Total (as CaCO3)	91.1	1.0 mg/L	100		91	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	42.3	1.0 mg/L	50.0		85	0-200			·
LCS (B4J2816-BS3)			Prepared:	2024-10-1	0, Analyze	d: 2024-	10-10		
Alkalinity, Total (as CaCO3)	91.3	1.0 mg/L	100		91	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	42.6	1.0 mg/L	50.0		85	0-200			
LCS (B4J2816-BS5)			Prepared:	2024-10-1	0, Analyze	d: 2024-	10-10		
Alkalinity, Total (as CaCO3)	91.7	1.0 mg/L	100		92	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	41.5	1.0 mg/L	50.0		83	0-200			
Reference (B4J2816-SRM1)		-	Prepared:	: 2024-10-1	0, Analvze	d: 2024-	10-10		
pH	7.02	0.10 pH units	7.01		100	98-102			
·		. ,		2024 10 1			10_10		
Reference (B4J2816-SRM2)	7.01	0.10 nU unita	7.01	2024-10-1	0, Analyze 100		10-10		
pH	7.01	0.10 pH units				98-102			
Reference (B4J2816-SRM3)			<u> </u>	2024-10-1	0, Analyze		10-10		
pH	7.02	0.10 pH units	7.01		100	98-102			



REPORTED TO PROJECT

Lake Country, District of (Wastewater) Raw Influent- PE14651

WORK ORDER REPORTED

24J0883 2024-10-15 10:03





CERTIFICATE OF ANALYSIS

You know that the sample you collected after

snowshoeing to site, digging 5 meters, and

racing to get it on a plane so you can submit it

to the lab for time sensitive results needed to

make important and expensive decisions

(whew) is VERY important. We know that too.

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen WORK ORDER 2412857

PO NUMBER RECEIVED / TEMP 2024-09-23 11:20 / 17.5°C

PROJECTFinal Effluent- PE14651REPORTED2024-10-01 15:21PROJECT INFOLake Country WWTPCOC NUMBER45558.39934

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager M what



TEST RESULTS

	ountry, District of (Wastew fluent- PE14651	/ater)		WORK ORDER REPORTED	24I2857 2024-10-0	1 15:21
Analyte	Re	esult	RL	Units	Analyzed	Qualifier
Final Effluent (E233626) (2-	4l2857-01) Matrix: Was	tewater	Sampled: 2024-09-23 08:50			
Anions						
Chloride		134	0.10	mg/L	2024-09-24	
Nitrate (as N)		0.829	0.010		2024-09-24	
Nitrite (as N)		0.177	0.010		2024-09-24	
Calculated Parameters						
Nitrate+Nitrite (as N)		1.01	0.0100	ma/L	N/A	
Nitrogen, Total		5.15	0.0500		N/A	
Nitrogen, Organic		1.51	0.0500		N/A	
General Parameters				-		
Alkalinity, Total (as CaCO3)		169	10	mg/L	2024-09-26	
Alkalinity, Phenolphthalein (as	s CaCO3)	< 1.0		mg/L	2024-09-26	
Alkalinity, Bicarbonate (as Ca	·	169		mg/L	2024-09-26	
Alkalinity, Carbonate (as CaC	·	< 1.0		mg/L	2024-09-26	
Alkalinity, Hydroxide (as CaC		< 1.0		mg/L	2024-09-26	
Ammonia, Total (as N)	,	2.63	0.050		2024-09-25	
BOD, 5-day Carbonaceous		< 3.7		mg/L	2024-10-01	
Nitrogen, Total Kjeldahl		4.14	0.050		2024-09-28	
pH		7.87	0.10		2024-09-26	HT2
Phosphorus, Total (as P)		1.24	0.0050	mg/L	2024-09-26	
Phosphorus, Dissolved Reac	tive	1.00	0.0050		2024-09-25	RE2
Solids, Total Suspended		< 2.0		mg/L	2024-10-01	
Microbiological Parameters						
Coliforms, Total (Q-Tray)	17	73000	1	MPN/100 mL	2024-09-24	
Coliforms, Fecal (Q-Tray)		19700		MPN/100 mL	2024-09-24	
Trip Blank (24l2857-02) Ma Anions	atrix: Wastewater Sam	pled: 20	24-09-23			
Chloride		< 0.10		mg/L	2024-09-24	
Nitrate (as N)		0.010	0.010		2024-09-24	
Nitrite (as N)	<	0.010	0.010	mg/L	2024-09-24	
Calculated Parameters						
Nitrate+Nitrite (as N)		0400	0.0100	mg/L	N/A	
	< 0	.0100				
Nitrogen, Total		.0500	0.0500	mg/L	N/A	
	< 0		0.0500 0.0500		N/A N/A	
Nitrogen, Total	< 0	.0500				
Nitrogen, Total Nitrogen, Organic General Parameters	< 0	.0500	0.0500	mg/L		
Nitrogen, Total Nitrogen, Organic General Parameters Alkalinity, Total (as CaCO3)	< 0	.0500 .0500	0.0500	mg/L	N/A	
Nitrogen, Total Nitrogen, Organic General Parameters	< 0 < 0 s CaCO3)	.0500 .0500 < 1.0	0.0500 1.0 1.0	mg/L	N/A 2024-09-26	



TEST RESULTS

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED

1 MPN/100 mL

24I2857 2024-10-01 15:21

2024-09-24

HT4

Analyte	Result	RL	Units	Analyzed	Qualifier
Trip Blank (24l2857-02) Matrix: Wa	stewater Sampled: 2024-09-	23, Continued			
General Parameters, Continued					
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-09-26	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2024-09-25	
BOD, 5-day Carbonaceous	< 3.7	2.0	mg/L	2024-10-01	
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L	2024-09-28	
pH	5.76	0.10	pH units	2024-09-26	HT2
Phosphorus, Total (as P)	< 0.0050	0.0050	mg/L	2024-09-26	
Phosphorus, Dissolved Reactive	< 0.0050	0.0050	mg/L	2024-09-25	
Solids, Total Suspended	< 2.0	2.0	mg/L	2024-10-01	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	< 1	1	MPN/100 mL	2024-09-24	HT4

Sample Qualifiers:

Coliforms, Fecal (Q-Tray)

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

HT4 The collection date and/or time was not provided. Therefore holding time exceedances cannot be properly identified.

< 1

RE2 Result was confirmed by re-analysis prior to reporting.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER
REPORTED

2412857

2024-10-01 15:21

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Coliforms, Total in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Dissolved Reactive in Water	SM 4500-P F (2021)	Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna

Glossary of Terms:

RL Reporting Limit (default)

Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

MPN/100 mL Most Probable Number per 100 millilitres

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Final Effluent- PE14651

WORK ORDER REPORTED

24l2857 2024-10-01 15:21

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B4l3857									
Blank (B4l3857-BLK1)			Prepared	: 2024-09-24	, Analyzed	: 2024-0	09-24		
Chloride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4I3857-BS1)			Prepared	: 2024-09-24	, Analyzed	: 2024-0	09-24		
Chloride	16.0	0.10 mg/L	16.0		100	90-110			
Nitrate (as N)	3.81	0.010 mg/L	4.00		95	90-110			
Nitrite (as N)	2.14	0.010 mg/L	2.00		107	85-115			
General Parameters, Batch B4l3925									
Blank (B4l3925-BLK1)			Prepared	: 2024-09-24	, Analyzed	: 2024-0	09-25		
Phosphorus, Dissolved Reactive	< 0.0050	0.0050 mg/L							
LCS (B4I3925-BS1)			Prepared	: 2024-09-24	, Analyzed	: 2024-0	09-25		
Phosphorus, Dissolved Reactive	0.0950	0.0050 mg/L	0.100		95	84-115			
General Parameters, Batch B4l3980									
ŕ			Duamanad	. 2024 00 25		. 2024 (20.05		
Blank (B4I3980-BLK1)	< 0.050	0.050 mg/L	Prepared	: 2024-09-25	, Anaiyzed	: 2024-0	J9-25		
Ammonia, Total (as N)	< 0.030	0.030 Hig/L							
Blank (B4l3980-BLK2)			Prepared	: 2024-09-25	, Analyzed	: 2024-0	09-25		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B4l3980-BLK3)			Prepared	: 2024-09-25	i, Analyzed	: 2024-0	09-25		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
LCS (B4I3980-BS1)			Prepared	: 2024-09-25	i, Analyzed	: 2024-0	9-25		
Ammonia, Total (as N)	1.02	0.050 mg/L	1.00		102	85-115			
LCS (B4I3980-BS2)			Prepared	: 2024-09-25	i, Analyzed	: 2024-0	09-25		
Ammonia, Total (as N)	1.02	0.050 mg/L	1.00		102	85-115			
LCS (B4I3980-BS3)			Prepared	: 2024-09-25	i, Analyzed	: 2024-0	09-25		
Ammonia, Total (as N)	1.02	0.050 mg/L	1.00		102	85-115			



PROJECT Final Effluent	y, District of (Wastew t- PE14651	ater)			WORK (24128 2024	357 -10-01	15:21
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B4l398	80, Continued								
Duplicate (B4I3980-DUP2)	Sou	ırce: 24l2857-01	Prepared:	2024-09-25	Analyzed	: 2024-0	9-25		
Ammonia, Total (as N)	2.62	0.050 mg/L	<u> </u>	2.63			< 1	15	
Matrix Spike (B4l3980-MS2)	Sou	ırce: 24 2857-01	Prepared:	2024-09-25	Analyzed	: 2024-0	9-25		
Ammonia, Total (as N)	2.77	0.050 mg/L	0.204	2.63	65	75-125			MS2
General Parameters, Batch B4I413	36								
Blank (B4I4136-BLK1)			Prepared:	2024-09-26	Analvzed	: 2024-0	9-26		
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L			,	0	-		
Alkalinity, Phenolphthalein (as CaCO3)		1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3) Alkalinity, Hydroxide (as CaCO3)	< 1.0 < 1.0	1.0 mg/L 1.0 mg/L							
	1.0	1.0 mg/L		2224 22 22					
LCS (B4I4136-BS1)			•	2024-09-26			9-26		
Alkalinity, Total (as CaCO3) Alkalinity, Phenolphthalein (as CaCO3)	93.9	1.0 mg/L 1.0 mg/L	100 50.0		94 96	80-120 0-200			
Reference (B4I4136-SRM1)	-			2024-09-26			9-26		
pH	7.02	0.10 pH units	7.01	2021 00 20,	100	98-102	0 20		
Blank (B4I4137-BLK1) Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L	Prepared:	2024-09-26	, Analyzed	: 2024-0	9-26		
	0.0000	0.0000g, _	Droporod	2024-09-26	Analyzad	. 2024 0	0.26		
Blank (B4I4137-BLK2)				2024-03-20	Allalyzed	. 2024-0			
	< 0.0050	0.0050 mg/l	гтератец.				0 20		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L		2024-00-26	Analyzed	. 2024-0			
Phosphorus, Total (as P) Blank (B4I4137-BLK3)				2024-09-26	, Analyzed	: 2024-0			
Phosphorus, Total (as P) Blank (B4I4137-BLK3) Phosphorus, Total (as P)	< 0.0050 < 0.0050	0.0050 mg/L 0.0050 mg/L	Prepared:				9-26		
Phosphorus, Total (as P) Blank (B4I4137-BLK3) Phosphorus, Total (as P) LCS (B4I4137-BS1)	< 0.0050	0.0050 mg/L	Prepared:	2024-09-26	, Analyzed	: 2024-0	9-26		
Phosphorus, Total (as P) Blank (B4I4137-BLK3) Phosphorus, Total (as P) LCS (B4I4137-BS1) Phosphorus, Total (as P)			Prepared: Prepared: 0.100	2024-09-26,	, Analyzed	: 2024-0 85-115	9-26 9-26		
Phosphorus, Total (as P) Blank (B4I4137-BLK3) Phosphorus, Total (as P) LCS (B4I4137-BS1) Phosphorus, Total (as P) LCS (B4I4137-BS2)	< 0.0050	0.0050 mg/L	Prepared: Prepared: 0.100		, Analyzed	: 2024-0 85-115 : 2024-0	9-26 9-26		
Phosphorus, Total (as P) Blank (B4I4137-BLK3) Phosphorus, Total (as P) LCS (B4I4137-BS1) Phosphorus, Total (as P) LCS (B4I4137-BS2) Phosphorus, Total (as P)	< 0.0050 0.103	0.0050 mg/L 0.0050 mg/L	Prepared: Prepared: 0.100 Prepared: 0.100	2024-09-26	, Analyzed 103 , Analyzed	: 2024-0 85-115 : 2024-0 85-115	9-26 9-26 9-26		
Phosphorus, Total (as P) Blank (B4I4137-BLK3) Phosphorus, Total (as P) LCS (B4I4137-BS1) Phosphorus, Total (as P) LCS (B4I4137-BS2)	< 0.0050 0.103	0.0050 mg/L 0.0050 mg/L	Prepared: Prepared: 0.100 Prepared: 0.100	2024-09-26,	, Analyzed 103 , Analyzed	: 2024-0 85-115 : 2024-0 85-115	9-26 9-26 9-26		
Phosphorus, Total (as P) Blank (B4I4137-BLK3) Phosphorus, Total (as P) LCS (B4I4137-BS1) Phosphorus, Total (as P) LCS (B4I4137-BS2) Phosphorus, Total (as P) LCS (B4I4137-BS3)	< 0.0050 0.103 0.104 0.105	0.0050 mg/L 0.0050 mg/L 0.0050 mg/L	Prepared: 0.100 Prepared: 0.100 Prepared:	2024-09-26	Analyzed 103 Analyzed 104 Analyzed	: 2024-0 85-115 : 2024-0 85-115 : 2024-0	9-26 9-26 9-26		
Phosphorus, Total (as P) Blank (B4I4137-BLK3) Phosphorus, Total (as P) LCS (B4I4137-BS1) Phosphorus, Total (as P) LCS (B4I4137-BS2) Phosphorus, Total (as P) LCS (B4I4137-BS3) Phosphorus, Total (as P) General Parameters, Batch B4I426	< 0.0050 0.103 0.104 0.105	0.0050 mg/L 0.0050 mg/L 0.0050 mg/L	Prepared: O.100 Prepared: 0.100 Prepared: 0.100 O.100 O.100	2024-09-26, 2024-09-26, 2024-09-26,	Analyzed 103 Analyzed 104 Analyzed 105	: 2024-0 85-115 : 2024-0 85-115 : 2024-0 85-115	9-26 9-26 9-26		
Phosphorus, Total (as P) Blank (B4I4137-BLK3) Phosphorus, Total (as P) LCS (B4I4137-BS1) Phosphorus, Total (as P) LCS (B4I4137-BS2) Phosphorus, Total (as P) LCS (B4I4137-BS3) Phosphorus, Total (as P)	< 0.0050 0.103 0.104 0.105	0.0050 mg/L 0.0050 mg/L 0.0050 mg/L	Prepared: O.100 Prepared: 0.100 Prepared: 0.100 O.100 O.100	2024-09-26	Analyzed 103 Analyzed 104 Analyzed 105	: 2024-0 85-115 : 2024-0 85-115 : 2024-0 85-115	9-26 9-26 9-26		
Phosphorus, Total (as P) Blank (B4I4137-BLK3) Phosphorus, Total (as P) LCS (B4I4137-BS1) Phosphorus, Total (as P) LCS (B4I4137-BS2) Phosphorus, Total (as P) LCS (B4I4137-BS3) Phosphorus, Total (as P) General Parameters, Batch B4I420 Blank (B4I4200-BLK1) BOD, 5-day Carbonaceous	< 0.0050 0.103 0.104 0.105	0.0050 mg/L 0.0050 mg/L 0.0050 mg/L 0.0050 mg/L	Prepared: O.100 Prepared: 0.100 Prepared: 0.100 Prepared: Prepared: Prepared:	2024-09-26 2024-09-26 2024-09-26	Analyzed 103 Analyzed 104 Analyzed 105 Analyzed	: 2024-0 85-115 : 2024-0 85-115 : 2024-0 85-115	9-26 9-26 9-26 9-26		
Phosphorus, Total (as P) Blank (B4I4137-BLK3) Phosphorus, Total (as P) LCS (B4I4137-BS1) Phosphorus, Total (as P) LCS (B4I4137-BS2) Phosphorus, Total (as P) LCS (B4I4137-BS3) Phosphorus, Total (as P) General Parameters, Batch B4I420 Blank (B4I4200-BLK1)	< 0.0050 0.103 0.104 0.105	0.0050 mg/L 0.0050 mg/L 0.0050 mg/L 0.0050 mg/L	Prepared: O.100 Prepared: 0.100 Prepared: 0.100 Prepared: Prepared: Prepared:	2024-09-26, 2024-09-26, 2024-09-26,	Analyzed 103 Analyzed 104 Analyzed 105 Analyzed	: 2024-0 85-115 : 2024-0 85-115 : 2024-0 85-115	9-26 9-26 9-26 9-26		
Phosphorus, Total (as P) Blank (B4I4137-BLK3) Phosphorus, Total (as P) LCS (B4I4137-BS1) Phosphorus, Total (as P) LCS (B4I4137-BS2) Phosphorus, Total (as P) LCS (B4I4137-BS3) Phosphorus, Total (as P) General Parameters, Batch B4I420 Blank (B4I4200-BLK1) BOD, 5-day Carbonaceous LCS (B4I4200-BS1)	< 0.0050 0.103 0.104 0.105 00 < 2.0	0.0050 mg/L 0.0050 mg/L 0.0050 mg/L 0.0050 mg/L	Prepared: Prepared: 0.100 Prepared: 0.100 Prepared: 0.100 Prepared: Prepared:	2024-09-26 2024-09-26 2024-09-26	Analyzed 103 Analyzed 104 Analyzed 105 Analyzed Analyzed	: 2024-0 85-115 : 2024-0 85-115 : 2024-0 85-115 : 2024-1	9-26 9-26 9-26 9-26		
Phosphorus, Total (as P) Blank (B4I4137-BLK3) Phosphorus, Total (as P) LCS (B4I4137-BS1) Phosphorus, Total (as P) LCS (B4I4137-BS2) Phosphorus, Total (as P) LCS (B4I4137-BS3) Phosphorus, Total (as P) General Parameters, Batch B4I420 Blank (B4I4200-BLK1) BOD, 5-day Carbonaceous LCS (B4I4200-BS1) BOD, 5-day Carbonaceous	< 0.0050 0.103 0.104 0.105 00 < 2.0	0.0050 mg/L 0.0050 mg/L 0.0050 mg/L 0.0050 mg/L	Prepared: O.100 Prepared: 0.100 Prepared: 0.100 Prepared: 198	2024-09-26 2024-09-26 2024-09-26	Analyzed 103 Analyzed 104 Analyzed 105 Analyzed Analyzed 108	: 2024-0 85-115 : 2024-0 85-115 : 2024-0 85-115 : 2024-1 : 2024-1 85-115	9-26 9-26 9-26 9-26 0-01		





REPORTED TO PROJECT	Lake Country, Distriction Final Effluent- PE14	•	ater)			WORK REPOR	ORDER TED	24128 2024	357 -10-01	15:21
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameters	s, Batch B4l4359, Cont	inued								
Blank (B4I4359-BL	.K2)			Prepared	I: 2024-09-2	27, Analyze	d: 2024-0	9-28		
Nitrogen, Total Kjelda	hl	< 0.050	0.050 mg/L							
LCS (B4I4359-BS1)			Prepared	I: 2024-09-2	27, Analyze	d: 2024-0	9-28		
Nitrogen, Total Kjelda	hl	0.981	0.050 mg/L	1.00		98	85-115			
LCS (B4I4359-BS2)			Prepared	I: 2024-09-2	27, Analyze	d: 2024-0	9-28		
Nitrogen, Total Kjelda	hl	0.977	0.050 mg/L	1.00		98	85-115			
General Parameter	,			Prepared	l: 2024-09-2	28. Analvze	d: 2024-1	0-01		
Solids, Total Suspend	•	< 2.0	2.0 mg/L			,· <i>j</i>				
·			-							
Reference (B4I441	7-SRM1)			Prepared	I: 2024-09-2	28, Analyze	d: 2024-1	0-01		
Reference (B4I441 Solids, Total Suspend		432	20.0 mg/L	Prepared 459	l: 2024-09-2	28, Analyze 94	d: 2024-1 80-120	0-01		
Solids, Total Suspend	rameters, Batch B4l386	68	Ū	459 Prepared	l: 2024-09-2	94	80-120			
Solids, Total Suspend	rameters, Batch B4I386		20.0 mg/L 1 MPN/100	459 Prepared		94	80-120			
Solids, Total Suspend Microbiological Pal Blank (B4I3868-BL Coliforms, Total (Q-Tr Blank (B4I3868-BL	rameters, Batch B4l386 .K1) ray)	<1	1 MPN/100	459 Prepared mL Prepared		94 24, Analyze	80-120 d: 2024-0	9-24		
Microbiological Pal Blank (B4I3868-BL Coliforms, Total (Q-Tr	rameters, Batch B4l386 .K1) ray)	68	Ū	459 Prepared mL Prepared	l: 2024-09-2	94 24, Analyze	80-120 d: 2024-0	9-24		
Solids, Total Suspend Microbiological Pal Blank (B4I3868-BL Coliforms, Total (Q-Tr Blank (B4I3868-BL	rameters, Batch B4I386 .K1) ray) .K2)	<1	1 MPN/100	459 Prepared mL Prepared mL	l: 2024-09-2	94 24, Analyze 24, Analyze	80-120 d: 2024-0 d: 2024-0	9-24 9-24		
Microbiological Pal Blank (B4I3868-BL Coliforms, Total (Q-Tr Blank (B4I3868-BL Coliforms, Fecal (Q-T	rameters, Batch B4I386 K1) ray) K2) ray)	<1	1 MPN/100	Prepared mL Prepared mL Prepared	I: 2024-09-2 I: 2024-09-2	94 24, Analyze 24, Analyze	80-120 d: 2024-0 d: 2024-0	9-24 9-24		
Microbiological Pal Blank (B4I3868-BL Coliforms, Total (Q-Tr Blank (B4I3868-BL Coliforms, Fecal (Q-T	rameters, Batch B4I386 .K1) ray) .K2) ray) .K3)	<1	1 MPN/100	Prepared mL Prepared mL Prepared mL Prepared	I: 2024-09-2 I: 2024-09-2	94 24, Analyze 24, Analyze 24, Analyze	80-120 d: 2024-0 d: 2024-0 d: 2024-0	9-24 9-24 9-24		
Microbiological Pal Blank (B4I3868-BL Coliforms, Total (Q-Tr Blank (B4I3868-BL Coliforms, Fecal (Q-T Blank (B4I3868-BL Coliforms, Total (Q-Tr	rameters, Batch B4l386 .K1) ray) .K2) ray) .K3) ray)	<1	1 MPN/100	Prepared mL Prepared mL Prepared mL Prepared	l: 2024-09-2 l: 2024-09-2 l: 2024-09-2	94 24, Analyze 24, Analyze 24, Analyze	80-120 d: 2024-0 d: 2024-0 d: 2024-0	9-24 9-24 9-24		
Microbiological Pal Blank (B4I3868-BL Coliforms, Total (Q-Tr Blank (B4I3868-BL Coliforms, Fecal (Q-T Blank (B4I3868-BL Coliforms, Total (Q-Tr Blank (B4I3868-BL	rameters, Batch B4I386 .K1) ray) .K2) ray) .K3) ray) .K4)	<1 <1 <1	1 MPN/100 1 MPN/100 1 MPN/100	Prepared mL Prepared mL Prepared mL Prepared mL Prepared	l: 2024-09-2 l: 2024-09-2 l: 2024-09-2	94 24, Analyze 24, Analyze 24, Analyze	80-120 d: 2024-0 d: 2024-0 d: 2024-0 d: 2024-0	9-24 9-24 9-24		
Microbiological Pal Blank (B4I3868-BL Coliforms, Total (Q-Tr Blank (B4I3868-BL Coliforms, Fecal (Q-T Blank (B4I3868-BL Coliforms, Total (Q-Tr Blank (B4I3868-BL Coliforms, Fecal (Q-T	rameters, Batch B4l386 .K1) ray) .K2) ray) .K3) ray) .K4) ray)	<1 <1 <1	1 MPN/100 1 MPN/100 1 MPN/100	Prepared mL Prepared mL Prepared mL Prepared mL Prepared mL Prepared	I: 2024-09-2 I: 2024-09-2 I: 2024-09-2 I: 2024-09-2	94 24, Analyze 24, Analyze 24, Analyze	80-120 d: 2024-0 d: 2024-0 d: 2024-0 d: 2024-0	9-24 9-24 9-24		
Microbiological Pal Blank (B4I3868-BL Coliforms, Total (Q-Tr Blank (B4I3868-BL Coliforms, Fecal (Q-T Blank (B4I3868-BL Coliforms, Total (Q-Tr Blank (B4I3868-BL Coliforms, Fecal (Q-T Blank (B4I3868-BL	rameters, Batch B4I386 .K1) ray) .K2) ray) .K3) ray) .K4) ray) .K5)	<1 <1 <1 <1 <1 <1	1 MPN/100 1 MPN/100 1 MPN/100	Prepared mL Prepared mL Prepared mL Prepared mL Prepared mL Prepared mL	I: 2024-09-2 I: 2024-09-2 I: 2024-09-2 I: 2024-09-2	94 24, Analyze 24, Analyze 24, Analyze 24, Analyze 24, Analyze	80-120 d: 2024-0 d: 2024-0 d: 2024-0 d: 2024-0	9-24 9-24 9-24 9-24		

QC Qualifiers:

MS2 The native sample concentration is greater than the spike concentration hence the matrix spike limits do not apply.





2024-09-23 11:20 / 17.5°C

CERTIFICATE OF ANALYSIS

REPORTED TO Lake Country, District of (Wastewater)

4062 Beaver Lake Rd

LAKE COUNTRY, BC V4V 1T5

ATTENTION Davin Larsen WORK ORDER 2412856

PO NUMBER

 PROJECT
 Raw Influent- PE14651
 REPORTED
 2024-10-01 15:08

 PROJECT INFO
 Lake Country WWTP
 COC NUMBER
 45558.39934

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



We've Got Chemistry



RECEIVED / TEMP

Ahead of the Curve



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead Account Manager M what



TEST RESULTS

Sample Qualifiers:

recommended.

HT2

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER REPORTED 2412856

ED 2024-10-01 15:08

Analyte	Result	RL	Units	Analyzed	Qualifie
Raw Influent (E233627) (24I2856-01) Mat	rix: Wastewater Sampl	ed: 2024-09-23 10:05			
Anions					
Nitrate (as N)	< 0.010	0.010	mg/L	2024-09-24	
Nitrite (as N)	< 0.010	0.010	mg/L	2024-09-24	
Calculated Parameters					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	114	2.00	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	408	1.0	mg/L	2024-09-26	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2024-09-26	
Alkalinity, Bicarbonate (as CaCO3)	408	1.0	mg/L	2024-09-26	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2024-09-26	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2024-09-26	
Ammonia, Total (as N)	78.4	0.050	mg/L	2024-09-25	
BOD, 5-day	315	2.0	mg/L	2024-10-01	
BOD, 5-day Carbonaceous	372	2.0	mg/L	2024-10-01	
Nitrogen, Total Kjeldahl	114	0.050	mg/L	2024-09-28	
pH	7.86	0.10	pH units	2024-09-26	HT2
Phosphorus, Total (as P)	14.1	0.0050	mg/L	2024-09-26	
Phosphorus, Dissolved Reactive	7.22	0.0050	mg/L	2024-09-25	
Solids, Total Suspended	332	2.0	mg/L	2024-10-01	

The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER
REPORTED

2412856

2024-10-01 15:08

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Dissolved Reactive in Water	SM 4500-P F (2021)	Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	√	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL Reporting Limit (default)

Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors

mg/L Milligrams per litre

pH units pH < 7 = acidic, ph > 7 = basic

SM Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



REPORTED TO Lake Country, District of (Wastewater)

PROJECT Raw Influent- PE14651

WORK ORDER REPORTED 24I2856 2024-10-01 15:08

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- Method Blank (Blk): A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- Blank Spike (BS): A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- Matrix Spike (MS): A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- Reference Material (SRM): A homogenous material of similar matrix to the samples, certified for the parameter(s) listed.
 Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B4l3857									
Blank (B4I3857-BLK1)			Prepared	: 2024-09-2	24, Analyze	d: 2024-	09-24		
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B4I3857-BS1)			Prepared	: 2024-09-2	24, Analyze	d: 2024-0	09-24		
Nitrate (as N)	3.81	0.010 mg/L	4.00		95	90-110			
Nitrite (as N)	2.14	0.010 mg/L	2.00		107	85-115			
General Parameters, Batch B4l3925									
Blank (B4l3925-BLK1)			Prepared	: 2024-09-2	24, Analyze	d: 2024-0	09-25		
Phosphorus, Dissolved Reactive	< 0.0050	0.0050 mg/L							
LCS (B4I3925-BS1)			Prepared	: 2024-09-2	24, Analyze	d: 2024-0	09-25		
Phosphorus, Dissolved Reactive	0.0950	0.0050 mg/L	0.100		95	84-115			
General Parameters, Batch B4I3980 Blank (B4I3980-BLK1)			Prepared	: 2024-09-2	25. Analvze	ed: 2024-	09-25		
Ammonia, Total (as N)	< 0.050	0.050 mg/L	<u>'</u>		<u>, , , , , , , , , , , , , , , , , , , </u>				
Blank (B4l3980-BLK2)		<u> </u>	Prepared	: 2024-09-2	25, Analyze	ed: 2024-0	09-25		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B4I3980-BLK3)			Prepared	: 2024-09-2	25, Analyze	d: 2024-0	09-25		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
LCS (B4I3980-BS1)			Prepared	: 2024-09-2	25, Analyze	d: 2024-	09-25		
Ammonia, Total (as N)	1.02	0.050 mg/L	1.00		102	85-115			
LCS (B4I3980-BS2)			Prepared	: 2024-09-2	25, Analyze	d: 2024-	09-25		
Ammonia, Total (as N)	1.02	0.050 mg/L	1.00		102	85-115			
LCS (B4I3980-BS3)			Prepared	: 2024-09-2	25, Analyze	d: 2024-	09-25		
Ammonia, Total (as N)	1.02	0.050 mg/L	1.00		102	85-115			



	ike Country, Dist aw Influent- PE1	•	ater)			WORK REPOR		24I2 2024	856 I-10-01	15:08
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameters, B	atch B4I4136									
Blank (B4I4136-BLK1)				Prepared	: 2024-09-26	6, Analyze	d: 2024-0	9-26		
Alkalinity, Total (as CaCO3	3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthaleir	, ,	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as		< 1.0 < 1.0	1.0 mg/L							
Alkalinity, Carbonate (as C Alkalinity, Hydroxide (as C	,	< 1.0	1.0 mg/L 1.0 mg/L							
				Droparad	. 2024 00 26	S Analyza	4. 2024 (00.26		
LCS (B4I4136-BS1)	N	02.0	4.0//	•	: 2024-09-26			19-20		
Alkalinity, Total (as CaCO3 Alkalinity, Phenolphthaleir		93.9 47.9	1.0 mg/L 1.0 mg/L	100 50.0		94 96	80-120 0-200			
· · · · · · · · · · · · · · · · · · ·	,	-			. 2024 00 26	S Analyzo		10.26		
Reference (B4I4136-SF	KIVI 1)	7.02	0.10 pH units	7.01	: 2024-09-26	100	98-102	19-20		
	otob P414127	7.02	0.10 pri units	7.01		100	90-102			
General Parameters, B Blank (B4I4137-BLK1)	alcii 6414137			Prepared	: 2024-09-26	6, Analyze	d: 2024-(9-26		
Phosphorus, Total (as P)		< 0.0050	0.0050 mg/L							
Blank (B4I4137-BLK2)				Prepared	: 2024-09-26	3 Analyze	d· 2024-0	9-26		
Phosphorus, Total (as P)		< 0.0050	0.0050 mg/L		0 00	,,, <u>, _</u>	<u></u>			
				Droparad	. 2024 00 26	Analyza.	4. 2024 (00.26		
Blank (B4l4137-BLK3) Phosphorus, Total (as P)		< 0.0050	0.0050 mg/L	Prepared	: 2024-09-26	o, Analyze	u. 2024-(19-20		
		< 0.0030	0.0030 Hig/L		0004.00.00		1 0004 0			
LCS (B4I4137-BS1)		0.100	0.0050 "		: 2024-09-26			19-26		
Phosphorus, Total (as P)		0.103	0.0050 mg/L	0.100		103	85-115			
LCS (B4I4137-BS2)				Prepared	: 2024-09-26	6, Analyze	d: 2024-0	9-26		
Phosphorus, Total (as P)		0.104	0.0050 mg/L	0.100		104	85-115			
LCS (B4I4137-BS3)				Prepared	: 2024-09-26	6, Analyze	d: 2024-0	9-26		
Phosphorus, Total (as P)		0.105	0.0050 mg/L	0.100		105	85-115			
General Parameters, B	atch B4I4200									
Blank (B4I4200-BLK1)				Prepared	: 2024-09-26	6, Analyze	d: 2024-1	0-01		
BOD, 5-day Carbonaceou	S	< 2.0	2.0 mg/L							
LCS (B4I4200-BS1)				Prepared	: 2024-09-26	6, Analyze	d: 2024-1	0-01		
BOD, 5-day Carbonaceou	S	214	61.8 mg/L	198		108	85-115			
General Parameters, B	atch B4I4201									
Blank (B4I4201-BLK1)				Prepared	: 2024-09-26	6, Analyze	d: 2024-1	0-01		
BOD, 5-day		< 2.0	2.0 mg/L			,				
LCS (B4I4201-BS1)				Prenared	: 2024-09-26	S Analyze	d: 2024-1	0-01		
BOD, 5-day		215	49.0 mg/L	198	. 202+ 00 20	109	85-115	0 01		
General Parameters, B	atch B4I4359	-	J			-				
Blank (B4I4359-BLK1)				Prepared	: 2024-09-27	7, Analyze	d: 2024-0	9-28		
Nitrogen, Total Kjeldahl		< 0.050	0.050 mg/L	•						



REPORTED TO PROJECT	Lake Country, District Raw Influent- PE1465	,				WORK ORDER REPORTED		24l2856 2024-10-01 15:0		15:08
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	s, Batch B4l4359, Contin	ued								
Blank (B4I4359-BLI	K2)			Prepared	l: 2024-09-2	7, Analyze	d: 2024-0	9-28		
Nitrogen, Total Kjeldah	nl	< 0.050	0.050 mg/L							
LCS (B4I4359-BS1)				Prepared	l: 2024-09-2	7, Analyze	d: 2024-0	9-28		
Nitrogen, Total Kjeldah	nl	0.981	0.050 mg/L	1.00		98	85-115			
LCS (B4I4359-BS2)				Prepared: 2024-09-27, Analyzed: 2024-09-28						
Nitrogen, Total Kjeldah	nl	0.977	0.050 mg/L	1.00		98	85-115			
General Parameters	s, Batch B4l4417									
Blank (B4I4417-BLI	K1)			Prepared	l: 2024-09-2	8, Analyze	d: 2024-1	10-01		
Solids, Total Suspende	ed	< 2.0	2.0 mg/L							
Reference (B4I4417-SRM1)				Prepared	l: 2024-09-2	8, Analyze	d: 2024-1	10-01		
Solids, Total Suspende	ed	432	20.0 mg/L	459		94	80-120			

Appendix C – Non-Compliance Reporting



MINISTRY OF ENVIRONMENT REGIONAL OPERATIONS BRANCH

NON-COMPLIANCE REPORTING MAILBOX NOTIFICATION TEMPLATE

To: <u>EnvironmentalCompliance@gov.bc.ca</u>

Subject: 2025-01-15 Authorization #14651 Ortho phosphorus annual average exceedance

Attention:

Non-compliance Report for Authorization # 14651 Ortho P annual average for 2024 exceedance

Date of Non-compliance: 2024

Location of Non-compliance [4062 Beaver Lake Rd 50.024865, -119.385069]:

Nature of Non-compliance: As per section 1.1.3 of the Operational Certificate #14651, the maximum annual average for Ortho Phosphorus(as P) is 0.15 mg/l. The accredited lab results for 2024 came back with an annual average of 0.32 mg/l Ortho-P(measured as P).

Causes: Since the recent upgrade in Fall of 2023, and despite better overall treatment and a more consistent effluent quality, there has been a general higher than normal Ortho-P in effluent lab results. The District of Lake Country has contracted AEcom to look into the reasons for this, and the general consensus is that with the additional nutrient loading from the Septage receiving station, the plant is unable treat this to the required standard.

Future action items: The District of Lake Country does not use chemicals in its wastewater treatment process. The common practice to use coagulants has not been adopted due to the fact the facility utilizes effluent disposal to ground and there have been concerns that these chemicals might negatively impact the subsurface disposal system. This has not been proved and could be the solution to this issue.

This should read 10x

The septage to the facility has been determined to add up to 100x the nutrient loading at times, and while there are ways to mitigate this, there are cost and contractual obligations that are prohibitive.

Current upgrades to the sludge storage aeration system we hope will prevent phosphorus from releasing during the centrifuging process and allow phosphorus to remain in the plant waste solids.

Possible use of chemicals in the future, and additional storage of high strength septage waste could be other ways to improve effluent ortho p results.

Contact information: Davin Larsen 250-869-5703 or dlarsen@lakecountry.bc.ca

Attachments: Table of accredited results for 2024

Appendix D - Groundwater Monitoring Report



Date: March 4, 2025

To: Sarah Graham, District of Lake Country
cc: Davin Larsen, AScT., District of Lake Country

From: Dr. Joanne Quarmby, R.P.Bio

File: OC 14651

Subject: Review of 2024 Groundwater Data – Centralised Plant

1. Introduction

Groundwater monitoring is required as part of the operational certificate (#14651). The monitoring requirements are outlined in Section 3.2 of the operational certificate, and are summarised in Table 1.1, below. The groundwater monitoring program is implemented by District staff, with the analyses being completed at an accredited laboratory. Conductance and pH are to be field measurements. The location of the various wells can be found in the attached figure. As per the amended operational certificate, dated October 8th, 2024, monitoring of the privately-owned well H6 is no longer required. This site is no longer accessible and the home is no longer occupied, as the property is now an industrial marijuana operation with high security.

Table 1.1: Groundwater Monitoring Program

Site	Decerinties	Monitoring	g Scope		
Site	Description	Groundwater Depth	Water Quality		
MW-2	Background (up-gradient) well	Monthly			
MW-18	Down-gradient within treatment plant boundary	Continuous	Once in the spring and fall for the following		
MW-10	Down-gradient near treatment plant boundary	Continuous			
MW-12	Down-gradient near treatment plant boundary	Continuous	parameters: sodium, chloride, conductance, ammonia, nitrate/nitrite, TKN, total		
MW-14	Down-gradient, by Lodge Road	Monthly			
H1	10050 McCarthy Road				
H2	10101A Konschuh Road	Not as suring al	nitrogen, total phosphorus,		
Н3	9989 Bottom Wood Lake Road	Not required	orthophosphorus,		
H4	10101B Konschuh Road		pH and <i>E. coli</i> .		
H5	9815 McCarthy Road				
H7	9991 McCarthy Road				

Reporting of the groundwater data is a requirement of the operational certificate. Section 4.4(b) of the operational certificate indicates that the annual report is to include a review and interpretation of the discharge and groundwater monitoring and flow data for the preceding year. This memorandum has been prepared in order to address Section 4.4(b) of the permit with respect to the groundwater data only.

Date: March 4, 2025 File: OC 14651

Subject: Review of 2024 Groundwater Data – Centralised Plant

Page: 2 of 10



2. Groundwater Levels

The District provided data relating to groundwater levels in a summarised and tabulated form.

Figure 2.1 shows the monthly groundwater levels for the 5 monitoring wells. There are no data available for MW-2 in December. This monitoring well is located at a gravel pit and the gated access is often locked in the winter months if the site is not in operation, as was the case for December 2024. As with data from previous years, the highest groundwater levels continue to be observed consistently at MW-10, located down-gradient near the plant boundary, with the lowest groundwater levels continuing to be observed at MW-18 (down-gradient within the plant boundary) and MW-12 (down-gradient outside of the plant boundary, just beyond MW10). There was no trend of decreasing groundwater levels with an increasing distance from the infiltration facilities. Slight variations in the groundwater levels were observed in all wells through the year, with the greatest variations being observed in MW-14, located furthest away from the wastewater treatment plant. As with data from previous years, there was a decrease in the water level for MW-14 during the summer months, with the lowest level being measured in August. All data points indicated that the distance to the groundwater level was over 0.5 m from the ground surface. This depth is not a requirement of the operational certificate but is taken from the Municipal Wastewater Regulation for a minimum unsaturated soil depth for a Class A or B effluent.

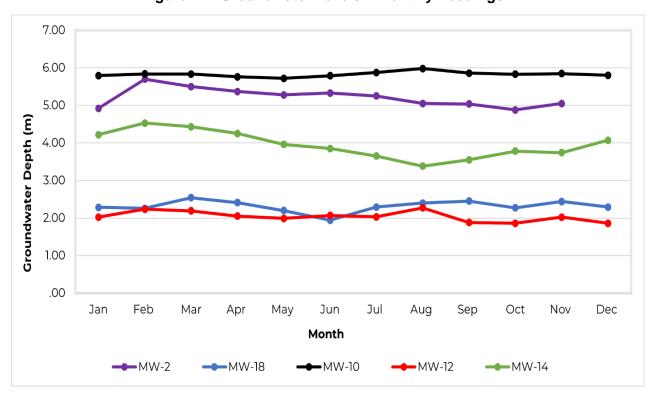


Figure 2.1: Groundwater Levels - Monthly Readings

Date: March 4, 2025 File: OC 14651

Subject: Review of 2024 Groundwater Data – Centralised Plant

Page: 3 of 10



Figure 2.2. shows the water level data from the data loggers in MW-18, MW-10 and MW-12. As with the monthly data, the information from the data loggers indicate that the highest groundwater levels were observed consistently at MW-10, with similarity in the groundwater levels for MW-18 and MW-12. There is also a similarity in the trends throughout the year for all wells when compared with the monthly data. All data points indicated that the distance to the groundwater level was over 0.5 m from the ground surface. This depth is not a requirement of the operational certificate but is taken from the Municipal Wastewater Regulation for a minimum unsaturated soil depth for a Class A or B effluent.

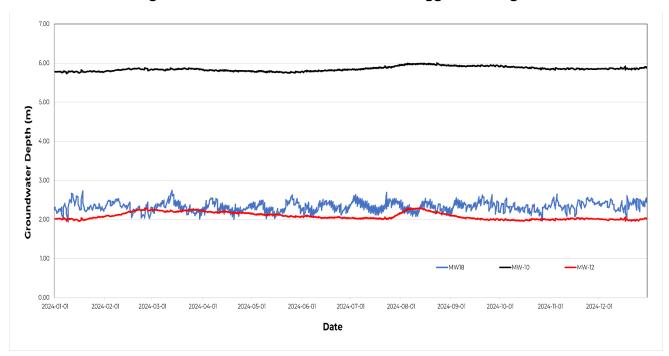


Figure 2.2: Groundwater Levels - Data Logger Readings

3. Groundwater quality

3.1 District-owned Wells

The District provided the original laboratory reports for review and interpretation. The concentration of organic nitrogen was calculated using the Total Kjeldahl Nitrogen (TKN) and ammonia data, with half the detection limit being used where the data were reported to be below the analytical detection limit. The spring samples were taken on April 23rd and the fall samples were taken on October 3rd.

Table 3.1 summarises the spring data. Should an influence be observed from the effluent release, the expectation is that the lowest concentrations should be associated with the background well MW-2 and that the highest concentrations should be observed at MW-18 or MW-10, decreasing at MW-14 as a result of assimilation, rejuvenation and dilution as the effluent moves through the ground. Parameters which could be used to indicate the presence of effluent from the wastewater plant could include total nitrogen, nitrate, orthophosphorus, sodium, chloride, conductivity and *E. coli*. However, nitrate could be influenced from

Date: March 4, 2025 File: OC 14651

Subject: Review of 2024 Groundwater Data – Centralised Plant

Page: 4 of 10



agricultural inputs, phosphorus can bind readily to soils, *E. coli* could be removed/die-off as the effluent passes through the soils, and sodium, chloride and conductivity could be present as a result of other inputs, such as road maintenance activities. The data indicate that the highest concentrations tended to be associated with MW-18, although this is not always the case, with total nitrogen and nitrate being higher in MW-10, and ammonia and conductivity being higher at MW-14, the furthest down-gradient well. The lowest concentrations tended to be associated with MW-2, with the exception of total nitrogen and nitrate, which were lower in MW-14. The concentrations of nitrite and *E. coli* were below the analytical detection limit regardless of location, with ammonia being below the analytical detection limit in all wells except MW-14.

Focusing on nitrate as the possible best tracer for the presence of effluent from the District's discharge, the concentrations at MW-18, MW-10 and MW-12 were higher than that in the background well MW-2, with the highest concentration being in MW-10. The concentration decreased at MW-14, with the reported concentration being below the analytical detection limit. This general trend is relatively consistent with data from previous years.

Table 3.1: Summary of Spring Data

Damamatan	l luite	Location							
Parameter	Units	MW-2	MW-18	MW-10	MW-12	MW-14			
Total Nitrogen	mg/L	1.08	2.60	2.68	2.10	0.186			
TKN	mg/L	< 0.050	0.406	0.167	0.199	0.186			
Organic Nitrogen	mg/L	< 0.050	0.381	0.142	0.174	0.085			
Ammonia	mg/L	< 0.050	< 0.050	< 0.050	< 0.050	0.101			
Nitrate	mg/L	1.08	2.19	2.51	1.90	< 0.010			
Nitrite	mg/L	< 0.010	< 0.010	<0.010	< 0.010	< 0.100			
Total Phosphorus	mg/L	0.0071	0.0869	0.0261	0.0450	0.0778			
Orthophosphorus	mg/L	< 0.0050	0.0650	0.0170	0.0200	0.0330			
Sodium	mg/L	17.1	94.0	72.7	83.7	64.4			
Chloride	mg/L	8.57	126	112	120	101			
Conductivity	μS/cm	450	895	865	878	955			
рН	pH units	7.79	7.66	7.72	7.70	7.75			
E. coli	MPN/100 mL	< 1	< 1	< 1	< 1	< 1			

Table 3.2 summarises the fall data. As with the spring data, it is reasonable to assume that an influence from the effluent release should translate to the lowest concentrations being associated with the background well MW-2, and the highest concentrations being associated with the closest down-gradient wells (MW-18 and/or MW-10), then decreasing at MW-14 as a result of assimilation, rejuvenation and

Date: March 4, 2025 File: OC 14651

Subject: Review of 2024 Groundwater Data – Centralised Plant

Page: 5 of 10



dilution as the effluent moves through the ground. As with the spring data, the highest concentrations tended to be associated with MW-18, with the highest concentrations for nitrate and nitrite being associated with MW-12. There were no occasions where the highest concentrations were associated with MW-10. As with the spring data, ammonia and conductivity were the highest at MW-14. The lowest concentrations continued to be associated with MW-2, again with the exception of total nitrogen and nitrate, which were lower in MW-14. Nitrite was below the analytical detection limit for all monitoring wells apart from MW-12, and *E. coli* was below the analytical detection limit for all monitoring wells apart MW-14, where the concentration was just above the analytical detection limit.

Given the same assumptions for the parameters of most interest, focusing on nitrate, the concentration continued to be elevated above the background well at MW-18, MW-10 and MW-12, with the highest concentration being at MW-12. The higher concentrations at these three wells is consistent with observations from previous years. As with the spring data, the concentration decreased at MW-14 and was below the analytical detection limit. This general trend is relatively consistent with data from previous years.

Table 3.2: Summary of Fall Data

Damamatan	Huita	Location							
Parameter	Units	MW-2	MW-18	MW-10	MW-12	MW-14			
Total Nitrogen	mg/L	1.15	3.35	2.77	3.27	0.255			
TKN	mg/L	< 0.050	0.389	0.198	0.262	0.255			
Organic Nitrogen	mg/L	< 0.050	0.317	0.173	0.237	0.147			
Ammonia	mg/L	< 0.050	0.072	< 0.050	< 0.050	0.108			
Nitrate	mg/L	1.15	2.96	2.57	3.00	< 0.010			
Nitrite	mg/L	< 0.010	< 0.010	< 0.010	0.014	< 0.010			
Total Phosphorus	mg/L	0.0121	0.179	0.0310	0.0400	0.0950			
Orthophosphorus	mg/L	< 0.0050	0.0890	0.0170	0.0200	0.0180			
Sodium	mg/L	16.3	90.8	71.5	86.2	72.7			
Chloride	mg/L	9.33	138	116	138	137			
Conductivity	μS/cm	462	938	924	955	1,170			
рН	pH units	8.01	7.87	7.94	7.94	7.86			
E. coli	MPN/100 mL	< 1	< 1	< 1	< 1	2			

The water quality was compared with the BC Water Quality Guidelines, focusing on groundwater uses for the most stringent of either potable or agricultural purposes, given the distance from surface water. The parameters where guidelines exist and are also of possible interest with respect to the District's effluent and public health or environmental impacts are: nitrate, chloride, conductivity, pH and *E. coli*. The outcomes

Date: March 4, 2025 File: OC 14651

Subject: Review of 2024 Groundwater Data – Centralised Plant

Page: 6 of 10



are summarised in Table 3.3, with green indicating concentrations below the guideline and red indicating that at least 1 data point was above the guideline. The guideline for conductivity for irrigation is crop dependent and varies depending on the crop tolerance. The guideline ranges from $700 \,\mu\text{S/cm}$ for the most sensitive crops to $5,000 \,\mu\text{S/cm}$ for least sensitive crops. For the purpose of this assessment, a moderately tolerant crop was selected, as this type of crop also includes grasses which are expected to be a common vegetation for the general area. For *E. coli*, there were several guidelines which range from absence up to $\leq 1,000 \, \text{CFU/100} \, \text{mL}$ (general irrigation). Selection of the most stringent guideline may not be the best representative of water quality, given that it does not allow for any *E. coli* to be present and assumes that there is no disinfection of what is expected to be untreated water.

Table 3.3: Guideline Comparison

Parameter	Linite Cuideline		Location						
	Units	Guideline	MW-2	MW-18	MW-10	MW-12	MW-14		
Nitrate	mg/L	≤ 10 (drinking water)							
Chloride	mg/L	100 (irrigation)							
Conductivity	μS/cm	2,200 (irrigation)							
рН	pH units	5.0 to 9.5 (irrigation)							
E. coli	MPN/100 mL	0 (livestock in closely confined conditions with no water treatment)							

As with data from previous years, there are data for chloride that were higher than the most stringent guideline. Chloride concentrations were generally slightly higher than 100 mg/L at all down-gradient wells in both the spring and the fall, with the concentration in MW-14 being just above 100 mg/L in the spring. The higher chloride concentrations at the down-gradient wells compared with MW-2 could be reflective of the influence from the effluent, given that the chloride concentration in the effluent ranged from 115 mg/L to 152 mg/L in 2024. However, it is reasonable to expect that significant dilution would be achieved by the time the effluent reaches MW-14, with the resulting chloride concentration at MW-14 being much reduced compared with the effluent. As this is not observed consistently with the chloride data, the potential influence from other anthropogenic sources of chloride (and possibly other parameters) on MW-14 should be considered.

There was one other parameter where the concentration was above the guideline. This was *E. coli* for MW-14, with the concentration in the fall being 2 MPN/100 mL. As the concentration was low and has not been observed in previous recent samples collected from MW-14, it is possible that the result was due to sample contamination and not necessarily representative of the monitoring well water. In addition, the guideline used for this determination is the most stringent and likely not representative of conditions which are relevant to this monitoring well.

Date: March 4, 2025 File: OC 14651

Subject: Review of 2024 Groundwater Data – Centralised Plant

Page: 7 of 10



3.2 Privately-owned wells

The District provided the original laboratory reports for review and interpretation. The concentration of organic nitrogen was calculated using the TKN and ammonia data, with half the detection limit being used where the data were reported to be below the analytical detection limit. The spring samples were taken on April 17th and the fall samples were taken on October 17th. The samples for H7 were taken by the homeowner, as there is no outside tap. There is no guarantee that the approach used for sampling H7 meets the standards that are used by trained District staff.

Tables 3.4 and 3.5 summarise the spring and fall data, respectively, and include the data from MW-2 as a potential indication of background water quality. To summarise:

- For both the spring and the fall data, focusing on the privately-owned wells only, the lowest concentration was most commonly observed to occur at H1. This was also observed for the data from 2021 through to 2023. However, the highest data for ammonia, pH and both phosphorus parameters were associated with H1 in both the spring and the fall. This is also consistent with data from previous years.
- For both the spring and the fall data, the concentrations at all other house wells were generally higher than MW-2. Focusing on key parameters which can be used to track the movement of the District's effluent, the concentration of nitrate was generally elevated above the background well in H2, H3, H5 and H7 in both the spring and the fall. Sodium, chloride and conductivity were the elevated in H2, H4, H5 and H7 in the spring and the fall. For these parameters, the highest concentrations were observed in H4 with the exception of conductivity in the spring, where the highest concentrations were associated with H5. H4 is the furthest well from the wastewater treatment plant, with H5 being one of the most closely located to the wastewater treatment plant.
- There were no occasions when *E. coli* was found to be present in any of the samples, regardless of location of distance from the wastewater treatment plant.

Location **Parameter** Units **MW-2 H1** H2 **H3 H4 H5 H7** Total Nitrogen mg/L 1.08 0.404 3.64 4.38 1.79 3.76 4.26 TKN mg/L < 0.050 0.404 0.131 0.241 0.231 0.181 0.185 Organic Nitrogen mg/L < 0.050 0.098 0.106 0.216 0.206 0.156 0.160 Ammonia mg/L < 0.050 0.306 < 0.050 < 0.050 < 0.050 < 0.050 < 0.050 1.55 4.07 Nitrate mg/L 1.08 < 0.01 3.51 4.14 3.58 Nitrite mg/L < 0.010 < 0.010 < 0.010 < 0.010 < 0.010 < 0.010 < 0.010 **Total Phosphorus** mg/L 0.0071 0.246 0.0096 0.0083 < 0.0050 0.0092 0.0120

Table 3.4: Summary of Spring Data

Date: March 4, 2025 File: OC 14651

Subject: Review of 2024 Groundwater Data – Centralised Plant

Page: 8 of 10



Table 3.4: Summary of Spring Data (continued)

Parameter	Unito	Location							
	Units	MW-2	H1	H2	Н3	H4	Н5	H7	
Orthophosphorus	mg/L	< 0.0050	0.206	0.0090	0.0080	<0.0050	0.0080	0.0110	
Sodium	mg/L	17.1	7.96	56.5	20.2	71.8	71.0	54.4	
Chloride	mg/L	8.57	0.71	75.2	41.1	97.5	94.9	70.4	
Conductivity	μS/cm	450	270	751	433	841	844	746	
рН	pH units	7.79	8.16	7.07	7.36	7.73	7.57	7.50	
E. coli	MPN/100 mL	< 1	< 1	< 1	< 1	< 1	< 1	< 1	

Table 3.5: Summary of Fall Data

Parameter	Heito				Location			
Parameter	Units	MW-2	H1	H2	Н3	H4	Н5	H7
Total Nitrogen	mg/L	1.15	0.318	4.38	4.15	1.40	3.67	4.87
TKN	mg/L	< 0.050	0.291	0.104	0.257	0.127	0.202	0.227
Organic Nitrogen	mg/L	< 0.050	0.076	0.079	0.232	0.102	0.177	0.202
Ammonia	mg/L	< 0.050	0.215	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nitrate	mg/L	1.15	0.027	4.27	3.90	1.27	3.47	4.65
Nitrite	mg/L	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Phosphorus	mg/L	0.0121	0.228	0.0160	0.0138	0.0068	0.0143	0.0154
Orthophosphorus	mg/L	< 0.0050	0.227	0.0100	0.0080	< 0.0050	0.0080	0.0100
Sodium	mg/L	16.3	8.16	58.2	19.9	77.2	71.2	54.6
Chloride	mg/L	9.33	0.47	80.4	38.1	110	105	85.7
Conductivity	μS/cm	462	288	783	414	898	892	783
рН	pH units	8.01	7.97	7.69	7.59	7.96	7.81	7.86
E. coli	MPN/100 mL	< 1	< 1	< 1	< 1	< 1	< 1	< 1

The water quality was compared with the BC Water Quality Guidelines, focusing on groundwater uses for the most stringent of either potable or agricultural purposes, given the assumption that any water from these wells would be used to support potable and/or agricultural activities on the property. As in Section 3.1, the outcomes are summarised (Table 3.6), with green indicating concentrations below the guideline and red indicating that at least 1 data point was above the guideline. The guideline comparison is for the following parameters: nitrate, chloride, conductivity and pH, with the guideline for conductivity being based on a

Date: March 4, 2025 File: OC 14651

Subject: Review of 2024 Groundwater Data – Centralised Plant

Page: 9 of 10



moderately tolerant crop. Chloride was above the guideline at H4 and H5 but only for the fall monitoring event. Chloride concentrations above the guideline have been consistent for H4 since the beginning of the dataset in 2021. The chloride concentrations for H5 were observed to be above the guideline in 2022 and 2023 but not 2021. All other parameters were below the corresponding guidelines.

Location Parameter Units Guideline **H1** H2 **H3 H4 H5 H7** Nitrate ≤ 10 (drinking water) mg/L Chloride mg/L 100 (irrigation) Conductivity μS/cm 2,200 (irrigation) рΗ pH units 5.0 to 9.5 (irrigation) E. coli MPN/100 mL 0 (livestock in closely confined conditions with no water treatment)

Table 3.6: Guideline Comparison

With respect to the potential for impacts as a result of the release, it is reasonable to assume that the well most likely to be impacted would be H5, as this is the closest well to the disposal area. However, the highest concentrations were typically associated with wells located further away. Given the limited information on well depth, construction, maintenance and other activities in the near vicinity (such as septic fields, livestock raising, fertilizer addition, manure stockpiles, etc.) it will continue to be challenging to clearly define if any water quality characteristics are directly related to the release from the District's wastewater treatment plant.

4. Conclusions and recommendations

From the information which was reviewed and evaluated, the following conclusions are drawn:

- All data points indicated that the distance to the groundwater level was over 0.5 m from the ground surface. This depth is not a requirement of the operational certificate but is taken from the Municipal Wastewater Regulation for a minimum unsaturated soil depth for a Class A or B effluent.
- For the District-owned monitoring wells, the highest concentrations tended to be associated with the three wells located within or close to the wastewater plant boundary. Focusing on nitrate as the best tracer for the District's effluent, the classic trend of the higher concentrations being closer to the point of discharge was observed in both the spring and the fall. With respect to BC Water Quality Guidelines for either potable or agricultural uses, chloride was above the most stringent guideline on at least 1 occasion for each of the down-gradient wells. It is not known whether the increase above the guideline was related to the effluent release or other factors, given that the proximity to roads and agricultural areas and the lack of decrease in concentration at MW-14. E. coli was above the most stringent

Date: March 4, 2025 File: OC 14651

Subject: Review of 2024 Groundwater Data – Centralised Plant

Page: 10 of 10



guideline at MW-14 in the fall. This is considered to be an anomaly, given the lack of presence of *E. coli* with previous data and the very low concentration recorded.

- For the privately-owned monitoring wells, there was no clear relationship between concentration and distance from the wastewater treatment plant. With respect to BC Water Quality Guidelines for either potable or agricultural uses, chloride concentrations at H4 and H5 continue to be above the guideline. Given the limited information on well depth, construction, maintenance and other activities in the near vicinity (such as septic field, livestock raising, fertilizer addition, manure stockpiles, etc.) it will continue to be challenging to clearly define if any water quality characteristics are directly related to the release from the District's wastewater treatment plant.
- Generally, there is consistency between the outcomes of the 2024 data and the data from 2021 through to 2023.

The following recommendations are made:

 Water quality samples from all locations should be taken on the same date, or within a day or two of each other, where possible.

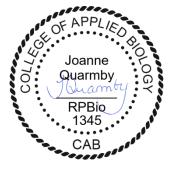
5. Closure

Groundwater monitoring is required as part of the operational certificate and the data are to be reported annually with interpretation, as indicated in Section 4.4 of the operational certificate. The information presented in this technical memorandum aims to fulfil the requirement of Section 4.4(b) of the operational certificate.

Please do not hesitate to contact us if there are any questions or if clarification is required.

Sincerely,

QUARMBY ENVIRONMENTAL LTD.



Dr. Joanne Quarmby, R.P.Bio. Water and Wastewater Specialist





District of Lake Country OC Amendment

Monitoring Wells

House Well



Monitoring Well

The accuracy & completeness of information shown on this drawing is not guaranteed. It will be the responsibility of the user of the information shown on this drawing to locate & establish the precise location of all existing information whether shown or not.



Scale:

Coordinate System: NAD 1983 UTM Zone 11N

1:9,500

Data Sources:

- Imagery provided by ESRI. - Parcels provided by DataBC.

1577.0103.01 Project #: CR Author:

Checked: Status:

2021 / 6 / 3

URBAN systems

Appendix E – Monitoring Wells Locations





District of Lake Country OC Amendment

Monitoring Wells

House Well



Monitoring Well

The accuracy & completeness of information shown on this drawing is not guaranteed. It will be the responsibility of the user of the information shown on this drawing to locate & establish the precise location of all existing information whether shown or not.



Scale:

Coordinate System: NAD 1983 UTM Zone 11N

1:9,500

Data Sources:

- Imagery provided by ESRI. - Parcels provided by DataBC.

1577.0103.01 Project #: CR Author:

Checked: Status:

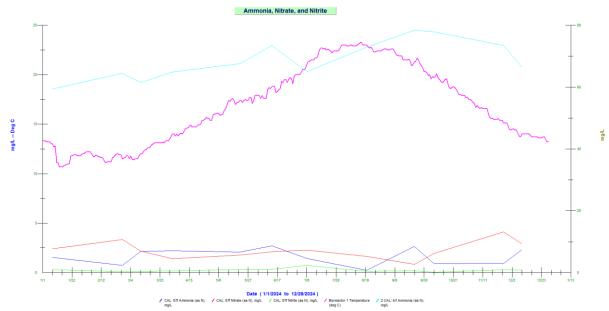
2021 / 6 / 3

URBAN systems

Appendix F – Plant Performance Trends

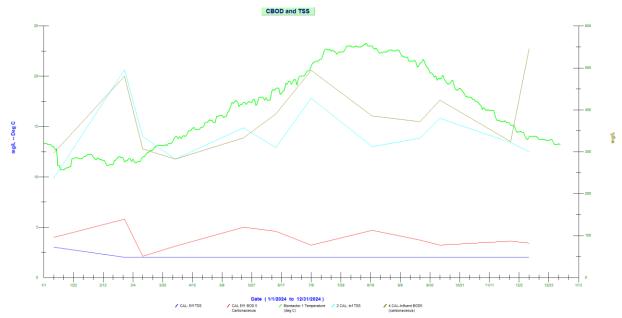
Plant Performance Trends

1.1 Ammonia, Nitrate, and Nitrite



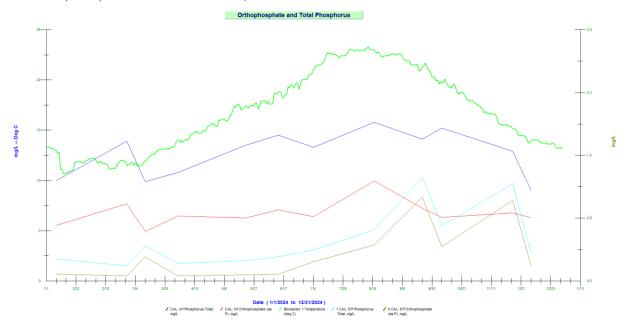
Influent ammonia levels remain relatively consistent throughout the year, peaking during the summer months. Effluent concentrations of ammonia, nitrate, and nitrite show stability throughout the year, with a slight increase in nitrate levels observed towards the end of the year. Notably, despite this slight increase, the total nitrogen concentration remains below the permitted level, indicating effective regulatory compliance.

1.2 CBOD and TSS



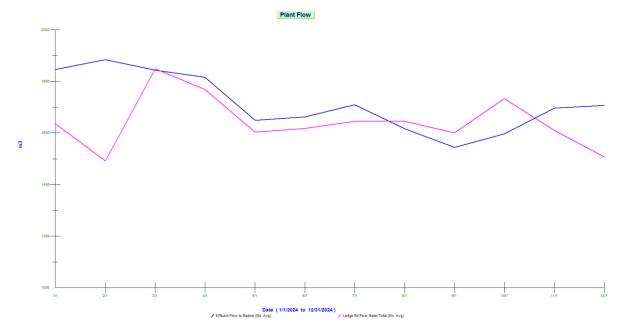
Both CBOD and TSS influent and effluent concentrations remained consistent throughout the year. The low influent TSS and CBOD can be partially attributed to the new disc filters installed in 2023, among other factors.

1.3 Orthophosphate and Total Phosphorus



Effluent orthophosphate and total phosphorus increased in the latter part of the year, which may be attributed to higher septage loads during the summer months. This is suspected to be a significant contributor to nutrient loading at the plant, as mentioned in the main report.

1.4 Plant Flow



Plant flow remains relatively consistent throughout the year.